



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Chemistry-I (Organic)

PAPER: 1 Part – II (Old & New Course)

TIME ALLOWED: 2 Hrs. & 30 min.

MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

Q. No. 2 Explain briefly: (5x4=20)

a) free radicals b) Carbocations c) Carbanions d) Carbenes

Q. No. 3 a) What do you mean by racemic mixture? Why it is optically inactive? Explain the methods for resolution of racemic mixture. 10

b) Explain Conformational Isomerism with examples. 10

Q. No. 4 a) What is steric hindrance? Explain with examples. 10

b) Write note on Inductive Effect. 10

Q. No. 5 Write a note on the following reactions in benzene: 20

a) Friedel-Crafts Alkylation b) Friedel-Crafts Acylation c) Halogenation

Q. No. 6 Give the mechanism and the reaction conditions of the followings: (10x2=20)

a) Hofmann Rearrangement

b) Wittig Rearrangement

Q. No. 7 Describe methods of preparations, chemical reactions and pharmaceutical applications of Quinoline and Pyridine. 20



# UNIVERSITY OF THE PUNJAB

Roll No. ....

First Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmaceutical Chemistry-I (Organic)**  
**PAPER: 1 Part – I (Compulsory) (Old & New Course)**

**TIME ALLOWED: 30 min.**  
**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q. No. 1 Multiple Choice Questions

20

- IUPAC name of Pyrrole is  
a. Diazine b. Azine c. Azolidine d. Azole
- Which of the following has least resonance energy?  
a. Benzene b. Thiophene c. Pyrrole d. Furan
- Amongst the following most basic compound is  
a. Aniline b. Piperidine c. Pyridine d. Pyrrole
- In isoquinoline the nucleophilic substitution occurs, readily at  
a. 1-position b. 3-position c. 4-position d. 5-position
- For the preparation of Grignard reagent the essential condition is that  
a. All reactants are pure b. All reactants are dry c. Reactants do not contain any alcohol d. All of these
- Which of the following can act as a dienophile in Diels-Alder reaction?  
a. Cinnamic acid b. *p*-Benzoquinone c. Benzophenone d. Acetophenone
- Reaction of acetic acid with  $\text{LiAlH}_4$  gives  
a. Ethyl alcohol b. Ethane c. Ethanal d. Ethyl acetoacetate
- Cannizzaro reaction involves migration of which species  
a. Proton b. Carbene c. Hydride ion d. Carbanion
- The reactions of carbonyl group are  
a. Free radical addition b. Electrophilic addition c. Nucleophilic addition  
d. Nucleophilic substitution
- The optical isomers with equal but opposite angles of rotation are called  
a. Anomers b. Conformers c. Epimers d. Enantiomers
- Heterolysis of a 'C—C' covalent bond forms?  
a. Free radicals b. Carbocations only c. Carbanions only d. Both Carbanions and Carbocations
- Identify an electrophile  
a.  $\text{SO}_2$  b.  $\text{SO}_3$  c.  $\text{NF}_3$  d.  $\text{H}_3\text{O}^+$
- A reaction intermediate having only six electrons in the outer orbit of carbon but no charge on it, is known as  
a. Carbene b. Carbocation c. Carbanion d. Free radical

**PTO**

14. Which of the following reactions are not shown by benzaldehyde?  
a. Benzoin condensation b. Perkin reaction c. Cannizzaro reaction  
d. Beckmann rearrangement
15. Which conformation has lowest potential energy?  
a. Eclipsed b. Staggered c. Skew d. All have same energy
16. Molecules that are not superimposable on their mirror images are  
a. Asymmetric b. Symmetric c. Achiral d. Non-planar
17. Which type of isomerism is exhibited by maleic fumaric acids?  
a. Optical isomerism b. Geometrical isomerism c. Conformational isomerism  
d. Functional isomerism
18. By metal hydride reduction ketones are converted to  
a. Primary alcohols b. Tertiary alcohols c. Secondary alcohols d. None of the above
19. Vitamin B6 (pyridoxal) has the basic ring structure of  
a. Piperidine b. Pyrrole c. Pyridine d. Pyrrolidine
20. Quinoline undergoes electrophilic substitution reactions at position  
a. 2-position b. 3- and 5-positions c. 3-position d. 8- and 5-positions



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

**Subject: Pharmaceutical Chemistry-II (Biochemistry) (New Course)**

**Pharmaceutical Biochemistry (Old Course)**

**TIME ALLOWED: 2 Hrs. & 30 min.**

**MAX. MARKS: 80**

**PAPER: 2 Part – II**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt any 4 questions. Each question carry equal marks.**

Q No 2 (20)

Write the introduction, chemistry, physiological functions, regulations and disorders of T<sub>3</sub> and T<sub>4</sub> hormone.

Q No 3 (20)

Write the introduction, chemistry, physiological functions, regulations and disorders of insulin.

Q No 4 (15+5)

- Write down the process of DNA replication
- Enlist the five differences between DNA and RNA

Q No 5 (20)

Classify proteins. Write down about enzyme Kinetics. How inhibitors and activators affect enzyme kinetic.

Q No 6 (20)

Describe the fate of pyruvic acid

Q No 7 (20)

Write a note on vitamin A



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Chemistry-II (Biochemistry) (New Course)  
Pharmaceutical Biochemistry (Old Course)

TIME ALLOWED: 30 min.  
MAX. MARKS: 20

PAPER: 2 Part – I (Compulsory)

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q No 1

- I. Chemically hormones fall into
  - a. 2 categories
  - b. 3 categories
  - c. 4 categories
  - d. 5 categories
- II. Hyperthyroidism called as
  - a. Thyrotoxicosis
  - b. Grave's disease
  - c. Both a and b
  - d. None of above
- III. Thyroid hormones are
  - a. T<sub>3</sub>
  - b. T<sub>4</sub>
  - c. Both a and b
  - d. None of above
- IV. The extreme doses of thyroid hormone can
  - a. Weaken the muscle
  - b. Strengthen the muscle
  - c. Both a and b
  - d. None of above
- V. The normal dietary iodine is
  - a. 150mg
  - b. 160mg
  - c. 170mg
  - d. 180mg
- VI. What are primers?
  - a. Primers are the short sequences at the end of the nucleotide sequences which are used for amplification
  - b. Primers are the short sequences which are complementary to the nucleotides at the end of the sequence which is to be amplified
  - c. Primers are the short sequences present anywhere in the nucleotide sequence to be amplified
  - d. Primers are the short sequences which are complementary to the nucleotides anywhere in the sequence to be amplified
- VII. The term 'endonuclease' refers to cutting the DNA sequence from:
  - a. only within the polynucleotide chain, not at the ends
  - b. the ends of the chain
  - c. anywhere in the chain
  - d. exactly in the middle of the chain
- VIII. A sequence is having two ends, 5' and 3'. Which of the following statements is correct regarding the nature of the ends?
  - a. The 5' end is having hydroxyl group
  - b. The 5' end is having phosphate group
  - c. The 3' end is having phosphate group
  - d. Any group can be present at any end

PTO

- IX.  $\Delta G^\circ$  is defined as the
- Residual energy present in the reactants at equilibrium
  - Residual energy present in the products at equilibrium
  - Difference in the residual energy of reactants and products at equilibrium
  - Energy required in converting one mole of reactants to one mole of products
- X. The study of energy relationships and conversions in biological systems is called as
- Biophysics
  - Biotechnology
  - Bioenergetics
- XI. Following are the types of Reversible Inhibitors:-
- Competitive
  - Non Competitive
  - Un Competitive
  - All of the Above
- XII. Non Competitive Inhibitors depend on:-
- Affinity for enzyme
  - Concentration of Substrate
  - Consontration of enzyme
  - Structural Resemblance
- XIII. Which of the following is correct for simple lipids?
- Esters of alcohols and fatty acids
  - Esters of sphingosine and fatty acids
  - Esters of alcohol and fatty acid-phosphoric acid
  - Esters of alcohol and fatty acid-ethanolamine
- XIV. Which of the following isomerism is found in unsaturated fatty acids?
- Functional group isomers
  - Stereoisomers
  - Isosteres
  - Geometric isomers
- XV. In plants, fatty acids are synthesized by which of the following pathway?
- Acetate pathway
  - Acetate-malonate pathway*
  - Shikimic acid *pathways*
  - Acetate-mevalonate pathway*
- XVI. Which of the following is not correct for cholesterol?
- Synthesized from acetyl Co-A
  - Synthesized in animals
  - Synthesized in plants
  - Amphipathic in nature
- XVII. Porphyrins holds metal ions
- Mg & Zn
  - Fe & Ni
  - Both a & b
  - None of above
- XVIII. Heme present in hemoglobin which is a carrier of
- Oxygen molecule in blood
  - Nitrogen molecules
  - Both a & b
  - None of above
- XIX. chlorophyll responsible of green pigment
- $Mg^{2+}$  as its central atom
  - $Ag$  as central atom
  - Both a & b
  - None of above
- XX. Oxidative product of vitamin A is known as
- Retinaldehyde or retinal
  - Retinoic acid
  - Carboxylic acid
  - None of above



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-I (Physical Pharmacy)

PAPER: 3 Part – II (Old & New Course)

TIME ALLOWED: 2 Hrs. & 30 min.

MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

- Q.2. a). Define physical Pharmacy. Describe the role of Muslim Scientists in the field of Pharmacy. (10)
- b). Differentiate between crystal and amorphous compounds. What are seven crystal systems? (10)
- Q.3. a). Define buffers, how they are important? Discuss the derivation of buffer equation for weak acid and its salt. (10)
- b). Define & explain the Newton's law of flow with help of diagram and equation. (10)
- Q.4. . Define Distillation. Write theory, process and application of steam distillation (20)
- Q.5. a). Define Suspension and Emulsions. Enlist various types of Emulsion. (08)
- b). What is creaming and cracking. (06)
- c). Explain electrical properties of colloids. (06)
- Q.6. a). Define & classify the drug stability. What is its importance in Pharmacy (08)
- b). Define the drug degradation. Discuss in detail Physical degradation & its preventive measures. (12)
- Q.7. Write short notes on the following: (5 each)
- a). Community Pharmacy
- b). Thixotropy
- c). Particle size determination
- d). Sublimation



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-I (Physical Pharmacy)

TIME ALLOWED: 30 min.

**PAPER: 3 Part – I (Compulsory) (Old & New Course)**

MAX. MARKS: 20

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q.1. Select the most appropriate answer.

- i) Pharmaceutics is the discipline of pharmacy that is concerned with
  - a) Synthesis of drugs
  - b) Analysis of drugs
  - c) Conversion of drug into medicine
  - d) Effective use of medicine
- ii) Followings are included in official compendia list EXCEPT
  - a) BNF
  - b) Remington pharmaceutical sciences
  - c) British pharmacopoeia
  - d) United states pharmacopoeia
- iii) In order to make solution of a crystalline substance its enthalpy should be
  - a) Reduced
  - b) Increased
  - c) Constant
  - d) Less than amorphous
- iv) Percolation is more efficient process of drug extraction than maceration as it involves
  - a) More time of contact of solvent
  - b) Faster passage of solvent through the bed of drug
  - c) Fresh solvent is passed every time
  - d) More polarity of solvent system
- v) The relationship between amount of gas adsorbed and partial pressure is termed
  - a) Adsorption phenomenon
  - b) Adsorption isotherm
  - c) Desorption phenomenon
  - d) Sorption phenomenon
- vi) A desiccant is a \_\_\_\_\_ compound
  - a) Hydrolytic
  - b) Homolytic
  - c) Hygroscopic
  - d) Hydrophobic
- vii) In crystallization \_\_\_\_\_ is the step where the solute molecules or atoms dispersed in the solvent start to gather into clusters, on the microscopic scale
  - a) Nucleation
  - b) Crystal growth
  - c) Crystal habit
  - d) None of the above
- viii) Morphology of solid crystals depends on
  - a) Nucleation
  - b) Crystal growth
  - c) Both A & B
  - d) None of the A & B
- ix) Precipitation is \_\_\_\_\_ process
  - a) Chemical
  - b) Physical
  - c) Chemical and physical
  - d) Exothermic
- x) Levigation and trituration are process used for \_\_\_\_\_ of chemical compound/s
  - a) Size reduction
  - b) Mixing
  - c) Milling
  - d) All of the above

PTO

- xi) Fractional distillation is a \_\_\_\_\_ process
- Single evaporation and condensation cycle
  - Double evaporation and condensation cycle
  - Multiple evaporation and condensation cycle
  - Is not a evaporation and condensation cycle
- xii) Centrifugation is a \_\_\_\_\_ process
- Mixing
  - Separation
  - Elutriation
  - Decantation
- xiii) A substance that absorb water from surrounding and results in the solution is called
- Hygroscopic material
  - Deliquescent material
  - Adsorbent material
  - Hydrophobic material
- xiv) Lyophilization is a process based on \_\_\_\_\_
- Distillation
  - Liquification
  - Sublimation
  - Elutration
- xv) Drug stability refers to the time from the date of .....and packing of the formulation until its physical, chemical and biological activity is not lost
- Production
  - Manufacture
  - Shaping
  - Designing
- xvi) Which one of the following is a plastic material?
- Gel
  - Suspension
  - Water
  - Alcohol
- xvii) Thermo labile drugs such as dextrose injections can decompose during
- Storage
  - Sterilization
  - Drying
  - Sublimation
- xviii) A photochemical reaction is independent of..... and continues even after the illumination is stopped.
- Light
  - Temperature
  - Moisture
  - Radition
- xix) On which of the following rheology cannot be applied?
- Synovial fluids
  - Powders
  - Atmospheric oxygen
  - Bending of bones
- xx) Downward creaming means ----- rate of sedimentation
- Negative
  - Positive
  - Same
  - No change



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Physiology & Histology / Physiology  
PAPER: 4 Part – II (Old & New Course)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

Q.No.		Marks
2	Discuss the fate of organic molecules during absorptive state?	20
3	(a) Describe the Spinal Nerves and their functions. (b) What do you understand from, "Reflex Arch". What are their main types?	10 10
4	(a) Define and explain different types of Pulmonary Volumes and Capacities (b) Describe the Transport Mechanism of CO <sub>2</sub> from Tissues to alveoli	10 10
5	Write a note on Glomerular Filtration Rate and its Regulation	20
6	(a) What do you understand by ECG? Draw the normal ECG. Explain waves and intervals? (b) What are Autoimmune Diseases? Explain the immune activity of natural killer cells and cytotoxic T cells.	10 10
7	(a) Classify autonomic nervous system. What are the main neurotransmitters and receptors for sympathetic nervous system? (b) Discuss the functions of sympathetic nervous system on major body organs if you start from head to toe.	10 10



# UNIVERSITY OF THE PUNJAB

Roll No. ....

First Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Physiology & Histology / Physiology**

**TIME ALLOWED: 30 min.**

**PAPER: 4 Part – I (Compulsory) (Old & New Course)**

**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

1. The principle muscle of inspiration is A. External intercostals B. Sclanci C. Pectoralis minor D. None of the above	2. The average GFR in a 70 kg person is A. 180 L/day B. 125 L/day C. 125 mL/min D. Both A & C
3. Which of the following are the parts of neurons? A. Brain, spinal cord & vertebral column B. Dendrite, axon, and cell body C. Sensory and motor D. Cortex, medulla and sheath	4. Acetylcholine and norepinephrine are two well-known _____. A. Postsynaptic receptors B. Enzymes that rapidly inactivate neurotransmitters C. Drugs of abuse D. Neurotransmitters
5. An axon conducts nerve impulses _____ the cell body. A. Away from B. Toward C. Both toward and away from D. Around, bypassing	6. Vasopressin secretion is regulated under control of A. Osmoreceptors B. Baroreceptors C. Both A & B D. None of the above
7. Respiratory unit contains all of the following EXCEPT: A. Terminal bronchioles B. Alveolar ducts C. Atria D. Alveoli	8. Higher thought processes for learning and memory are primarily in the _____. A. Medulla oblongata B. Cerebellum C. Cerebrum D. Pons
9. The closure of the mitral and tricuspid valves at the onset of systole A. S1 Sound B. Systole C. Diastole D. S2 Sound	10. What is the first phase in cardiac cycle A. Passive Filling B. Ventricular Isovolumic Contraction C. Atrial Contraction D. Ventricular Ejection
11. The proper transmission of impulse to the entire cardiac muscles is called A. Excitability B. Automaticity C. Conductivity D. Contractility	12. During exercise (compared with at rest), stroke volume is... A. Increases B. Unchanged C. Decreases D. None of above

PTO

<p>13. Secretin is majorly responsible for the increase in the secretion of</p> <p>A. Water and Bicarbonate ions B. Water and bile juice C. Bile salts D. Endocrine secretion of pancreas</p>	<p>14. One of the following enzyme is responsible for the digestion of carbohydrates in mouth</p> <p>A. Pepsin B. Ptyalin C. Trypsin D. Both b and c</p>
<p>15. The combination of macula densa and juxtaglomerular cells is known as the</p> <p>A. Juxtaglomerular apparatus B. Renal pelvis C. Renal cortex D. Renal corpuscle</p>	<p>16. Which of the following is an important mixing mechanism in small intestine</p> <p>A. Haustrations B. Retropulsion C. Villi D. Segmentation movements</p>
<p>17. Which of the following layers of skin does not contain blood vessels</p> <p>A. Cutis B. Dermis C. Epidermis D. Subcutaneous</p>	<p>18. The voltage that enters in T tubule is sensed by</p> <p>A. Calcium channel B. Sodium channel C. Chloride channel D. Potassium channel</p>
<p>19. Complement proteins perform all the functions except</p> <p>A. Opsonization B. Chemoattraction C. Pore formation D. Phagocytosis</p>	<p>20. Primary haemostasis involves</p> <p>A. Fibrin polymerization B. Platelet aggregation C. Factor X activation D. Factor V activation</p>



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Anatomy/ Anatomy & Histology**  
**PAPER: 5 Part – II (Old & New Course)**

**TIME ALLOWED: 2 Hrs. & 45 min.**  
**MAX. MARKS: 40**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt any 4 questions. Each question carry equal marks.**

Question 2: what are Basic anatomical position, nucleus vs ganglion, and sesamoid bone? (10)

Question 3: a. Explain ligaments of uterus? (7)

b. write functions of ovaries?(3)

Question 4 :a. Explain conducting system of heart in detail?(7)

b. Explain surfaces and borders of heart?(3)

Question5: Write note on

a. Nasal cavity (5)

b. Meninges (5)

Question 6: Write a note on general and topographical anatomy of liver? (10)

Question 7: What are joints? Write a note on classification of joints? (10)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

First Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Anatomy/ Anatomy & Histology**

**PAPER: 5 Part – I (Compulsory) (Old & New Course)**

**TIME ALLOWED: 15 min.**

**MAX. MARKS: 10**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

**QUESTION.1: ENCIRCLE THE CORRECT ANSWER.**

<p>1. Lateral ventricles of the brain are located in</p> <ol style="list-style-type: none"><li>Cerebral hemisphere</li><li>Thalamus</li><li>Midbrain</li><li>Hind brain</li></ol> <p>2. One of the following is true about Fibroblasts</p> <ol style="list-style-type: none"><li>Are responsible for storage of fat.</li><li>Lines blood vessels and capillaries.</li><li>Secrete collagenous and elastic fibers,</li><li>Cubical large cells.</li></ol> <p>3. The unit of spinal cord is</p> <ol style="list-style-type: none"><li>Segment</li><li>Vertebra</li><li>Fibrocartilage</li><li>None</li></ol> <p>4. Anterior (sternocostal) surface of heart is formed by</p> <ol style="list-style-type: none"><li>Right atrium and right ventricle</li><li>Left atrium and left ventricle</li><li>Chiefly by left ventricle</li><li>All of the above</li></ol> <p>5. What type of tissue is found on the surface of the ovaries?</p> <ol style="list-style-type: none"><li>stratified epithelium</li><li>simple cuboidal</li><li>simple columnar</li><li>simple squamous</li></ol>	<p>6. Which of the following is not a bone of the viscerocranium?</p> <ol style="list-style-type: none"><li>Maxilla.</li><li>Sphenoid</li><li>Nasal</li><li>Vomer</li><li>All of the above</li></ol> <p>7. The rim of the orbit is made up of the frontal, maxillary and zygomatic bones</p> <ol style="list-style-type: none"><li>TRUE</li><li>FALSE</li></ol> <p>8. Neuroglial cells help neurons in each of these ways, with the exception of _____.</p> <ol style="list-style-type: none"><li>supporting and binding nervous tissue</li><li>carrying on phagocytosis</li><li>playing a role in cell-to-cell communications</li><li>transmitting nervous impulses</li></ol> <p>9. Structures in portal triad are ____.</p> <ol style="list-style-type: none"><li>Bile duct</li><li>Hepatic artery</li><li>Hepatic portal vein</li><li>All of the above</li></ol> <p>10. The most common site of fertilization is</p> <ol style="list-style-type: none"><li>Ampulla</li><li>Isthmus</li><li>Uterus</li><li>infundibulum</li></ol>
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# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: English Compulsory  
PAPER: 6 Part – II (New Course)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt all questions.

**Q.2: Make Précis and answer the following questions given at the end of the paragraph.**

(12+8)

A life of action and danger moderates the dread of death. It not only gives us fortitude to bear pain, but teaches us at every step the precarious tenure on which we hold our present being. Sedentary and studious men are the most apprehensive on this score. Dr. Johnson was an instance in point. A few years seemed to him soon over, compared with those sweeping contemplations on time and infinity with which he has been used to pose himself. In the still life of a man a letters there was no obvious reason for a change. He might sit in an arm chair and pour out cups of tea to all eternity would it had been possible for him to do so. The more rational cure after all for the inordinate fear of death is to set a just value on life. If we mere wish to continue on the scene to indulge our head strong humour and tormenting passions, we had better be gone at once; and if we only cherish a fondness for existence according to the good we desire from it, the pang we feel at parting which it will not be very server.

**Questions:**

1. Suggest a suitable title for the passage.
2. What type of people are afraid of death and why?
3. How can we get rid of the fear of death?
4. What idea do you form about Dr. Johnson from this passage?
5. Make a précis of the passage.

**Q.3: Write an essay of 300 words on any one of the following topics given below. (20)**

- (i). Democracy and Pakistan
- (ii). Crises of Water and Electricity in Pakistan
- (iii). Terrorism

**Q.4: Write a letter to your Sister inquires about her health. (10)**

**Q.5: Prepare a sample of CV matching your potentials with the job applying for. (10)**

**Q.6: what is speed reading? Give some suggestions to increase speed reading. (10)**

**Q.7: What is the difference between skimming and scanning? Write some benefits of scanning. (10)**



# UNIVERSITY OF THE PUNJAB

First Prof: Annual – 2018  
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: English Compulsory  
PAPER: 6 Part – I (Compulsory) (New Course)

TIME ALLOWED: 30 min.  
MAX. MARKS: 20

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q.1 (A). Circle around the correct options.

(5)

(i) Dynamic verbs are the opposite of.

- (A) Regular verb (B) Irregular verbs  
(C) Stative verbs (D) Phrasal verb

(ii) This, that, these, those are examples of;

- (A) Personal pronoun (B) Demonstrative pronoun  
(C) Possessive pronoun (D) Relative pronoun

(iii) A phrasal verb is a verb that is combined with an adverb or a \_\_\_\_\_.

- (A) Noun (B) Preposition  
(C) Adjective (D) Determiner

(iv) A \_\_\_\_\_ is a verb that is combined with a preposition to create a new meaning.

- (A) Stative verb (B) Compound verb  
(C) Phrasal verb (D) Regular verb

(v) "The students in the library read many interesting books, but none provided the information needed for the research paper", is an example of

- (A) Simple sentences (B) Compound sentence  
(C) Complex sentence (D) Compound complex sentence

Q.1 (B) Out of the four alternative suggested, select the one which best expresses the same sentence in passive/active voice.

(5)

(i) Are they playing match against them?

- (A) Is a match being played against our team by them?  
(B) Is a match be played against our team by them?  
(C) Is a match played against our team by them?  
(D) Is a match been played against our team by them?

(ii) My father did not buy a new car.

- (A) A new car was not be bought by my father?  
(B) A new car is not bought by my father.  
(C) A new car was not bought by my father.  
(D) A new car is not be bought by my father.

(iii) You will praise her very much.

- (A) She will praised very much by you.  
(B) She will be praised very much by you.  
(C) She will being praised very much by you.  
(D) She will been praised very much by you.

(iv) Have you taken a rest?

- (A) Have a rest been taken by you? (B) Have a rest taken by you.  
(C) Had a rest taken by you? (D) Have a rest be take by you?

(v) Why did you oppose her?

- (A) Why she opposed by you? (B) Why was she opposed by you?  
(C) Why is she opposed by you? (D) Why she opposes by you?

**Q.1 (C) Which kind of adverbs are the words in capitals?**

**(5)**

(i) Our family goes out of town **SOMETIMES**.

- (A) Adverb of time/frequency (B) Adverb of place  
(C) Adverb of degree (D) Adverb of manner

(ii) The newspaper boy delivers the newspaper **DAILY** to my house.

- (A) Adverb of time/frequency (B) Adverb of place  
(C) Adverb of degree (D) Adverb of manner

(iii) The opposition leader **ENTIRELY** agreed with the Prime Minister.

- (A) Adverb of time/frequency (B) Adverb of place  
(C) Adverb of degree (D) Adverb of manner

(iv) His son-in-law is **VERY** handsome.

- (A) Adverb of time/frequency (B) Adverb of place  
(C) Adverb of degree (D) Adverb of manner

(v) The child was lost and the parents looked for her **EVERYWHERE**.

- (A) Adverb of time/frequency (B) Adverb of place  
(C) Adverb of degree (D) Adverb of manner

**Q.1 (D) Fill in the blanks with suitable active and passive verb forms.**

**(5)**

(i) The visitors \_\_\_\_\_ to the guest house in a car.

- (A) Were taking (B) Was taking  
(C) Were taken (D) Have taken

(ii) This restaurant \_\_\_\_\_ in 1980 by my father.

- (A) Built (B) Was built (C) Was built (D) Has built

(iii) The Scholars \_\_\_\_\_ to submit their researches by the end of this week.

- (A) Have asked (B) Are asked  
(C) Has asked (D) Are asking

(iv) The thieves \_\_\_\_\_ by the police.

- (A) Have arrested (B) Have been arrested  
(C) Was arrested (D) Had arrested

(v) A cup of coffee \_\_\_\_\_ to me by her.

- (A) Has brought (B) Have brought  
(C) Was brought (D) Were brought



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

**Subject: Pharmaceutics-II (Dosage Forms Science) (New Course)**  
**PAPER: 1 (Part – II)**

**TIME ALLOWED: 2 Hrs. & 30 min.**  
**MAX. MARKS: 80**

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

Q.1. a) Define Aerosol disperse system? Briefly explain the types and components of aerosol system? (10)

b) What is Displacement value. Prepare 12 glycerogelatin suppositories containing 0.5% w/w cinchona hydrochloride using 2g mould. (10)

Q.2. (a) Discuss Alcohol, USP as a solvent for pharmaceutical preparations and discuss its pharmaceutical advantages and disadvantages. (10)

(b) Discuss different percutaneous absorption enhancers including chemical enhancers and physical methods? (10)

Q.3. (a) Define Transdermal drug delivery Systems. What are different factors affecting percutaneous absorption? (10)

b) What should be the characteristics of good suppositories base. Also discuss their methods of preparation. (10)

Q.4 a) Define tablets & capsule, write down names and uses of common ingredients used in tablet dosage form. (10)

b) Classify the suppository bases. Discuss in detail water soluble suppository bases. (10)

Q.5 a) Define and classify official syrups. Discuss invert syrup and different methods of preparation of simple syrup & elixir. (10)

(b) Define the Displacement value. Calculate the quantities required to make ten cocoa butter (2 mould) suppositories. Each containing 400 mg of zinc oxide (D.V of ZnO = 4.7) (10)

Q.6 Write notes on the followings: (05 each)

(a) Collodions

(b) Difference b/w syrups & elixirs

(c) Liniment & Paste

(d) Applications of soft and hard gelatin capsule



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Subject: Pharmaceutics-II (Dosage Forms Science) (New Course)  
PAPER: 1 Part – I (Compulsory)

TIME ALLOWED: 30 min.  
MAX. MARKS: 20

Roll No. ....

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Each MCO carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.

1. Non aqueous vehicles are used to prevent
  - a) Polymerization
  - b) Oxidation
  - c) Hydrolysis
  - d) Isomerization
2. Oral suspension are \_\_\_\_\_ preparations
  - a) Aqueous
  - b) Non-aqueous
  - c) Hydroalcoholic
  - d) Alcoholic
3. Iontophoresis involves the delivery of \_\_\_\_\_ chemical compounds across the skin membrane.
  - a) Large
  - b) Small
  - c) Charged
  - d) Colloidal
4. Mostly, Oleginous injections are administred.
  - a) Intradermally
  - b) I/V
  - c) Subcutaneous
  - d) I/M
5. \_\_\_\_\_ are alcoholic or hydro-alcoholic solutions prepared from vegetable materials or from chemical substances.
  - a) Elixirs
  - b) Tinetures
  - c) Extracts
  - d) Sprays
6. Heating is not involved in the preparation of:
  - a) Ointments
  - b) Glycerogelatins
  - c) Poultices
  - d) Liniments
7. The Na<sup>+</sup> and Cl<sup>-</sup> ions contents of in NaCl injection are approximately \_\_\_\_\_ of each per liter.
  - a) 156 mEq
  - b) 154 mEq
  - c) 160 mEq
  - d) 152 mEq
8. If PEG suppositories don't contain at least \_\_\_\_\_ of water they can cause irritation to mucous membrane after insertion.
  - a) 20%
  - b) 10%
  - c) 40%
  - d) 30%
9. \_\_\_\_\_ is considered as a mean to enhance transdermal drug delivery.
  - a) Ion Exchange Method
  - b) High Frequency Ultrasound
  - c) Reverse Osmosis
  - d) Filtration

PTO

10. Displacement value is calculated b/c \_\_\_\_\_ of the medicament may vary considerably from the base.
- |                |                     |
|----------------|---------------------|
| a) Mol. Weight | b) Mass             |
| c) Density     | d) Specific Gravity |
11. Which one of the oil is NOT suitable for treatment to be used as suppository base?
- |                    |                 |
|--------------------|-----------------|
| a) Coconut Oil     | b) Cinnamon Oil |
| c) Cotton seed Oil | d) Palmitic Oil |
12. Smallest size of capsule is represented by:
- |      |      |
|------|------|
| a) 0 | b) 3 |
| c) 1 | d) 5 |
13. Non aqueous vehicles must not contain \_\_\_\_\_ as these materials are not absorbed by body tissue.
- |                |                    |
|----------------|--------------------|
| a) Castor Oil  | b) Corn Oil        |
| c) Mineral Oil | d) Cotton Seed Oil |
14. Suppositories bases play an important role for the \_\_\_\_\_ of the medicaments.
- |               |               |
|---------------|---------------|
| a) Action     | b) Release    |
| c) Absorption | d) Metabolism |
15. Iodine value in case of fatty base should be less than \_\_\_\_\_.
- |      |      |
|------|------|
| a) 7 | b) 9 |
| c) 8 | d) 6 |
16. The identification of propellants in pharmaceutical aerosols is carried out by:
- |                           |                         |
|---------------------------|-------------------------|
| a) Gas Chromatography     | b) Pycnometer           |
| c) Tag open cup apparatus | d) IR spectrophotometer |
17. Saponification value ranges from:
- |              |              |
|--------------|--------------|
| a) 100 – 300 | b) 200 – 245 |
| c) 150 – 250 | d) 190 – 240 |
18. \_\_\_\_\_ amount is required to make a 10% w/w aqueous solution of sucrose.
- |                         |                        |
|-------------------------|------------------------|
| a) 10 mg in 100 g water | b) 10 g in 100 g water |
| c) 10 g in 90 g water   | d) None of above       |
19. Following is the example of tablet disintegrant:
- |            |                 |
|------------|-----------------|
| a) Starch  | b) Lactose      |
| c) Gelatin | d) Mg. Stearate |
20. The HLB system is used to classify:
- |             |               |
|-------------|---------------|
| a) Binders  | b) Sufactants |
| c) Diluents | d) Colourants |



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacology & Therapeutics-I (New Course)  
PAPER: 2 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any Four questions. Each question carry equal marks.

Q.No.2. Define Angina Pectoris? Explain in detail the mechanism of action of Antianginal drugs? (20)

Q.No.3. What do you understand by Cardiac Arrhythmias? Discuss various kinds of Arrhythmias? Explain Anti arrhythmic drugs in detail? (20)

Q.No.4. Describe the main classes of receptors. Discuss ligand-gated ion channels. (20)

Q.No.5. What are the different classes of receptors. Discuss G Protein Coupled Receptors (GPCRs). (20)

Q.No.6. Classify bronchodilators? Discuss in detail pharmacology of beta 2 agonists and methylxanthines? (20)

Q.No.7. Give the mechanism of action, therapeutic uses and adverse effects of the followings (5+5+5+5)

- I. Prazosine
- II. Dobutamine
- III. Succinylcholine
- IV. Ephedrine



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmacology & Therapeutics-I (New Course)**  
**PAPER: 2 Part – I (Compulsory)**

**TIME ALLOWED: 30 min.**  
**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

**Q.NO.1 Select the best Option (20)**

1. As an Antiepileptic drug, Phenytoin is most similar in action to which one of the following drugs?

- (A) Digoxin
- (B) Propafenone
- (C) Lidocaine
- (D) Sotalol

2. The following drugs when combined with ACE inhibitors may produce troublesome problems EXCEPT

- a. Theophylline
- b. Potassium supplements
- c. Spironolactone
- d. Lithium

3. Which of the following calcium channel blockers is excreted predominantly in the faeces?

- a. Nifedipine
- b. Felodipine
- c. Diltiazem
- d. Nimodipine

4. Which of the following increases the risk of digoxin induced arrhythmias?

- a. Hyperkalaemia
- b. Hypercalcaemia
- c. Hypermagnesaemia
- d. Hyperuricaemia

5. The nitrates

- a. Have an antianginal effect via vasodilation of arterioles only
- b. Serve to increase preload
- c. Have a direct effect on cardiac muscle to cause a decrease in anginal symptoms
- d. Are contraindicated in the presence of increased intracranial pressure

6. The following include major actions of digoxin on cardiac electrical functions EXCEPT

- a. Decreased PR interval on ECG
- b. Decreased conduction velocity at the AV node
- c. Increased automaticity of the atrial muscle
- d. Decreased effective refractory period in purkinje system/ventricles

**7. Receptors are usually**

- A) lipids
- B) proteins
- C) DNA
- D) Carbohydrates

**8. Factors that may cause variation in drug responsiveness**

- A) changes in the number or function of receptors
- B) tachyphylaxis
- C) idiosyncratic drug responses
- D) hypersensitivity reactions
- E) all of the above

**9. Major role of receptors is to**

- A) determine rate of drug elimination
- B) determine drug action selectivity
- C) provide a means of drug distribution
- D) act as drug storage sites

**10. Ligand gated ion channel receptors include all of the following EXCEPT**

- A) GABA
- B) Glycine
- C) Glutamate
- D) Muscarinic

**11. Which of the following acts on intracellular receptors**

- A) Serotonin
- B) Corticosteroids
- C) GABA
- D) Insulin

**12. Mechanism of action of Acarbose**

- A. Inhibition of alpha-glucosidase enzyme
- B. Decrease insulin resistance
- C. Activate AMP-activated protein kinase enzyme
- D. Modulate  $\beta$ -cell insulin release

**13. What is the relative receptor affinity of Dobutamine**

- A.  $\beta_1 = \beta_2$
- B.  $\beta_2 > \beta_1$
- C.  $\beta_1 > \beta_2 \gg \alpha$
- D.  $\beta_2 > \beta_1 \gg \alpha$

**14. Which one of the following drugs facilitate cessation of cigarette smoking**

- A. Dobutamine
- B. Clonidine
- C. Ephedrine
- D. Tizanidine

**15. Propranolol is contraindicated in**

- A. Pregnancy
- B. Asthma
- C. Liver cirrhosis
- D. Renal disease

**16. Epinephrine causes**

- A. Increase systolic and decrease diastolic B.P
- B. Increase both systolic and diastolic B.P
- C. Decrease cardiac out put
- D. Decrease stroke volume

**17. The characteristic of organophosphate drugs is**

- A. water soluble
- B. Lipid insoluble
- C. Highly lipid soluble
- D. Water insoluble

**18. Which of the following class of the drugs is NOT a bronchodilator**

- A. Beta 2 agonists
- B. Leukotriene receptor antagonist
- C. Mast cell stabilizers
- D. Corticosteroids

**19. Proton pump inhibitors block one of the following receptors in parietal cell**

- A.  $H^+ - K^+$  ATPase pump
- B.  $Na^+ - K^+$  ATPase pump
- C.  $Na^+ - Cl^-$  ATPase pump
- D.  $H^+ - Na^+$  ATPase pump

**20. Which of the following anti-emetic inhibits dopamine receptors**

- A. Omeprazole
- B. Ranitidine
- C. Metoclopramide
- D. Ondansetron



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacognosy-I (Basic) (New Course)  
PAPER: 3 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any Four questions. Each question carry equal marks.**

- Q-No.2 Discuss the following
- |                                  |    |
|----------------------------------|----|
| (a) Morphological classification | 10 |
| (b) Cantharides                  | 5  |
| (c) Shellac                      | 5  |
- Q-No.3 (a) Define allergens? Discuss various types of allergens? 10
- (b) Describe the chemical test used for the evaluation of fibers in surgical dressings 10
- Q-No.4 (a) Define and classify the vaccines? Give the details Yellow fever 10
- (b) Differentiate endotoxin and exotoxins? Describe Diphtheria antitoxin? 10
- Q-No.5 Define and classify the enzymes on the basis of source? Discuss papain in detail. 20
- Q-No.6. Describe in detail about the crude drugs belonging to Solanaceae family? 20
- Q-No.7. Explain the microscopic evaluation with examples? 20



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Subject: Pharmacognosy-I (Basic) (New Course)

PAPER: 3 Part – I (Compulsory)

TIME ALLOWED: 30 min.

MAX. MARKS: 20

Roll No. ....

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

1. Proteolytic enzymes are.....

- a) S-containing protein digesting      b) C-containing protein digesting  
c) H-containing protein digesting      d) All of them

2. Pepsin is reversibly deactivated at pH

- a) 7                      b) 5                      c) 6                      d) None

3. Artificial silk is -----

- a) Synthetic fiber                              b) Regenerated fiber  
c) Regenerated fiber from carbohydrates      d) Regenerated fiber from lipids

4. When rayon is wetted it loses its-----

- a) Shape                      b) flexibility                      c) hardness                      d) tensile strength

5. Lac contains resins-----

- a) 60-80%                      b) 50-70%                      c) 70-80%                      d) 90%

6. Amberen is-----

- a) Triterpene alcohol                              b) Triterpene ketone  
c) Triterpene ester                              d) None

7. Cod liver oil is a-----oil.

- a) Thin                      b) Thick                      c) Transparent                      d) 1 and 3

8. Spermaceti is -----substance

- a) Oily                      b) Waxy                      c) Fatty                      d) Both 1 and 2

(P.T.O.)

9. Adhesive tapes are-----

- a) Rubber based      b) Acrylated based      c) Plastic based      d) 1 and 2

10. Maceration of wound is minimized by

- a) Primary dressing      b) Secondary dressing      c) Both 1 and 2      d) None

11. Silk sutures are ----- strand.

- a) Single      b) Double      c) Triple      d) Twisted

12. Protectives are used to cover----

- a) Wound      b) Wet dressing      c) Both 1 and 2      d) None

13. Cellulose fibers under LM are-----

- a) unicellular and non-glandular      b) Multicellular      c) Unicellular and glandular      d) None

14. All of the following are given as S/C injections except

- a) Botulism antitoxins      b) Pneumococcal vaccine      c) Rabies vaccine      d) Yellow fever vaccine

15. Replacement of fructose with glucose is which type of adulteration.

- a) Admixture      b) Deterioration      c) Substitution      d) Sophistication

16. Morphine is converted to heroin upon

- a) Hydroxylation      b) Acetylation      c) Alkylation      d) Reduction

17. Which of the following is selective herbicide?

- a) 2,4 dichloro phenoxy acetic acid      c) Potassium cyanide  
b) Copper sulphate      d) Diethyl toluamide

18. Auxins are involved in

- a) Thigmotropism      b) Phototropism      c) Apical dominance      d) All of the above

19. The major volatile oil in caraway fruit is

- a) Carveol      b) Carvone      c) Carvacrol      d) Limonene

20. Aromatic odour and pungency of ginger is due to the presence of

- a) Volatile oils      b) Oleoresins      c) Carbohydrates      d) Mucilage



# UNIVERSITY OF THE PUNJAB

Second Prof:Annual – 2018  
**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmaceutical Microbiology (Old Course)**  
**PAPER: 4**

**TIME ALLOWED: 3 Hrs.**  
**MAX. MARKS: 100**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt any Five questions. Each question carry equal marks.**

- Q.1. a). Discuss the classification of bacteria in detail. (10)
- b). Discuss membrane bound organelles of eukaryotic cells. (10)
- Q.2. Define Sterilization. Briefly explain various methods of sterilization. (20)
- Q.3. What is the importance of Industrial microbiology. Describe the production of penicillins. (20)
- Q.4. a). Define protozoa and describe basic characteristics of protozoa. (10)
- b). Explain microbial growth and factors affecting microbial growth. (10)
- Q.5. a). Enumerate the importance of soil microbiology. Explain in detail Nitrogen cycle. (10)
- b). Define virus and classify by nature of genome. (10)
- Q.6. a). What are Antigens. Define types of antigens. (10)
- b). What are Antibodies. Discuss their structure, types and role. (10)
- Q.7. Write notes on the following: (7+7+6)
- a). Factory Hygeine
- b). Hypersensitivity and Allergy
- c). Vaccination



# UNIVERSITY OF THE PUNJAB

Second Prof: A/2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pakistan Studies and Islamiyat / Ethics (Comp.)  
PAPER: 5 (Old & New Course)

TIME ALLOWED: 3 hrs.  
MAX. MARKS: 100

**USE SEPARATE ANSWER BOOK FOR EACH PART (PAPER)**

## Paper A – Pakistan Studies

**For this portion Time Allowed is 1 Hr. and Max. Marks 40.**  
**Attempt any TWO questions. All questions carry equal marks.**

نوٹ: کوئی سے دو سوالوں کے جوابات لکھیے۔ سب کے نمبرز یکساں ہیں۔

Q. No. 1: Write an essay on the ideology of Pakistan with reference to the Two Nation theory? 20

دو قومی نظریے کے حوالے نظریہ پاکستان پر ایک مضمون تحریر کریں؟

Q. No. 2: Highlight Sir Syed Ahmad Khan's role for educational uplift of the Muslims of the Sub-Continent? 20

برصغیر کے مسلمانوں کی تعلیمی ترقی کے لئے سرسید احمد خان کی خدمات پر روشنی ڈالیں۔

Q. No. 3: Illustrate the Islamic provisions of the 1973, constitution? 20

1973ء کے آئین کی اسلامی دفعات کا جائزہ لیں؟

Q. No. 4: Write short answers to the following. 2x10=20

مختصر جوابات لکھیں۔

a) Who was called Prophet of Education?

پیغمبر تعلیم کس شخصیت کو قرار دیا گیا؟

b) By whom was founded the Mohammadan Educational Conference?

محمد بن ابی بکر کیشنل کانفرنس کے بانی کون تھے؟

c) Who was elected as the first President of Muslim League?

آل انڈیا مسلم لیگ کے پہلے صدر کون تھے؟

d) Identify Maulana Hasrat Mohani?

مولانا حسرت موہانی کون تھے؟

e) When was Muslim League joined by M. A. Jinnah?

محمد علی جناح نے مسلم لیگ میں شمولیت کب اختیار کی تھی؟

f) Who was the first Minister for Foreign Affairs of Pakistan?

پاکستان کے پہلے وزیر امور خارجہ کون تھے؟

g) When was Liaqat Ali Khan assassinated?

لیاقت علی خان کو کب شہید کیا گیا تھا؟

h) Who was known as "Financial Wizard"?

مالیات کا جادوگر کس شخصیت کو کہا جاتا ہے؟

i) Who became the last Governor General of our Country?

وطن عزیز کے آخری گورنر جنرل کون تھے؟

j) When was the first constitution of our country implements?

پاکستان کا پہلا آئین کب نافذ کیا گیا؟

(P.T.O.)

## Paper B – Islamiyat

**For this portion Time Allowed is 2 Hrs. and Max. Marks 60.**  
**Attempt the following questions. Q. No. 5 is compulsory.**

**Q. No. 1** Translate and explain any two the following verses. (20)

(الف) وَاللَّهُ عَلَىٰ كُلِّ شَيْءٍ قَدِيرٌ

(ب) وَاللَّهُ لَا يَهْدِي الْقَوْمَ الظَّالِمِينَ

(ج) رَبَّنَا لَا تُؤَاخِذْنَا إِن نَّسِينَا أَوْ أَخْطَأْنَا

(د) أَنْتَ مَوْلَانَا فَانصُرْنَا عَلَى الْقَوْمِ الْكَافِرِينَ

**Q. No. 2** Translate & explain any one of the following Hadith. (10)

(الف) مَنْ يُرِدِ اللَّهُ بِهِ خَيْرًا يُفَقِّهْهُ فِي الدِّينِ

(ب) خَيْرُكُمْ مَنْ تَعَلَّمَ الْقُرْآنَ وَعَلَّمَهُ

**Q. No. 3** Illustrate the cardinal features of the Treaty of Madina. (10)

OR

Highlight the impact and results of the Truce of Hudabia.

بیاتی مدینہ کے نمایاں نکات لکھیے۔ یا

صلح حدیبیہ کے اثرات و نتائج کا جائزہ لیجیے۔

**Q. No. 4** Narrate the cardinal charities of Islamic Culture. (10)

OR

Give a critical appraisal of the consequences of the clash of civilizations.

اسلامی تہذیب کی نمایاں خصوصیات بیان کیجیے۔ یا

تہذیبی تصادم کے نتائج کا تنقیدی جائزہ لیجیے۔

**Q. No. 5** Give short answer of the following Questions. (2x5=10)

(a) Who has been called Imam ul Anbia?

(b) What is meant by Ashara Mubashrah?

(c) Mention the names of two most authentic collection of Ahadith?

(d) Who is known as Mauloud-e-Kabah?

(e) Identify Najjashi?

(الف) امام الانبیاء کس ہستی کو کہا جاتا ہے؟

(ب) عشرہ مبشرہ سے کیا مراد ہے؟

(ج) احادیث کی دو مستند ترین مجموعات کون کون سی ہیں؟

(د) کون سی شخصیت مولودِ کعبہ کے لقب سے معروف ہوئی؟

(ه) نجاشی کے متعلق آپ کیا جانتے ہیں؟

### Ethics (for non Muslim Candidates)

**Note: Please Attempt any THREE questions. All questions carry equal marks. (60)**

**Q. No. 1** Why is Ethics called moral philosophy?

**Q. No. 2** What do you know about the moral teachings of Christianity or Budahaism.

**Q. No. 3** "Islam advocates and promotes humanitarianism" comment.

**Q. No. 4** How for is the study of Ethics useful for reforming the society?

**Q. No. 5** Discuss argumentabvely the need of punishment for commision of crims

**Q. No. 6** Highlight the value and blessings of Honesty.



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pathology (New Course)  
PAPER: 1 (Part – II)

TIME ALLOWED: 2 Hrs. & 45 min.  
MAX. MARKS: 40

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

Question no 2:

Write briefly about reversible cell injury. Describe morphological features in detail. (10)

Question no 3:

- a) What is difference between exudate and transudate fluid? (05)
- b) Write note on granuloma? (05)

Question no 4:

- a) Write down the complication of secondary wound healing? (05)
- b) Explain factors that affect wound healing? (05)

Question no 5:

- a) What is difference between benign and malignant tumor? (05)
- b) What is type IV hypersensitivity reaction? (05)

Question no 6

Write short notes on

- a) Dystrophic calcification (4)
- b) Exogenous pigmentation (3)
- c) Irreversible cell injury (3)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Third Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pathology (New Course)**

**TIME ALLOWED: 15 min.**

**PAPER: 1 Part – I (Compulsory)**

**MAX. MARKS: 10**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

- 1) Which of the following changes is associated with irreversible cell damage?
  - A. Glycogen depletion
  - B. Karyolysis
  - C. Cellular swelling.
  - D. Loss of microvilli.
  - E. Detachment of ribosomes from rER.
- 2) Apoptosis occurs in all of the following situations except
  - A. Embryogenesis.
  - B. Bacterial infection.
  - C. Menstruation.
  - D. Tumours.
  - E. Viral infection
- 3) Which of the following is not intracellular substance?
  - A. Melanin.
  - B. Haemosiderin.
  - C. Tattoo ink.
  - D. Pus.
  - E. Lipofuscin
- 4) An 18-year-old man lacerated his left hand and required sutures. The sutures were removed 1 week later. Wound healing continued, but the site became disfigured by a prominent raised, nodular scar that developed over the next 2 months. Which of the following terms best describes the process that occurred during this 2-month period?
  - A. Organization
  - B. Dehiscence
  - C. Resolution
  - D. Keloid formation
  - E. Secondary union
- 5) The chemical mediator NOT responsible for chemotaxis is
  - A. Cytokines.
  - B. C5a.
  - C. Bradykinin.
  - D. Bacterial products.
  - E. LTB<sub>4</sub>.

PTO

6) Which of the following term refers to a malignant tumor of mesenchymal origin?

- A. Carcinoma
- B. Hematoma
- C. Lymphoma
- D. Sarcoma
- E. Hepatoma

7) Bradykinin perform all the actions except

- A. Increased vascular permeability.
- B. Activation of complement pathway.
- C. Smooth muscle contraction.
- D. Dilation of blood vessels.
- E. Pain.

8) Generalized edema results from all of the following disorders EXCEPT

- A. Systemic hypertension
- B. Congestive cardiac failure
- C. Cirrhosis
- D. Nephrotic syndrome
- E. Hyperaldosteronism

9) Liquefaction characteristically occurs following infarction which organ

- A. Heart.
- B. Kidney.
- C. Liver.
- D. Spleen.
- E. Brain.

10) Which of the following is not a benign tumor

- A. Lipoma
- B. Fibroma.
- C. Lymphoma.
- D. Leiomyoma.
- E. Chondroma.



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacology & Therapeutics-II (New Course)  
PAPER: 2 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

Q 2. Classify antimetabolites. Discuss the mechanism of action, therapeutic uses and adverse effects of methotrexate. (20)

Q 3. Classify antifungal drugs. Discuss the mechanism(s) of action and resistance of Azoles. (20)

Q 4. a) Classify antibiotics which inhibit Protein and Cell wall synthesis. (10)

b) Discuss the mechanism of action and adverse effects of Aminoglycosides? (10)

Q 5. Classify Anxiolytics. Describe the pharmacological actions, clinical uses and adverse effects of Benzodiazepines. (20)

Q 6. Classify general anesthetics? Explain in detail the pharmacokinetics and pharmacodynamics of Thiopental? (20)

Q 7 a) Discuss the mechanism of action and adverse effects of Metronidazole. (10)

b) Describe the mechanism(s) of action, clinical uses and adverse effects of Albendazole. (10)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Subject: Pharmacology & Therapeutics-II (New Course)

TIME ALLOWED: 30 min.

PAPER: 2 Part – I (Compulsory)

MAX. MARKS: 20

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. . This Paper will be collected back after expiry of time limit mentioned above.**

Q 1. MCQs

20

I. Regarding acyclovir, which of the following statements is correct?

- a) It acts to inhibit viral entry into cells
- b) It is a guanosine analogue
- c) It is commonly given in doses of 10-20 mg TDS d) It is used to treat CMV

II. Regarding amantadine, which of the following statements is correct?

- a) It potentiates dopaminergic function
- b) It is an antiviral drug
- c) It causes acute psychosis
- d) All of the above

III. Zidovudine is an analogue of

- a) Thymidine
- b) Uracil
- c) Guanosine
- d) Cytosine

IV. One of the following drugs binds with tubulin & arrest the cell cycle in metaphase

- a) Mechlorethamine
- b) Methotrexate
- c) Vincristine
- d) Chlorambucil

V. The drug used to treat Methotrexate toxicity is

- a) Mesna
- b) Folic acid
- c) Folinic acid
- d) Acetylcysteine

VI. One of the following drugs causes cardiotoxicity

- a) Paclitaxel
- b) Vinblastine
- c) Adriamycin
- d) Methotrexate

VII. Drug of Choice for CMV infection is

- a) Lamivudine
- b) Ganciclovir
- c) Acyclovir
- d) Abacavir

VIII. Use of metronidazole in hepatic encephalopathy is due to its ability to

- a) Inhibit the production of intestinal toxins
- b) Convert ammonia into urea
- c) Decrease intestinal absorption of ammonia
- d) Bind with serum ammonia

IX. Clofazimine is associated with the following features EXCEPT,

- a) Anti-inflammatory activity
- b) Skin discoloration
- c) Effective in multibacillary leprosy
- d) Major renal excretion

X. Indicate the local anesthetic agent which has a shorter duration of action

- a) Lidocaine
- b) Procaine
- c) Bupivacaine
- d) Ropivacaine

XI. The primary mechanism of action of local anesthetics is

- a) Activation of ligand-gated K<sup>+</sup> channels
- b) Blockade of voltage-gated Na<sup>+</sup> channels
- c) Stimulation of voltage-gated Na<sup>+</sup> channels
- d) Blockade of GABA-gated Cl<sup>-</sup> channels

XII. Which drug inhibits the protein synthesis in bacteria

- a) Tetracyclines
- b) Penicillins
- c) Cephalosporins
- d) Monobactams

XIII. Resistance to Chloramphenicol is due to one of the following mechanisms

- a) Efflux of drug
- b) Production of transferases
- c) Inactivation by  $\beta$  lactamases
- d) Both a and c

XIV. One of the following is not Penicillinase susceptible

- a) Amoxicillin
- b) Penicillin G
- c) Piperacillin
- d) Cloxacillin

XV. Macrolides

- a) Have enhanced activity at acidic pH
- b) Have little activity against legionella
- c) Have half lives which increase in patients with anuria
- d) Induce cytochrome p450 enzymes

XVI. Which of the following opioid analgesics is a partial  $\mu$  receptor agonist?

- a) Morphine
- b) Methadone
- c) Buprenorphine
- d) Sufentanyl

XVII. For which of the following conditions could aspirin be used prophylactically?

- a) Non cardiogenic pulmonary edema
- b) Peptic ulcers
- c) Thromboembolism
- d) Metabolic acidosis

XVIII. Indicate the psycho-stimulant, which is a methylxanthine derivative

- a) Caffeine
- b) Cocaine
- c) Amphetamine
- d) LSD

XIX. Intravenous Flumazenil

- a) Has intermediate onset and duration of action about 2 hours
- b) Acts rapidly but has a short half-life
- c) Has an effect lasting 3-5 hours
- d) Has duration of action longer than 6 hours

XX. Ivermectin exerts antihelminthic effect via

- a) Blockage of nicotinic receptors
- b) Inhibition of cholineesterase
- c) Inhibition of acetylcholine secretion
- d) Increased GABA transmission



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacognosy-II (Advanced) (New Course)  
PAPER: 3 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

Q: No: 2-(a) Define Neutraceuticals and Cosmeceuticals? 06

(b) Briefly discuss Neutraceuticals? 14

Q: No: 3-Write a note on

- a. Clove
  - b. Allium,
  - c. Sweetorange peel
  - d. Camphor
- (5x4=20)

Q: No: 4-What are alkaloids .Discuss in detail Ergot. 20

Q: No: 5-Draw the structures of the following (5x4=20)

- a.Colchicine
- b.Ephedrine
- c.Brucine
- d.Cardanolide

Q: No: 6- (a)Define Chromatography. Explain Adsorption and Partition chromatography. 10

(b)Give the different Resin combinations? 10

Q: No: 7- Discuss Starch and Honey 20



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Third Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmacognosy-II (Advanced) (New Course)**

**TIME ALLOWED: 30 min.**

**MAX. MARKS: 20**

**PAPER: 3 Part – I (Compulsory)**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCO carries 1 Marks. This Paper will be collected back after expiry of time limit mentioned above.**

1. Wagner's reagent is used to detect the presence of
  - a. Steroids
  - b. Alkaloids
  - c. Glycosides
  - d. Terpenes
2. Camphor belongs to.
  - a. Phenol volatile oil
  - b. Phenolic ether volatile oil
  - c. Aldehyde volatile oil
  - d. Ketone volatile oil
3. Which of the following is not a vegetable oil.
  - a. Peanut oil
  - b. Almond oil
  - c. Sesame oil
  - d. Petrolatum
4. Commercial source of Tannic acid is.
  - a. Catechu
  - b. Hamamelis
  - c. Kino
  - d. Nut galls
5. Which one of the following plants belongs to family Zingiberaceae
  - a. Carum
  - b. Colchicum
  - c. Curcuma
  - d. Capsicum
6. Peppermint contain alcohol volatile oils while spearmint contain,
  - a. Alcohol volatile oils
  - b. Ketone volatile oils
  - c. Phenol volatile oils
  - d. Aldehyde volatile oil
7. Fluorescence shown by gambir fluorescein is
  - a. Yellow
  - b. Green
  - c. Blue
  - d. Red
8. Biological source of camphor is
  - a. Camphora molmol
  - b. Camphora sinensis
  - c. Camphora officinale
  - d. Camphora canadensis
9. Molecular weight of pseudo tannins is less than
  - a. 500
  - b. 1000
  - c. 1500
  - d. 2000

**PTO**

10. Gold's beater's skin test is negative for

- a. Gallic acid
- b. Ellagic acid
- c. Tannic acid
- d. All of above

11. Molecular formula for isoprene unit is

- a.  $C_8H_8$
- b.  $C_6H_8$
- c.  $C_3H_8$
- d.  $C_5H_8$

12. Steam distillation is used for the extraction of

- a. Fixed oil
- b. Volatile oils
- c. Glycoside
- d. Tannins

13. Capsicum contains

- a. Glycoresin
- b. Oleoresin
- c. Gum resin
- d. Oleogum resin

14. Flower bud of which drug having medicinal importance

- a. Cardamom
- b. Fennel
- c. Clove
- d. Caraway

15. The chief active constituent of fennel:

- a. Carvone
- b. Borneol
- c. Dill-Apiole
- d. Fenchone

16. Keller-Kilani test is used to identify

- a. Saponin glycosides
- b. Cardic glycosides
- c. Lactone glycosides
- d. Aldehyde glycosides

17. Following alkaloids are solid except

- a. Caffeine
- b. Reserpine
- c. Nicotine
- d. Colchicine

18. An alkaloid of opium having smooth muscle relaxant effect is

- (a) Morphine (b) papaverine (c) codeine (d) narcotine

19. Glycyrrhiza is used as

- a. Expectorant
- b. Stomach ulcer
- c. Sweetening agent
- d. All of above

20. Crude turpentine is obtained by

- a. Expression
- b. Cup and Gutter method
- c. Steam distillation
- d. Destructive distillation



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

**Subject: Pharmacy Practice-II (Dispensing, Community, Social & Administrative Pharmacy) (New Course)**

**TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80**

**PAPER: 4 (Part – II)**

*Attempt this Paper on Separate Answer Sheet provided.*

**Note : Attempt FOUR questions. Select TWO from first part and two from second part. All questions carry equal marks.**

## **Part-I (Dispensing)**

- Q.1. (a) Discuss in detail the various steps for weighing of pharmaceutical ingredients? (10)  
(b) Define Ointment and discuss its preparation with reference to incorporation of solid and liquid in ointment bases. (10)
- Q.2. (a) Discuss measurement of liquids as one of Basic operations used in Compounding? (10)  
(b) Discuss Chemical incompatibilities in detail. (10)
- Q.3. (a) What instructions must be written on label regarding use of different dosage forms? (10)  
(b) Elaborate parts of a prescription. (10)

## **Part II (Community, Social & Administrative Pharmacy)**

- Q.4. Write a detailed note on association in epidemiology? (20)
- Q.5. Write precise notes on the five categories of complementary and alternative therapies as per National Center for Complementary and Alternative Medicine (NCCM). (20)
- Q.6. (a) Describe patient's counseling content and its process items and how to minimize barriers of counseling (10)  
(b) Please provide education and counseling points for diabetes patients switched to insulin Therapy. (10)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Third Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmacy Practice-II (Dispensing, Community, Social & Administrative Pharmacy) (New Course)**

TIME ALLOWED: 30 min.

**PAPER: 4 Part – I (Compulsory)**

MAX. MARKS: 20

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

1. The main objective of patient communication in education and counseling is to
  - a. Understand the illness experience of patient
  - b. Ensure correct diagnosis and therapy
  - c. Build therapeutic alliance
  - d. Both, A & C
2. Open ended questions provide you with
  - a. More in depth information
  - b. Precise information
  - c. Force him/her to defend his choices
  - d. None of the above
3. During education & counseling session lack of privacy or furniture is an example of
  - a. Psychological barrier
  - b. Physical barrier
  - c. Administrative barrier
  - d. Personal barrier
4. The first step in Patient education is ASSESSMENT, which include assessment of
  - a. Drug efficacy
  - b. Adherence
  - c. Needs, concerns and preferences
  - d. Concomitant illness
5. The foremost part of planning in patient education is to build bridges between patient's
  - a. Adherence and self-care
  - b. Therapy and outcomes
  - c. Needs and concerns
  - d. None of the above
6. One of the DON'T in warfarin counseling is not to tell patient
  - a. To call their doctor if noticed bleeding
  - b. That warfarin is used to slow blood clotting
  - c. List of all the reasons anyone might be on warfarin
  - d. None of the above
7. All of the following is correct for case control studies except?
  - a. Requires relatively few subjects
  - b. Suitable for investigation of rare disease
  - c. Attrition problem of study population is present
  - d. Matching removes confounding bias
8. In a double-blind clinical trial?
  - a. Each patient receives a placebo
  - b. Each patient receives both (double) treatment
  - c. Patients do not know which treatment they are receiving
  - d. Patients do not know they are in a drug trial
9. Which of the following terms describes the type of medicine used in place of mainstream medicine?
  - a. Complementary medicine
  - b. Alternative medicine
  - c. Energy medicine
  - d. Chiropractic medicine
10. Chiropractic medicine falls under which of the 5 categories of nationally recognized Complementary and Alternative Medicine groups?
  - a. Manipulative and body-based practice
  - b. Positive attitude and mental balance practice
  - c. Whole medical system
  - d. Energy medicine

PTO

11. Suspension are biphasic liquid dosage form in which particles are dispersed or suspended in liquid or semi-solid vehicle ranging from -----
  - a. 0.5 to 5.0
  - b. 0.8 to 1.00
  - c. 0.25 to 0.5
  - d. 0.5 to 0.09
12. W/O emulsion are generally meant for ----- use.
  - a. Internal
  - b. External
  - c. Both 1 and 2
  - e. None of them
13. Two methods of preparation of ointments are
  - a. Trituration method
  - b. Fusion method
  - c. Filtration method
  - d. Both a and b
14. Cocoa butter is also known as -----
  - a. Theobroma oil
  - b. Emulsified theobroma oil
  - c. Hydrogenated oil
  - d. None of above
15. Simple syrup contains ----- percent sucrose.
  - a. 76.7 % W/v
  - b. 66.7 W/W
  - c. 80.0 W/W
  - d. 66.7 V/V
16. In flocculated suspension the particles form ----- and network like structure.
  - a. Gritty particles
  - b. Sedimentation
  - c. Both a n b
  - d. all of the above
17. W/O emulsion changes into O/w type and vice versa this phenomena is known as -----
  - a. phase inversion
  - b. interfacial tension
  - c. both a and b
18. Suppositories are meant for introduction in body cavities other than -----
  - a. Mouth
  - b. Nasal
  - c. Vagina
  - d. Both a and b
19. Which one of the following is medical complication of tetracycline
  - a. Kernicterus
  - b. Arthropathy
  - c. Teeth discoloration
  - d. Hearing loss
20. Generalize body pain is the characteristic adverse event of
  - a. Lisinopril
  - b. Simvastatin
  - c. Losartan
  - d. Cetrizin



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Chemistry-III (Pharmaceutical Analysis) (New Course) TIME ALLOWED: 2 Hrs. & 30 min.  
PAPER: 5 Part – II MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each questions carry equal marks.

Q. 2	a- Describe the peak-dispersion processes involved in the rate theory of chromatography. (10 marks) b- Define chromatographic development and types of chromatographic developments. (10 marks)	20
Q. 3	a- Describe system suitability parameters such as Number of theoretical plates (N), Height equivalent to theoretical plates (HETP), Capacity factor (K'), Resolution (R) and Selectivity factor ( $\alpha$ ). (10 marks) b- Describe the steps involved in liquid column chromatography. (10 marks)	20
Q. 4	a- Describe the relationship of average linear rate of migration of a solute (V) and capacity factor K'. (10 marks) b- Describe the function, characteristics and types of HPLC pump (10 marks)	20
Q. 5	a- Describe the basic principle of DSC and DTA (10 marks) b- Describe precipitation and argentometric Titration (10 marks)	20
Q. 6	a) Write down the working with instrumentation of mass spectrometry (10 marks) b) Write down the modes of vibrations of IR spectroscopy (10 marks)	20
Q. 7	A)- Describe chemical shift and properties of tetra methyl silane (TMS) (10 marks) B)- Describe the quantitative use of the Nernst Equation (10 marks)	20



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Third Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmaceutical Chemistry-III (Pharmaceutical Analysis) (New Course) TIME ALLOWED: 30 min.**  
**PAPER: 5 Part – I (Compulsory) MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 2 Marks. This Paper will be collected back after expiry of time limit mentioned above.**

Q.1 Multiple Choice Questions (MCQs). Please encircle the correct statement (1X20=20)

1- There are two types of pumps for HPLC, constant pressure pump and constant flow pump.

Which of the following is true for constant flow pump?

- a- Pressure depends on flow resistance
- b- Pressure depends on speed of the pump
- c- Pressure does not depend on flow resistance
- d- Pressure depends the type of column

2- Infrared (IR) radiation is used for determination of functional groups in organic molecules.

Which one of the following is true for IR range?

- a- 180-380 nm
- b- 180-380 cm
- c- 180-380  $\mu\text{m}$
- d- 180-380  $\text{cm}^{-1}$

3- In validation of an assay precision stands for which of the following?

- a- Degree of scatter of values
- b- Closeness of true value and value found
- c- Degree of selectivity
- d- Degree of sensitivity

4- Sample preparation is an important step in HPLC. What will be true if sample is not dissolved in mobile phase?

- a- Loss of efficiency
- b- Poor peak resolution
- c- Spreading or splitting of peaks
- d- (a), (b), (c)

5- Chemical shift is used to describe signals of NMR on a scale, which one of the following will be true for it?

- a- Measure in ppm
- b- Ratio of shift downfield from TMS (Hz) to total spectrometer frequency (MHz)
- c- Same value for 60, 100, or 300 MHz machine
- d- a, b, c

6- Which of the following is true for accuracy?

- a- A measure of how often an experimental value can be repeated
- b- The closeness of a measured value to the real value
- c- The number of significant figures used in a measurement
- d- None of these

7- What is the molarity of a 500 mL solution of NaOH containing 80 g NaOH?

- a- 2M
- b- 4M
- c- 3 M
- d- 0.4 M

8- In the expression of limit of detection S/N stands for which one of the following?

- a- Signal to normality
- b- Solubility to normality
- c- Standard deviation to normal distribution
- d- Signal to noise

9- Which one of the following is true for solute property detector?

- a- Depends on solute
- b- Depends on mobile phase
- c- Depends on solute and mobile phase
- d- Depends on volume of mobile phase

PTO

10- The retention time of mobile phase ( $t_M$ ) is 20 min and retention time of aspirin ( $t_R$ ) is 60 min with peak width 3 min. Then which of the following is true for capacity factor for aspirin?

- a- 2.0
- b- 2.6
- c- 1.9
- d- 1.02

11- Which one of the following is true for constant flow pump?

- a- Used for analytical purposes
- b- Used for preparative purposes
- c- Used for column packing
- d- Used for gradient purposes

12- Which one of the following is true for mid IR range?

- a- 0.7-300  $\text{cm}^{-1}$
- b- 180-380  $\text{cm}^{-1}$
- c- 180-380  $\mu\text{m}$
- d- 4000-600  $\text{cm}^{-1}$

13- Precision stands for which of the following?

- a- Degree of scatter of values
- b- Closeness of true value and value found
- c- Degree of selectivity
- d- Degree of sensitivity

14- Which of the following is correct for capacity factor?

- a-  $(t_R - t_M)/t_M$
- b-  $(t_M - t_R)/t_M$
- c-  $(t_R - t_M)/t_R$
- d-  $(t_R - t_M)$

15- Chemical shift is used to describe signals of NMR on a scale, which one of the following will be true for it?

- a- Measured in ppm
- b- Ratio of shift downfield from TMS (Hz) to total spectrometer frequency (MHz)
- c- Same value for 60, 100, or 300 MHz machine
- d- a, b, c

16- In voltammetry which of the following is correct for half wave potential?

- a. Independent of concentration
- b. Dependent on concentration
- c. Dependent on current
- d. Independent of current

17- Which of the following is correct potentiometry?

- a. Galvanic cell
- b. Electrolytic cell
- c. Half-cell
- d. Auxiliary cell

18- Which of the following is correct for potential sweep in voltammetry?

- a. Working and auxiliary electrodes
- b. Working and standard electrodes
- c. Standard and auxiliary electrodes
- d. Standard electrode and salt-bridge

19- Which equation is used for quantitative purpose in potentiometry?

- a. The Henderson-Hasselbalch equation
- b. The Nernst equation
- c. The Regression equation
- d. The Ilkovic equation

20- Mass spectrum is the graphical representation of mass to charge ratio versus which of the following?

- a- Relative intensity
- b- Relative abundance
- c- Percentage
- d- All of above



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018  
**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmacy Practice-III (Computer & its Application in Pharmacy (New Course))**

**TIME ALLOWED: 2 Hrs. & 30 min.**  
**MAX. MARKS: 30**

**PAPER: 6 Part – II**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt all questions. Each question carry equal marks.**

**Question 1: (10 Marks)**

How does the computer technology be used to enhance the performance of a pharmaceutical professional?

**Question 2: (10 Marks)**

What is Systems Development Life Cycle (SDLC)? Briefly, explain its phases?

**Question 3: (10 Marks)**

What are the likely benefits of using computer at community pharmacy? Briefly discuss

**Question 4: (10 Marks)**

Write the role of computers in the identification of drug-related problems.

**Question 5: (10 Marks)**

Define the following terms briefly. Each term should be defined no more than six lines.

1. ROM & RAM
2. Network Topology & Types of Topology
3. Name any five software applications for data analysis

- Q.11.** What is LINUX?
- A. Malware
  - B. Operating System
  - C. Application Program
  - D. Firmware
- Q.12.** \_\_\_\_\_ perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.
- A. Application Software
  - B. Messaging Software
  - C. Operating System
  - D. Management Information System
- Q.13.** System Restore Utility can enable us to restore
- A. drives data where OS is not installed
  - B. your personal files
  - C. system state
  - D. option a & b both
- Q.14.** An error is also known as:
- A. Bug
  - B. Debug
  - C. Cursor
  - D. Icon
- Q.15.** \_\_\_\_\_ contains the pre-programmed computer instructions such as the Basic Input Output System (BIOS).
- A. RAM
  - B. ROM
  - C. CPU
  - D. Registers
- Q.16.** GUI stands for
- A. Graph Use Interface
  - B. Graphical Universal Interface
  - C. Graphical User Interface
  - D. Graphical Unique Interface
- Q.17.** Which of the following Optical Drive can store more data.
- A. Compact Disk
  - B. Digital Versatile Disk
  - C. Blue Ray Disk
  - D. None of Above
- Q.18.** The two kinds of main memory are:
- A. Primary and Secondary
  - B. Random and Sequential
  - C. ROM and RAM
  - D. All of above
- Q.19.** Graphical pictures that represent an object like file, folder etc are:
- A. Task bar
  - B. Windows
  - C. Icons
  - D. Desktop
- Q.20.** A CPU contains
- A. a card reader and a printing device
  - B. an analytical engine and a control unit
  - C. a control unit and an arithmetic logic unit
  - D. an arithmetic logic unit and a card reader



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

.....  
Roll No. ....  
.....

**Subject: Pharmacy Practice-IV (Hospital Pharmacy) (New Course)**

**TIME ALLOWED: 2 Hrs. & 30 min.**

**APER: 1 (Part – II)**

**MAX. MARKS: 80**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt any 4 questions. Each question carry equal marks.**

**Q. # 2:**

- (a) What is hospital formulary? How addition and removal of drugs is processed in formulary? (10)
- (b) Define purchasing and inventory? Explain the role of pharmacist in drugs procurement? (10)

**Q. # 3:**

- (a) Define dispensing to Inpatient. Specifically discuss different methods of drug distribution to Inpatients? (15)
- (b) Discuss the areas of knowledge required for the preparation of I/V solutions by a pharmacist? (5)

**Q. # 4:**

- (a) Discuss standards of hospital pharmacy management? (10)
- (b) Explain the role of Pharmacy & Therapeutic Committee in Hospitals? (10)

**Q. # 5:**

- (a) Discuss different categories and Locations for outpatient dispensing? (10)
- (b) What are the important factors in planning of CSSR? (10)

**Q. # 6:**

- (a) What are different Influential Factors for poisoning & drug abuse? (10)
- (b) Discuss Aseptic Dispensing? (10)

**Q. # 7:**

- (a) Which type of the program come under the sterile manufacturing. How the I/V additives solutions are dispensed? (10)
- (b) Define medication errors. What types of medication errors usually occur in a hospital? (10)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Fourth Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmacy Practice-IV (Hospital Pharmacy) (New Course)**

**TIME ALLOWED: 30 min.**

**PAPER: 1 Part – I (Compulsory)**

**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

**Q 1: Select the most appropriate option**

**1\*20**

1. The functions of a hospital include the followings EXCEPT
  - a) Patient care
  - b) Training
  - c) Drug Regulation
  - d) Public health
2. Allied health professionals working in the hospital include the followings EXCEPT
  - a) Nurse
  - b) Sonographers
  - c) Physiotherapist
  - d) Pharmacist
3. Medium size hospitals are those with number of beds between
  - a) > 1000
  - b) 500 – 1000
  - c) < 500
  - d) None of the above
4. DHQs and THQs are considered as
  - a) Primary level facility
  - b) Secondary level facility
  - c) Tertiary level facility
  - d) All of the above
5. Hospital informational services include the followings EXCEPT
  - a. Billing and collection
  - b. Computer and hospital network
  - c. Medical records
  - d. Oversee budgeting and finance
6. Occupational therapy services include the followings EXCEPT
  - a. Hand-eye coordination
  - b. Social activities
  - c. hydrotherapy
  - d. Emotional Health

7. LVN stands for
  - a. Licensed vocational nurse
  - b. Licensed visiting nurse
  - c. Lady visiting nurse
  - d. None of the above
8. Discharge lounge in the hospital is intended for
  - a) : Recreational purpose
  - b) For terminally ill patients
  - c) For patients don't need to stay in ward anymore
  - d) Patient's caretakers
9. High dependency units are intended for
  - a. Virotherapy
  - b. Critically ill patients
  - c. Pregnant women with one to one care
  - d. None of the above
10. Buscot ward in the hospital is intended for
  - a. Expectant mothers
  - b. Babies requiring special care
  - c. Post natal women
  - d. Women in labor
11. Nerve conduction study (NCS) a diagnostic test is offered in
  - a. Medical technology lab
  - b. Psychiatry ward
  - c. Gynecology ward
  - d. Neurology ward
12. Hospital pharmacy drug information services include the followings EXCEPT
  - a. Monitoring and reporting of ADRs
  - b. Drug use review
  - c. Budgeting & inventory control
  - d. Patient education
13. Cystoscopy is conducted by a specialized
  - a. Urologist
  - b. Rheumatologist
  - c. Cardiologist
  - d. None of the above

14. The hospital pharmacist has a pivotal role in Pharmacy and Therapeutic Committee as
- a) Chairperson
  - b) Secretary
  - c) Mediator
  - d) Convener
15. The document that contains a set of approved drugs in a particular hospital setting is known as
- a) Formulary
  - b) Essential drugs
  - c) List of supplies
  - d) List of consumables
16. The Pharmacy and therapeutic committee will review and reprint the formulary
- a) Twice in a year
  - b) Once in two years
  - c) Every year
  - d) Once in five year
17. The medicines included in formulary are on the basis of
- a) Brand names
  - b) Brand names
  - c) Therapeutic class
  - d) Both (b) and (c)
18. Essential medicine list includes medicine that
- a) Are available in market
  - b) Are life saving
  - c) Satisfy the healthcare needs of majority of population
  - d) Are available free of cost
19. The model essential drug list was first established by WHO in
- a) 1948
  - b) 1960
  - c) 1980
  - d) 1977
20. In a year, Pharmacy and Therapeutic committee should meet a minimum of
- a) 8 times
  - b) 6 times
  - c) 5 times
  - d) 3 times



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018  
**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmacy Practice-V (Clinical Pharmacy-I) (New Course)**  
**PAPER: 2 (Part – II)**

**TIME ALLOWED: 2 Hrs. & 30 min.**  
**MAX. MARKS: 80**

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

- Q. No 2 (a): Define adverse drug reactions according to WHO. (5)  
Q. No 2 (b): Explain the classification of ADRs on DoTS-system. (5)  
Q. No 2 (c): What are different types of adverse drug reactions? (10)
- Q. No 3 (a): Write a note on Pharmacodynamic Drug-drug interactions with at least three examples, and how these interactions can be harmful and beneficial in clinical settings. (10)  
Q. No 3 (b): Give three examples of drug-drug interaction due to enzyme inhibition on drug metabolism level. (5)  
Q. No 3 (c): What is the significance of Randomization, Blinding and Sample size in clinical study design? (5)
- Q. No 4 (a): Define Asthma and discuss about the types. (4)  
Q. No 4 (b): Write about the investigation / diagnosis of Asthma. (6)  
Q. No 4 (c): Summarize stepwise management of Asthma in adults. (10)
- Q. No 5 (a): Classify acute kidney injury as per AKIN (Acute Kidney Injury Network) criterion. (5)  
Q. No 5 (b): Write a detailed note on non-steroidal anti-inflammatory drugs (NSAIDs) induced acute kidney injury. (15)
- Q. No 6 (a): What are different types of clinical trials? Describe different phases of clinical trials with key differences. (10)  
Q. No 6 (b): Give three examples of drug-drug interactions at drug distribution levels and how these can be overcome. (7)  
Q. No 6 (c): What are different reporting statements for clinical studies? (3)
- Q. No. 7 Write notes on any TWO of the following:  
a) What are different types of IHD? Briefly describe treatment options for angina. (10)  
b) Discuss online pharmaceutical care services and globalization. (10)  
c) Drug information sources and utilization of clinical drug literature. (10)



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmacy Practice-V (Clinical Pharmacy-I) (New Course)**  
**PAPER: 2 Part – I (Compulsory)**

**TIME ALLOWED: 30 min.**  
**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

**Q. No 1: Select the appropriate answer**

**Marks: 20**

1	<p><i>The area within the pharmacy practice dealing with patient care with particular emphasis on drug therapy and ensuring safe and effective use of drugs is known as:</i></p> <ol style="list-style-type: none"><li>Pharmaceutical care</li><li>Community pharmacy</li><li>Clinical pharmacy</li><li>Rational drug use</li></ol>
2	<p><i>The co-operative patient centered system for achieving specific and positive patient outcomes from the responsible provision of medicines is known as:</i></p> <ol style="list-style-type: none"><li>Patient-care</li><li>Pharmaceutical care</li><li>Drug therapy</li><li>Therapy management</li></ol>
3	<p><i>Following is one of the examples of Type-B adverse drug reactions:</i></p> <ol style="list-style-type: none"><li>Gastric dysfunction</li><li>Hypersensitivity</li><li>Bleeding disorder</li><li>Nausea</li></ol>
4	<p><i>Polymorphisms coding for drug transporters, drug-metabolizing enzymes and drug receptors are categorized as factors for ADR susceptibility as:</i></p> <ol style="list-style-type: none"><li>Pharmacodynamic</li><li>Pharmacokinetic</li><li>Pharmacological</li><li>Pharmacogenetic</li></ol>
5	<p><i>A scheme used for the reporting of adverse drug reactions is known as:</i></p> <ol style="list-style-type: none"><li>Spontaneous reporting scheme</li><li>ADR reporting scheme</li><li>Pharmacovigilance</li><li>ADR response form</li></ol>
6	<p><i>The failure of the heart to pump sufficient blood to meet the metabolic needs of body is termed as:</i></p> <ol style="list-style-type: none"><li>Ischemic heart disease</li><li>Hypertension</li><li>Heart failure</li><li>Myocardial infarction</li></ol>
7	<p><i>In clinical trials, the strongest evidence of clinical efficacy is provided by:</i></p> <ol style="list-style-type: none"><li>Randomized cross-over clinical trials</li><li>Randomized controlled laboratory study</li><li>Randomized controlled trials</li><li>Non-randomized controlled clinical trials</li></ol>
8	<p><i>The test drug is considered clinically effective and compared with commonly used treatment:</i></p> <ol style="list-style-type: none"><li>In Phase II trial</li><li>In Phase III trial</li><li>In phase IV trial</li><li>Both II and III trials</li></ol>
9	<p><i>During drug-drug interactions, the drug whose action is modified is called:</i></p> <ol style="list-style-type: none"><li>Object drug</li><li>Precipitating drug</li><li>Modified drug</li><li>Inducers</li></ol>

**(P.T.O.)**

10	<p><i>In patient with MI, the plasma level of which enzyme is raised?</i></p> <ul style="list-style-type: none"> <li>i. CK-MM</li> <li>ii. CK-BB</li> <li>iii. CK-MB</li> <li>iv. All of above</li> </ul>
11	<p><i>Non selective beta-blockers can adversely affect the patient with:</i></p> <ul style="list-style-type: none"> <li>i. Diabetes</li> <li>ii. Asthma</li> <li>iii. COPD</li> <li>iv. All of above</li> </ul>
12	<p><i>Verapamil and beta-blocker administered concomitantly results in:</i></p> <ul style="list-style-type: none"> <li>i. Tachycardia</li> <li>ii. Bradycardia</li> <li>iii. Hyperkalemia</li> <li>iv. Hypokalemia</li> </ul>
13	<p><i>Which one of the following is emergency condition of IDDM?</i></p> <ul style="list-style-type: none"> <li>i. MI</li> <li>ii. DKA</li> <li>iii. STEMI</li> <li>iv. NSTEMI</li> </ul>
14	<p><i>The source of drug information that is acquired from journals is:</i></p> <ul style="list-style-type: none"> <li>i. Primary source</li> <li>ii. secondary source</li> <li>iii. Tertiary source</li> <li>iv. Abstracts</li> </ul>
15	<p><i>Text books can be source of drug information and are considered as:</i></p> <ul style="list-style-type: none"> <li>i. Primary source</li> <li>ii. Secondary source</li> <li>iii. Tertiary source</li> <li>iv. All above</li> </ul>
16	<p><i>Which one of these is selective COX-2 inhibitor?</i></p> <ul style="list-style-type: none"> <li>i. Aspirin</li> <li>ii. Ibuprofen</li> <li>iii. Naproxen</li> <li>iv. Celecoxib</li> </ul>
17	<p><i>A patient with lower abdominal pain, no weight loss and normal colonoscopy, is most likely suffering from?</i></p> <ul style="list-style-type: none"> <li>i. Colonic carcinoma</li> <li>ii. Ulcerative colitis</li> <li>iii. Irritable bowel syndrome</li> <li>iv. Crohn's colitis</li> </ul>
18	<p><i>Asthma caused in response to allergens is known as:</i></p> <ul style="list-style-type: none"> <li>i. Extrinsic asthma</li> <li>ii. Intrinsic asthma</li> <li>iii. Mixed asthma</li> <li>iv. COPD</li> </ul>
19	<p><i>Severe disability, dyspnoea at rest (unable to carry on physical activity without discomfort) are characteristic features of congestive heart failure of:</i></p> <ul style="list-style-type: none"> <li>i. Class I</li> <li>ii. Class II</li> <li>iii. Class IV</li> <li>iv. Class III</li> </ul>
20	<p><i>Computer based prescribing of drugs is termed as:</i></p> <ul style="list-style-type: none"> <li>i. e-health</li> <li>ii. e-Rx</li> <li>iii. CDSS</li> <li>iv. CPOE</li> </ul>



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-IV (Industrial Pharmacy) (New Course)  
PAPER: 3 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

- Q.2 a) Describe theory of heat transfer, what are the application of heat transfer in pharmaceutical industry? 10
- b) Give classification of dryers used in pharma industry discuss Fluidized bed dryer in detail 10
- Q.3 a) Why powder volume is difficult to measure? What is the effect of moisture on the powder? effect on the tablet properties? 10
- b) Describe some approaches to avoid chemical hazards in pharmaceutical industry. 10
- Q.4 a) How sterility is maintained in the clean room of a pharmaceutical industry? 10
- b) Why granulation is important? Name its various types and describe the steps in wet granulation process. 10
- Q.5 Give brief answer of following 10 Marks each
- Preparation of water for injection (Flow diagram)
  - Cupping and lamination in tablet manufacturing with reasons and remedy to avoid.
  - Importance of HVAC system in pharmaceutical industry
  - Different tablet coating techniques
- Q.6 a) What are the different methods for micronization? Give reduction of Discontinuity in particle size and operation of Planetary ball mill 10
- b) List down different characteristics of a packaging materials and describe the reasons why glass is preferred over the plastic for the packaging of injectable. 10
- Q.7 a) Discuss the mechanism of colloidal mixing and describe the classification and applications of silver ion preservative 10
- b) Give any dry solution/suspension? How? Describe the principal of such methods 10



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Fourth Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmaceutics-IV (Industrial Pharmacy) (New Course)**  
**PAPER: 3 Part – I (Compulsory)**

**TIME ALLOWED: 30 min.**  
**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q.1 MCQ's (Select the most appropriate option)

1. Slicing and cutting principles are used for the size reduction of -----  
type of drugs
  - A) Animal origin
  - B) Mineral origin
  - C) Vegetable origin
  - D) Synthetic drugs
2. The porcelain mortar and pestle, used for the small scale bruising process, is not suitable for the-----
  - A) Tannins
  - B) Acidic drug
  - C) Basic drugs
  - D) None of the above
3. ----- is a process in which coarse emulsion is converted into a colloidal state of uniform composition by reducing particle size.
  - A) Homogenization
  - B) Sedimentation
  - C) Grinding
  - D) Both A and B are correct options
4. Rate of filtration is ----- to the viscosity of liquid to be filtered.
  - A) Inversely proportional
  - B) Directly proportional
  - C) None of them
  - D) Equal to
5. Which is one of the most common granulating agent?
  - A) Acacia
  - B) Gelatin
  - C) Tragacanth
  - D) Starch

6. Which tablets are designed to produce solution rapidly?
- A) Implantation tablets
  - B) Effervescent tablets
  - C) Dispensing tablets
  - D) Hypodermic tablets
7. Randomization of dissimilar particles within a system is called -----
- A) Milling
  - B) Correlation
  - C) Mixing
  - D) Drying
8. The method most widely used for measuring particle size distribution in pharmaceutical industry is?
- A) Sieving
  - B) Microscopy
  - C) Sedimentation
  - D) Laser diffraction
9. Tablet coating adds an approximate increase in weight of
- A) 3-5 %
  - B) 1-2%
  - C) 2-5%
  - D) 10-20%
10. In coating of tablets pan speeds for non-aqueous film coating is
- A) 10-15 rpm
  - B) 3-10 rpm
  - C) 40 rpm
  - D) 100 rpm
11. During coating when atomization is very fine it may lead to effect called
- A) Orange peel
  - B) Bridging
  - C) Spray drying
  - D) Capping
12. If average weight of one tablet is 250 mg what would be the weight of API batch for 1 lac tablets
- A) 2500 kg
  - B) 25 kg
  - C) 250 kg
  - D) 250000 kg
13. Spray dried lactose is prone to ----- in presence of excess moisture.
- A) Darkening
  - B) Oxidation
  - C) Hydration
  - D) Hydro-oxidation

14. Percentage of binders used in tablet formulation
- A) 5 – 10 %
  - B) 10 - 20%
  - C) 20 - 30%
  - D) 0.01 - 1%
15. In sugar coating, ----- material is used for polishing
- A) Carnauba wax
  - B) Cocoa powder
  - C) Oleic acid
  - D) Gelatin
16. Glass apparatus used in the production of sterile products can be sterilized by
- A) Dry heat 140 degrees for 30 minutes
  - B) Dry heat 120 degrees for 1 hour
  - C) Saturated steam 121 degrees for 15 minutes
  - D) Using Suitable Disinfectant
17. ----- is used as biological indicator in radiation sterilization.
- A) Bacillus subtilis
  - B) Clostridium sporogenes
  - C) Bacillus pumilis
  - D) Bacillus stereo-thermophilous
18. Mesh size is the number of opening per-----
- A) Inch
  - B) Square inch
  - C) Linear inch
  - D) Centimeter
19. Empty capsule has moisture content in the range of
- A) 5%-10%
  - B) 12%-15 %
  - C) 30%-45%
  - D) 50%- 70%
20. If average weight of one tablet is 250 mg what would be the weight of API batch for 1 lac tablets
- A) 2500 kg
  - B) 25 kg
  - C) 250 kg
  - D) 250000 kg



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-V (Biopharmaceutics & Pharmacokinetics) (New Course)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

PAPER: 4 (Part – II)

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

- Q1 a) Describe how does biopharmaceutics affect design of dosage forms. 15 Marks  
b) What are different patient-related factors which influence drug absorption? 5 Marks
- Q2 a) Describe the process of therapeutic drug monitoring. 8 Marks  
b) Illustrate and give steps to determine the distribution rate constant in two compartment open model after oral administration? 12 Marks
- Q3 a) How are steady state concentration ( $C_{ss}$ ), Pre- $C_{ss}$ , Post- $C_{ss}$ , Elimination rate and Half-life are computed for I/V infusion after one compartment model? 10 Marks  
b) Describe different designs of Dosage Regimens? 10 Marks
- Q4 a) Explain the difference between drug clearance and drug excretion. 8 Marks  
b) What is non-linear pharmacokinetics? How does it differ from other kinetic orders? What is its impact on Pharmacokinetics? 4+4+4 Marks
- Q5 a) Define IVIVC. Describe its significance. 2+6 Marks  
b) Define non-compartmental approach? Describe trapezoidal method for area under the curve. Give formula for extrapolated AUMC ( $AUMC_{0-\infty}$ ). 2+6+4 Marks
- Q6 Write short notes on the following: 8+8+4 Marks  
i) Factors influencing drug variability ii) pH-partition theory  
iii) Flip-flop model



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Fourth Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmaceutics-V (Biopharmaceutics & Pharmacokinetics) (New Course)**

**TIME ALLOWED: 30 min.  
MAX. MARKS: 20**

**PAPER: 4 Part – I (Compulsory)**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

1. Lag-time is the time needed for a drug to reach at:  
(A. lower therapeutic blood level (B. measurable level in blood (C. maximum effect after intake (D. level to start pharmacological response
2. Protein binding causes transitorily:  
(A. increased drug potency (B. elevated metabolism (C. drug inactivation (D. increased pharmacological effect
3. Change in rate of drug absorption changes values of pharmacokinetics parameter:  
(A.  $C_{max}$  (B.  $T_{max}$  (C. area under the curve (D. half life
4. Change in extent of absorption alters the value of:  
(A. area under the curve (B.  $T_{max}$  (C. rate of absorption (D. all A, B and C
5. Tissue or group of tissues, in compartmental approach is considered as:  
(A. compartment 1 (B. central compartment (C. peripheral compartment (D. accessible compartment
6. Drug products containing the same therapeutic moiety but different salts, dosage forms or strengths are:  
(A. pharmaceutical equivalents (B. pharmaceutical alternatives (C. therapeutic alternatives (D. therapeutic equivalents
7. Comparative areas under the curves (AUCs) after oral and I/V administration is called:  
(A. absolute bioavailability (B. bioequivalence (C. relative bioavailability (D. Bioavailability
8. In equation,  $C_t = Be^{-\beta t}$ ,  $\beta$  is:  
(A. theoretical initial concentration (B. y-intercept (C. last concentration (D. slope of the curve
9. Number of compartment is decided from the following portion of the plasma level time profile:  
(A. disposition curve (B. elimination curve (C. distribution curve (D. absorption curve
10. Method of residual in 2 compartment open model after I/V administration is used to calculate:  
(A. absorption rate (B. distribution rate (C. elimination rate (D. y-intercept of extrapolated curve
11. Which of the following is NOT relevant for AUMC? AUMC is a:  
(A. zero moment (B. parameter indicating absorption (C. non-compartmental parameter (D. statistical moment
12. The equation,  $C_t = Ae^{-\alpha t} + B e^{-\beta t}$  calculates unknown concentration at any time in:  
(A. 1 compartment model after IV administration (B. 2 compartment model after I/V administration  
(C. 2 compartment model after E/V administration (D. 1 compartment model after E/V administration
13. Therapeutic drug monitoring is necessary in following situations EXCEPT when a drug has:  
(A. narrow therapeutic index (B. non-linear pharmacokinetics (C. concentration in blood, unrelated to clinical outcome (D. large individual variation in blood concentration
14. The major parameter(s) in establishing a dosage regimen is/are:  
(A. size of drug (dose) (B. administration frequency ( $\tau$ ) (C.  $C_{max}$  (D. both A and B
15. The aim of multiple dose is to achieve drug concentration which provides the following EXCEPT:  
(A. no drug accumulation (B. minimum fluctuations (C. increased bioavailability (D. maintained concentration
16. A drug showing poor solubility and poor permeability belongs to biopharmaceutical classification system:  
(A. Class I (B. Class II (C. Class III (D. Class IV
17. In multiple dosing, higher accumulation of drug is expected if a drug has:  
(A. smaller rate of elimination (B. longer half life (C. smaller clearance (D. all A, B, and C
18. Which drug is more soluble in intestine by forming a soluble salt at more alkaline pH?  
(A. Acidic (B. Neutral (C. Basic (D. Chelate
19. The amount of solid substance that goes into solution per unit time under standard conditions is:  
(A. dissolution (B. solubility (C. disintegration (D. miscibility
20. Method of residual in 2-compartment model after IV administration resolves plasma level curve into:  
(A. 1-linear phase (B. 2-linear phases (C. 1-linear and 1-nonlinear phase (D. 2-non-linear phase



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

**Subject: Pharmaceutics-VI (Pharmaceutical Quality Management) (New Course)**

**TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80**

**PAPER: 5 (Part – II)**

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

**Question No 2**

- A. Define dissolution. Enlist various official apparatus for dissolution testing. Give a general procedure for the dissolution test of compressed tablets and how the results are interpreted. (12)
- B. Name official and non-official quality control tests for tablet dosage form. Describe the weight variation test of tablet in detail. (8)

**Question No 3**

- A. Define "Good Manufacturing Practice" Give its Objectives. Explain necessary facilities for GMP. (10)
- B. Differentiate between quality control and quality assurance. Enlist various official books used for Quality Control of Pharmaceuticals. (10)

**Question No 4**

- A. What are the different types of control charts? Discuss control charts for variables (10)
- B. Explain in detail how to test the in-vivo potency of a vaccine? (10)

**Question No 5**

- A. Name various tests for parenteral preparations. Give method (all stages) and specifications pyrogen test by rabbit. (10)
- B. Give precautions to be taken for sterility testing of parenteral preparations. (10)

**Question No 6**

- A. Define Disintegration. Discuss construction and working of Basket Rack Assembly with diagram (10)
- B. Discuss construction, procedure and interpretation of USP Tablet Friability Test. (10)

**Question No 7**

Write a note on following test

- A. Test for glass containers
- B. Alcoholic content determination
- C. Chemical and biological assay
- D. Requirements and specification for clarity testing of large and small volume parenteral

(5x4=20)



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-VI (Pharmaceutical Quality Management) (New Course)

TIME ALLOWED: 30 min.

MAX. MARKS: 20

**PAPER: 5 Part – I (Compulsory)**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

## Question 1

1. Specifications and method of content uniformity test of a dosage form is given in \_\_\_\_\_ of official compendia
  - A. Monograph
  - B. Appendix
  - C. General note
  - D. Miscellaneous test
2. Information about the apparatus of dissolution test is given in \_\_\_\_\_ of official compendia
  - A. Monograph
  - B. Appendix
  - C. General note
  - D. Miscellaneous test
3. Closeness of test results to obtained by an analytical procedure is:
  - A. Accuracy
  - B. Precision
  - C. Specificity
  - D. Sensitivity
4. Limit of detection and limit of quantification refer to which of the following validation term
  - A. Accuracy
  - B. Precision
  - C. Specificity
  - D. Sensitivity
5. Which of following is most selective analytical technique
  - A. Titrimetric analysis
  - B. HPLC
  - C. UV Spectroscopy
  - D. IR Spectroscopy
6. Which of the following is not an official test for tablets
  - A. Content uniformity
  - B. Disintegration
  - C. Dissolution
  - D. Weight variation
7. which of the following is an official in process quality control (IPQC) test
  - A. Content Uniformity
  - B. Disintegration
  - C. Dissolution
  - D. Percentage purity
8. According to British Pharmacopoeia, the percentage difference acceptable for tablets weighing 80 mg or less is \_\_\_\_\_
  - A.  $\pm 10.0 \%$
  - B.  $\pm 7.5 \%$
  - C.  $\pm 5.0 \%$
  - D.  $\pm 3.0 \%$
9. \_\_\_\_\_ number of tablets are used in basket rack assembly of disintegration test apparatus
  - A. 5
  - B. 6
  - C. 8
  - D. 10

PTO

10. According to BP, compressed tablets should disintegrate within
  - A. 10 minutes
  - B. 15 minutes
  - C. 30 minutes
  - D. 60 minutes
11. \_\_\_\_\_ test apparatus is normally used for dissolution testing of capsules
  - A. Type I (Basket apparatus)
  - B. Type II (Paddle apparatus)
  - C. Type IV (Flow through cell)
  - D. Type V (Paddle over disc)
12. Determination of content uniformity is official test for
  - A. Raw material of active pharmaceutical agent
  - B. Dosage form of active pharmaceutical agent
  - C. Both A & B
  - D. It is not an official test for either raw material or dosage form
13. Which of the following is not an Assay procedure
  - A. Identification test
  - B. Content uniformity test
  - C. Percentage purity
  - D. Dissolution testing
14. Type of viscosities, EXCEPT \_\_\_\_\_ are dependent on the surrounding conditions
  - A. Dynamic viscosity
  - B. Kinematic viscosity
  - C. Absolute viscosity
  - D. Relative viscosity
15. \_\_\_\_\_ viscometer is used for Newtonian fluids
  - A. Ostwald viscometer
  - B. Falling ball
  - C. Rotational viscometer
  - D. All of the above
16. LAL test for pyrogen testing is a \_\_\_\_\_
  - A. Qualitative test
  - B. Quantitative test
  - C. Semi quantitative test
  - D. Not either quantitative or qualitative
17. \_\_\_\_\_ is primarily intended for the culture of anaerobic bacteria; however, it will also detect aerobic bacteria.
  - A. Fluid thioglycollate medium
  - B. Agar broth medium
  - C. Agar casein medium
  - D. Soya-bean casein digest medium
18. In clarity test of large volume parenteral. The preparation complies with the test if the average number of particles present in the units tested does not exceed 6000 per container equal to or greater than 10  $\mu\text{m}$  and does not exceed \_\_\_\_\_ per container equal to or greater than 25  $\mu\text{m}$ .
  - A. 300
  - B. 600
  - C. 900
  - D. 1000
19. Following Quality Control test is not performed for parenteral preparations
  - A. Dissolution
  - B. Weight variation
  - C. Content uniformity
  - D. Assay of active ingredient
20. All the following statements regarding 3 sigma are true EXCEPT
  - A. Probability that a random value of measurement falls between 3 sigma limits is 0.9973
  - B. Probability that a random value of measurement falls outside 3 sigma limit is 0.0027
  - C. Probability that a random value of measurement falls between 3 sigma is very low
  - D. Probability that a random value of measurement falls outside 3 sigma is very low



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Chemistry-III (Medicinal Chemistry)

PAPER: 1 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question. carry equal marks.**

Q. 2: Discuss the Medicinal Chemistry of anti-metabolites as anti-cancer drugs. (20)

Q. 3: Discuss in detail the medicinal chemistry of General Anaesthetics. (20)

Q. 4: Compare natural penicillin with amino penicillin in regards to structural activity relationship. (20)

Q. 5: Describe medicinal chemistry, mechanism and therapeutic applications of the following:

i- Acetazolamide (10)                      ii- Acyclovir (10)

Q. 6: - Discuss the Medicinal chemistry of sulphonamides. (20)

Q. 7: Discuss the chemistry, mechanism of action, synthesis, SAR of the following:

a)- Paraaminosalicylic acid (10)                      b)- Ethambutol (10)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Final Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmaceutical Chemistry-III (Medicinal Chemistry)**

**TIME ALLOWED: 30 min.**

**PAPER: 1 Part – I (Compulsory)**

**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q 1: Multiple Choice Questions (MCQs). Please encircle the correct statement (1X20=20)

- 1- Which of the following is correct for nitrogen present in quinuclidine ring of cinchona alkaloids?
  - a. Primary
  - b. Secondary
  - c. Tertiary
  - d. Quaternary
- 2- Chloroquine belongs to which of the following group?
  - a. 4-aminoquinoline
  - b. 8-aminoquinoline
  - c. 9-aminoacredine
  - d. 9-phenethrenyl methanol
- 3- Which of the following isomer of ethambutol is 16 times more active?
  - a. (d)
  - b. (l)
  - c. (dl)
  - d. (z)
- 4- Anti-TB action of pyrazinamide is due to which of the following?
  - a. Makes pH basic
  - b. Makes pH acidic
  - c. Makes pH neutral
  - d. No effect on pH
- 5- Which of the following is 2<sup>nd</sup> line anti-TB drug?
  - a. Isoniazid
  - b. Ethambutol
  - c. Pyrazinamide
  - d. Paraminosalicylic acid
- 6- In methotrexate OH of pteridine ring of folic acid is replaced by which of the following?
  - a. Amino group
  - b. Acetyl group
  - c. Methyl group
  - d. Nirtile group
- 7- Which of the following is correct for antiseptics?
  - a. kill or prevent infection with damaging living tissues
  - b. kill or prevent infection without damaging living tissues
  - c. kill or prevent infection on non-living tissues
  - d. kill or prevent infection on housed animals
- 8- Thiabendazole belongs to which of the following class?
  - a. Piperazines
  - b. Antimalarials
  - c. Benzimidazoles
  - d. Benzamides
- 9- Chemically, hexachlorophene is which of the following?
  - a. Biguanide
  - b. Furan derivative
  - c. Bisphenol
  - d. None of above
- 10- Drugs that help the body to get rid of parasitic worms are regarded as which of the following?
  - a. Antibiotics
  - b. Anthelmintics
  - c. Antipyretics
  - d. None of above

**PTO**

- 11- Which of the following alkaloid contains nitrogen outside the ring?
- Ephedrine
  - Reserpine
  - Morphine
  - Ergotamine
- 12- Which of the following NSAID is used in racemic form?
- Ibuprofen
  - Diclofenac
  - Mefenamic acid
  - Indomethacin
- 13- Morphine contains how many rings?
- 3
  - 4
  - 5
  - 6
- 14- Chemical nature of hydrochlorthiazide is which of the following?
- Basic
  - Acidic
  - Neutral
  - None of above
- 15- Hydrochlorthiazide contains how many benzene rings?
- 1
  - 2
  - 3
  - 4
- 16- Which of the following statements is true regarding methicillin structure?
- There is no electron withdrawing group on the side chain, and so it is acid sensitive.
  - It can be taken orally.
  - It is more active than penicillin G.
  - It has a broader spectrum of activity compared to penicillin G.
- 17- What role does the acetoxy group at the 3-position of cephalosporins in enhancing antibacterial activity?
- It acts as a steric shield and masks enzymatic attack at the  $\beta$ -lactam ring.
  - It acts as a good leaving group when the  $\beta$ -lactam ring is opened
  - It takes part in a transesterification reaction with the carboxylic acid group at position 4.
  - It increases the reactivity of the  $\beta$ -lactam ring by neighbouring group participation.
- 18- The following structure is for which of the following?
- 
- Methacillin
  - Colaxicillin
  - Penicillin V
  - Penicillin
- 19- Which of the following statements does not characterize penicillin and its relatives?
- They are relatively mild.
  - The specifically target bacterial cell walls, so they are selectively toxic.
  - They can induce an allergic response in some individuals.
  - Some bacteria inactivate this drug by producing clavulanic acid.
- 20- Lidocaine is a longer lasting local anesthetic than procaine. Which of the following statements is false?
- Lidocaine is more stable to hydrolysis.
  - The methyl substituents in lidocaine are important to its stability.
  - The amide group in lidocaine is important to its stability
  - The  $\text{NH}_2$  group in procaine makes procaine less stable than lidocaine



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

**Subject: Pharmaceutics-IX (Clinical Pharmacy-II)**

TIME ALLOWED: 30 min.

MAX. MARKS: 20

**PAPER: 2 Part – I (Compulsory)**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Marks. This Paper will be collected back after expiry of time limit mentioned above.**

**Q 1: Select the most appropriate option**

**1\*20**

1. Therapeutic drug monitoring (TDM) is required if
  - a) Drug is given in high doses
  - b) Patients with concomitant disease
  - c) Drug has unpredictable toxicity profile
  - d) Both, A & C
2. The length of time for which the drug remains above MEC (minimum effective concentration) is called
  - a) Intensity of action
  - b) Duration of action
  - c) Minimum plasma concentration (Cmin)
  - d) None of the above
3. In TDM, Loading dose (LD) is determined by
  - a) Volume of distribution
  - b) Half-life
  - c) Protein binding
  - d) Clearance
4. In TDM, maintenance dose (MD) is determined by
  - a) Protein binding
  - b) Clearance
  - c) Bio-availability
  - d) Volume of distribution
5. Tetanus vaccine is indicated when a wound is contaminated with:
  - a. Oil
  - b. Acid
  - c. Ethanol
  - d. Soil
  - e. Wine
6. Which of the following hepatitis viruses is not RNA virus?
  - a. Hepatitis A virus
  - b. Hepatitis B virus
  - c. Hepatitis E virus
  - d. Hepatitis G virus

7. What is the most common manifestation of pulmonary disease in HIV infected patients?
- Pneumonia
  - Carcinoma
  - Bronchiectasis
  - Asthma
8. Which among the following diuretics causes most severe kaliuresis
- Loop Diuretics
  - Thiazide
  - Mannitol
  - Carbonic anhydrase inhibitors
9. Which of following Beta blocker is used in patient with marked bradycardia and tiredness
- Bisoprolol
  - Carvedilol
  - Pindolol
  - Metoprolol
10. Verapamil is associated with following side effect
- Reflex tachycardia
  - Gum hypertrophy
  - Constipation
  - Diarrhea
11. Which of the following antihypertensive is indicated in patients with BPH
- Labetolol
  - Indapamide
  - Valsartan
  - Terazosin
12. Which of the following antihypertensive is indicated in patients with BPH
- Labetolol
  - Indapamide
  - Valsartan
  - Terazosin
13. Which among the following diuretics should be avoided in DM
- Loop Diuretics
  - Thiazide
  - Potassium Sparing
  - Carbonic anhydrase inhibitors

14. Which among the following diuretics is also effective in reducing risk of hip fracture
- Loop Diuretics
  - Thiazide
  - Potassium Sparing
  - Carbonic anhydrase inhibitors
15. Which of the following should be avoided in NSTEMI
- Heparin
  - Alteplase
  - Clopidogrel
  - Enoxaparin
16. Which of the following drug doesn't result in reflex tachycardia
- Amlodipine
  - Enalapril
  - Nitrate
  - Phentolamine
17. \_\_\_\_\_ decreases theophylline clearance;
- Cimetidine
  - Albuterol
  - Ipratropium bromide
  - Epinephrine
  - Atropine
18. \_\_\_\_\_ has high beta-2 adrenergic selectivity;
- Cimetidine
  - Albuterol
  - Ipratropium bromide
  - Epinephrine
19. Allopurinol is recommended instead of probenecid in the treatment of hyperuricemia in which of the following situations
- When the patient has several large tophi on the elbows and knees
  - When the patient has an estimated creatinine clearance of 15 mL/min
  - When the patient has leukemia and there is concern regarding precipitation of urate
  - All of above
20. Which of the following causes scabies?
- Virus
  - Bacteria
  - Fungi
  - Eight-legged mite



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-IX (Clinical Pharmacy-II)

PAPER: 2 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

Q. # 2:

- (a) Write precise note on Candidiasis (10)
- (b) Write a detailed note on therapeutic drug monitoring of Lithium (10)

Q. # 3.

Write a note on Pharmacist work-up of drug therapy (PWDT) (20)

Q.# 4.

- (a) Describe Therapeutic Monitoring of Single dose and once daily Gentamicin regimen with and without Renal Impairment (8 marks)
- b) What are the pharmacological options for Hepatitis B virus (8)
- (c) Write a brief note on Stratified Sampling method (4)

Q. # 5.

- (a) Write down treatment plan for acute coronary syndrome (10)
- (b) Write a detailed note on the non-pharmacological management of Diabetes and role of Pharmacist in its management (10)

Q. # 6.

- (a) Discuss first and second line antimicrobial options for Upper Respiratory Tract Infections (8)
- (b) Explain Cost-benefit analysis. Also discuss the advantages and limitations of this analysis (7)
- (c) How treatment response is monitored in HCV patients (5 marks)

Q. # 7.

- (a) What is the rational approach in the selection of antibiotics for treatment? (4)
- b) What hemodynamic changes occur in the body after the invasion of infectious agent? (8)
- c) Write about the respiratory changes during infection. (8)



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmaceutical Technology**

**PAPER: 3 Part – I (Compulsory)**

**TIME ALLOWED: 30 min.**

**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark.. This Paper will be collected back after expiry of time limit mentioned above.**

1. The new generation dosage forms have the characteristics.
  - A. unpalatability
  - B. Controllable release of drug
  - C. Excessively prolonged duration of action
  - D. Poor drug absorption
2. A pharmaceutical excipient has following feature(s).
  - A. Required as relative amounts in pharmaceutical dosage form
  - B. Required in specific amounts to obtain desired formulation properties
  - C. Considered functionally active
  - D. All of A, B and C
3. Which of the following is NOT true for the immediate release dosage?
  - A. Demonstrates more absorption
  - B. Multiple dosing produces relatively flatter (unfluctuation) plasma level time curve
  - C. Release rate is greater than the absorption rate
  - D. C max is achieved earlier
4. Which of the following statement is true for the dosage form? .
  - A. For prolonged action, increasing dose frequency is the feasible option
  - B. Aim of dosage form is to achieve un-fluctuated plasma level time
  - C. Most of the conventional dosage forms are controlled release formulations
  - D. For prolonged action, the dose in immediate dosage form can be increased
5. According to USP, a modified release formulation may provide the following EXCEPT:
  - A. Control over temporal release.
  - B. Control over spatial release.
  - C. Control over both, temporal and spatial release.
  - D. Therapeutic or convenience objectives similar to a conventional dosage form
6. Which combination reflects an ideal modified release system?
  - A. Sustain drug action + defined release rate + maintained a constant blood concentration + effective blood level.
  - B. Sustain drug action + maintained a constant blood concentration + effective blood level.
  - C. Defined release rate + effective blood level.
  - D. Sustain drug action + defined release rate + effective blood level.
7. Which of the following statements is NOT true?
  - A. After single dose, extended release formulation releases drug slowly
  - B. Extended release formulation shows a delayed onset of action
  - C. The duration of action of extended release formulation is greater
  - D. Extended release formulation has higher values of absorption rate constant.
8. Which of the following statements is NOT true?
  - A. A delayed release formulation essentially contains two portions of drug one as loading dose and others is maintenance dose
  - B. Extended release formulation releases drug for a longer period of time.
  - C. Extended release formulation releases drug in a planned, predictable and slower-than-the normal manner
  - D. Extended release formulation is an example of modified release formulations
9. The features required for presenting a drug as modified release formulation EXCEPT.
  - A. Unionized drug molecule at absorption site
  - B. pH dependent aqueous solubility
  - C. High partition coefficient
  - D. Smaller drug molecule

10. Following is the most selective technique used for identification of polymorphs in high throughput screening
- FTIR
  - Single crystal X-ray Diffraction
  - Powder X-ray Diffraction
  - Differential scanning calorimetry
11. Amorphous compounds normally have low
- Entropy
  - Enthalpy
  - Dissolution rate
  - Melting point
12. Crystalline or amorphous nature of a compound can be determined by
- Visual inspection
  - Microscopy
  - FTIR analysis
  - DSC analysis
13. Parenteral preparation are normally prepared in \_\_\_\_\_
- Solution form
  - Suspension form
  - Emulsion form
  - All of the above
14. Melting is a \_\_\_\_\_ process
- Exothermic
  - Endothermic
  - Non thermic
  - Hyper thermic
15. High through put screening of polymorphs is a \_\_\_\_\_ of Pharmaceuticals
- Part of preformulation studies
  - Recrystallization under variety of set conditions
  - Parallel crystallizations
  - All of the above
16. Pre-formulation stage of product development provides
- Pharmaceutical problems associated with the molecule
  - Proper direction for the formulation
  - Intelligent selection of new compound from discovery
  - All above option are correct
17. Solid state characterization during product development focusses on searching the
- Most soluble polymorph
  - Most stable polymorph
  - All possible polymorphs
  - Most active polymorphs
18. Ethyl cellulose and PVA are classified under which category of polymers
- Natural polymers
  - Biodegradable polymers
  - Non-biodegradable polymers
  - Homopolymers
19. Amorphous substances when added in water give rise to an initial high solubility known as \_\_\_\_\_ that come back to equilibrium when saturation is reached
- Equilibrium solubility
  - Saturated solubility
  - Apparent solubility
  - Intrinsic solubility
20. Finely divided lactose is used as carrier in \_\_\_\_\_ drug delivery systems
- Aerosols
  - Implants
  - Powdered drug inhalers
  - Nasal drug delivery



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Technology

PAPER: 3 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each question carry equal marks.**

- Q. 2. (a) Describe methods of preparation and applications of niosomes. (12)  
(b) Describe processes for coating multiparticulates. (08)
- Q.3. (a) Describe the pharmacokinetic properties considered for defining the candidature of the drug for modified delivery system. (10)  
(b) Describe briefly the theory of designing modified release delivery from approximation to optimization. (10)
- Q. 4. (a) Discuss different types of matrix systems designed for extended release of drug. (12)  
(b) Describe passive strategies in drug delivery and targeting systems. (08)
- Q.5. (a) Discuss the production of biopharmaceuticals with special reference to insulin. (10)  
(b) What are the immobilized enzymes? How they are prepared? (10)
- Q.6. (a). Define phenomenon of polymorphism. Write down different techniques used for identification of polymorphism. (15)  
(b) Write down the implications/ application of salt screening in the drug developmental process. (5)
- Q. 7. (a) What are the physicochemical consideration in dosage form design? What type of studies are conducted for determining solubility profile of a newly discovered drug? (10)  
(b) What is the importance of the followings properties at the stage of product development? (2 marks each)
- |                                 |                        |
|---------------------------------|------------------------|
| i) Solid state stability        | ii) Particle shape     |
| iii) Intrinsic dissolution rate | iv) Age of the patient |
| v) First pass effect/metabolism |                        |



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Final Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Forensic Pharmacy**  
**PAPER: 4 Part – I (Compulsory)**

**TIME ALLOWED: 30 min.**  
**MAX. MARKS: 20**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

**Q.1 Select and mark the most appropriate answer of each of following questions.**

1. Adulterated drugs means a drug that contains
  - A. Decomposed substance
  - B. Contaminated with dirt.
  - C. Deleterious substance
  - D. All of the given options are correct
2. Imitation product means a product that is
  - A. Homeopathic
  - B. Allopathic
  - C. Contaminated with dust
  - D. Resembles with some drug in its outer packing.
3. In case of inconsistency between DRAP Act 2012 and Drugs Act 1976, provision of which Act will prevail
  - A. Drugs Act 1976
  - B. DRAP Act 2012
  - C. Factory Act 1934
  - D. All of above
4. On which Form; Federal Inspector of Drugs requiring a person not to dispose of the stocks in his possession.
  - A. Form 1
  - B. Form 2
  - C. Form 4
  - D. Form 5
5. Under Clause f of sub-section 1 of section 18 under Drugs Act 1976 Inspector of Drugs can
  - A. Seal the medical store.
  - B. Take samples
  - C. Seize the drug
  - D. Call for personal appearance.
6. A medical store can sell, store, exhibit for sale, & distribute drugs other than those specified in
  - A. Schedule B
  - B. Schedule F
  - C. Schedule D
  - D. Schedule G
7. Daily working hrs for adult worker in non-seasonal factory shall be nine hrs and in seasonal factory he may work for
  - A. 11 hrs
  - B. 10 hrs
  - C. 13 hrs
  - D. 12 hrs
8. Notice of an examination for registration as pharmacist under Pharmacy Act 1967 shall be published for a continuous period of not less than
  - A. One year
  - B. Two weeks
  - C. One month
  - D. One week

**PTO**

9. The certificate of fitness for employment in a factory by authorized practitioner shall be valid for a period of
- One month
  - Two month
  - Three month
  - Four month
10. Drug Regulatory Authority of Pakistan ( DRAP) is a
- Provincial Organization
  - District Organization
  - Federal Organization
  - All of above
11. Enlistment certificate for herbal drug issued on
- Form 4
  - Form 5
  - Form 6
  - Form 7
12. Which one is NOT a cognizable offence?
- sale of expired drug
  - Sale of spurious drug
  - Sale of un-registered drug
  - manufacturing of drugs without License.
13. A person sentenced by the Drug Court may prefer an appeal to a bench of
- Supreme Court
  - High Court
  - Session Court
  - Civil Court
14. Which statement is correct?
- Constitution is framed under Act
  - Rules are framed under Act
  - Act is framed under Rules.
  - None of above.
15. Application of drug registration for imported drug is given on
- Form 5-A
  - Form 5-B
  - Form 5-D
  - Form 5-E.
16. Federal Drug Inspector can forward cases of contravention of Drugs Act to
- Registration Board
  - Central Licensing Board.
  - Any other authority specified for the purpose.
  - All of above.
17. Duration of validity of registration certificate of drug is
- one year
  - Three years
  - Five years
  - Ten years.
18. Minimum age limit for appointment as CEO of DRAP is
- 40 years
  - 45 years.
  - 50 years
  - 55 years.
19. Prices of drugs fixed under which section of Drugs Act 1976
- section 8
  - Section 10
  - Section 12
  - Section 14
20. Drug Appellate Board listen the appeals against decisions of
- Provincial Quality control Board
  - Registration and Licensing Board.
  - Pharmacy Council
  - All of above.



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Forensic Pharmacy  
PAPER: 4 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

- Q 2 Give brief answers of following terms. 5 Marks each
- Spurious drug as per Drugs Act 1976.
  - Controlled delivery under Control of Narcotic Act 1997.
  - Landed cost as per Pricing Policy.
  - Pharmacy Services under DRAP Act 2012.
- Q 3 a) Describe the requirements of storage area as given in Schedule B under Drugs Act 1976. 10
- b) Enlist various categories of drugs/remedies that can be advertised without permission from Government. 10
- Q 4 a) Describe Prohibitions as given under section 23 of Drugs Act 1976. 10
- b) Give procedure of sampling by an Inspector as described under section 19 of Drugs Act 1976. 10
- Q 5 a) Write note on Drug discounts and price adjustment Rules 2006. 10
- b) Describe the procedure of registration of drugs for local manufacturing. 10
- Q 6 a) Mr. "X" want to start a business of sale of drugs including compounding and dispensing. Discuss the extra conditions according to Punjab Drugs Rules 2007 which he has to fulfill to get permission for such service. 10
- b) Describe the functions of Drug Regularity Authority of Pakistan (DRAP). 10
- Q 7 a) Discuss the inspecting staff and their powers under Factory Act 1934. 10
- b) Describe the following under Pharmacy Act 1967. 5 Marks each
- Prohibition of practice without registration
  - Bye laws made by central and provincial council.



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Final Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Subject: Pharmaceutical Management & Marketing

TIME ALLOWED: 30 min.

**PAPER: 5 Part – I (Compulsory)**

MAX. MARKS: 20

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct statement. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q.1. Select the best possible answer from the following MCQs

1. Pricing of pharmaceutical product is regulated by
  - a) Ministry of health
  - b) Ministry of finance
  - c) Ministry of regulatory affairs
  - d) All of the above
2. Purpose of advertisement is to -----
  - a) Inform
  - b) Persuade
  - c) Remind
  - d) All of above
3. ----- is non paid form of promotion.
  - a) Publicity
  - b) Advertisement
  - c) Personal selling
  - d) Both a and c
4. The management activities of retail outlet includes :
  - a) Purchasing
  - b) Inventory control
  - c) Supervising technicians
  - d) All of above
5. Unearned income is recorded as
  - a) Liability
  - b) Income
  - c) Assets
  - d) Revenue
6. Set of individual products closely related and intended for similar use is
  - a) Product line
  - b) Product mix
  - c) Product assortment
  - d) Individual products
7. Life cycle of product consist of
  - a) Introduction ,growth,maturity,decline
  - b) Growth , maturity , balance , decline
  - c) Maturity , growth , hyper marketing , decline
  - d) Introduction , maturity , decline , growth
8. Introduction of product at higher price in the market represents :
  - a) Market penetration strategy
  - b) Market skimming strategy
  - c) Market evaluation strategy
  - d) Market influencing strategy

9. Monitor and measurement in management decision making process refers to :
- a) Organizing
  - b) Controlling
  - c) Planning
  - d) Documenting
10. A person who actually develops new idea product or service is
- a) Creator
  - b) Inventor
  - c) Champion
  - d) Sponsor
11. When a company strives to appeal to multiple well defined market segments with a strategy tailored to each segment, it is applying
- a. Undifferentiated marketing
  - b. Differentiated marketing
  - c. Concentrated marketing
  - d. The majority fallacy
12. In terms of goods and services, the function of marketing is to ----- demand
- a. Plan
  - b. Create
  - c. Price
  - d. Promote
13. Branding is concerned with ----- component of four \_P's.
- a. Promotion
  - b. Place
  - c. Price
  - d. Product
14. A products position is located in the minds of -----
- a. Advertiser
  - b. Salesman
  - c. Consumer
  - d. All of these

15. Narrowly focused markets that are defined by some special interest are termed as \_\_\_\_\_.
- a. Target markets
  - b. Mass markets
  - c. Niche markets
  - d. Undifferentiated markets.
16. The fundamental service benefit for which a customer is buying a product is \_\_\_\_\_.
- a. Core benefit
  - b. Basic benefit
  - c. Intrinsic benefit
  - d. Ultimate benefit
17. The product that exceeds customers' expectations due to value addition is \_\_\_\_\_.
- a. Basic product
  - b. Core product
  - c. Expected product
  - d. Augmented product
18. Tangible goods that can be used many times are \_\_\_\_\_.
- a. Non-durable
  - b. Durable
  - c. Services
  - d. Basic goods
19. What usually directs a consumer behaviour towards attaining his / her needs is a \_\_\_\_\_.
- a. Stimuli
  - b. Motive
  - c. Need
  - d. Desire
20. Another word for complete segmentation is:
- a. Macromarketing.
  - b. Micromarketing.
  - c. Niche marketing.
  - d. Mass marketing



# UNIVERSITY OF THE PUNJAB

Final Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Management & Marketing  
PAPER: 5 (Part – II)

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each question carry equal marks.

- Q.2. Discuss importance of pharmacy lay out design. Explain different types of layout design. (20)
- Q.3. What are important factors of motivation and discuss in detail the motivation theories. (20)
- Q.4. a). Discuss the significance of staffing and training in organizing. (10)
- b). what remedial action are needed by a manager during controlling. (10)
- Q.5. a). What are different barrier in effective communication. (10)
- b). Discuss various essential and non essential of communication Dos. (10)
- Q.6. Define the importance of controlling and discuss in detail three key steps of controlling. (20)
- Q.7. a). Discuss the basic needs of material management. (08)
- b). Briefly explain elements and functional areas of material management. (12)



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Final Prof : Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Subject: Computer and its Application in Pharmacy

TIME ALLOWED: 30 min.

MAX. MARKS: 20

PAPER: 6 Part – I (Compulsory)

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

- Q.1. \_\_\_\_\_ is the processed and organized data presented in a meaning form.
- A. Data
  - B. Information
  - C. Byte
  - D. None of Above
- Q.2. A byte can store
- A. Alphabet
  - B. Special Character
  - C. Space
  - D. All of Above
- Q.3. Any data or instructions entered into the memory of a computer is considered as
- A. Storage
  - B. Input
  - C. Output
  - D. Information
- Q.4. A Special Character can be stored in
- A. One byte
  - B. Two bytes
  - C. Three bytes
  - D. Four bytes
- Q.5. Hardware refers to
- A. Collection of Programs
  - B. Electronic and Electromagnetic Devices
  - C. Data of Information
  - D. Any Collection of Data
- Q.6. Which of the followings is a Primary Storage Device?
- A. Hard Disk
  - B. RAM
  - C. Flash USB Drive
  - D. CPU
- Q.7. Which of the following is not an application software package?
- A. Redhat Linux
  - B. Microsoft Office
  - C. Adobe Reader
  - D. Open Office
- Q.8. Which of the following is generally called “The brain of the Computer”.
- A. Memory
  - B. Central Processing Unit
  - C. Hard Disk
  - D. Registers
- Q.9. A list of instructions used by a computer is called
- A. Text
  - B. CPU
  - C. Program
  - D. Output
- Q.10. Cache Memory exist in
- A. ROM
  - B. Hard Disk
  - C. Central Processing Unit
  - D. Registers

PTO

- Q.11. Which is considered a direct entry input device?
- A. Optical Scanner
  - B. Mouse
  - C. Light Pen
  - D. All of the above
- Q.12. Computer Virus is a \_\_\_\_\_.
- A. Hardware
  - B. Software
  - C. Bacteria
  - D. Freeware
- Q.13. The Operating system Manages
- A. Memory
  - B. Processor
  - C. Disk and I/O Devices
  - D. All of the above
- Q.14. Which Printer is an expensive one and better then from other printers in performance?
- A. Dot-Matrix Printer
  - B. Laser Printer
  - C. Ink-Jet Printer
  - D. Thermal Printer
- Q.15. The main role of data de-fragmentation is to
- A. Secure your data from viruses
  - B. Stop unauthorized use of data
  - C. Increase the data access speed
  - D. None of the Above
- Q.16. Pictures/Images may have the following file extensions.
- A. exe, doc, pdf
  - B. dll, lib, ppt
  - C. bmp, gif, jpg
  - D. txt, zip
- Q.17. The physical arrangement in a computer that contains the computer's basic circuitry and components is called.
- A. Processor
  - B. Hard Disk
  - C. Motherboard
  - D. RAM
- Q.18. Operating System is an example of \_\_\_\_\_.
- A. Application Software
  - B. Banking System
  - C. System Software
  - D. Management Information System
- Q.19. If we increase the size of RAM, then system will reduce the usage of \_\_\_\_\_.
- A. ROM
  - B. Virtual Memory
  - C. Cache Memory
  - D. Registers
- Q.20. A normal CD- ROM usually can store up to \_\_\_\_\_ data?
- A. 680 KB
  - B. 680 Bytes
  - C. 680 MB
  - D. 680 GB



# UNIVERSITY OF THE PUNJAB

Final Prof : Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Computer and its Application in Pharmacy  
APER: 6 Part – II

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 30

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt all questions. Each question carry equal marks.

Question: 10 Marks

What is meant by Internet? How does the internet impact on the socio-economic aspects of our lives?

Question: 10 Marks

What is the difference between systems analysis and systems design?

Question: 10 Marks

What is Data Processing and Data Processing Cycle, and also describe the difference between Batch Processing and Real-Time Processing.

Question: 10 Marks

You have established a small office and you have to purchase a computer for this office. Please list down the specifications of the following devices that will fulfill your needs as a small office user.

- Processor
- Memory
- Input Devices
- Storage Devices
- Communication Devices

Question: 10 Marks

Define the following terms briefly. Each term should be defined no more than six lines.

- ROM & RAM
- Interactive Whiteboard
- Computer Viruses & Anti-Viruses



# UNIVERSITY OF THE PUNJAB

Second Prof:Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmaceutics-II (Pharmaceutical Preparations) (Old Course)**  
**PAPER: 1**

**TIME ALLOWED: 3 Hrs.**  
**MAX. MARKS: 100**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt any Five questions. Each question carry equal marks.**

- Q.1.(a) Define Aerosol disperse system? Briefly explain the Types of aerosol system? (10)
- (b) How many grams of dextrose are required to prepare 4000ml of a 5% solution? (10)
- Q.2 . (a) Define and classify emulsifying and suspending agents? (08)
- b) Define Capsule. Discuss in detail its application and preparation of hard gelatin capsule. (12)
- Q.3. (a) Define Extraction. How it will be classified. Discuss Maceration process in detail. (14)
- (b) How the suppositories are classified according to their route of administration. (06)
- Q.4 Q.1 a) Define the suppositories. Discuss their medical applications and advantages in Pharmacy. (10)
- b) What are the steps involved in wet granulation method for tablet formulations? (10)
- Q. 5 What is TDDS. Give examples and explain the factors affecting on the percutaneous absorption of TDDS. (10)
- (b) Briefly discuss the different types of nasal and otic preparations? (10)
- Q.6 (a) Define and differentiate between syrups and elixirs, How the elixirs are Prepared? (10)
- (b) ) What should be the characteristics of good suppositories base. Also discuss the methods of suppositories preparation. (10)
- Q.7 Write note on
- a) Pharmaceutical Solvents (07)
- b) Capsule & its preparation (07)
- c) Enemas & Douches (06)



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacology & Therapeutics-I (Old Course)

PAPER: 2

TIME ALLOWED: 3 Hrs.

MAX. MARKS: 100

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any Five questions. Each question carry equal marks.

Q.No.1. Describe the main classes of receptors. Discuss ligand-gated ion channels. (20)

Q.No.2. What do you understand by Hypertension? Classify Antihypertensive Drugs? Explain Calcium Channel blockers & ACE Inhibitors in detail? (20)

Q.No.3. Define Angina Pectoris? Explain in detail the mechanism of action of Antianginal drugs? (20)

Q.No.4 (A) Discuss the pharmacology of Proton pump inhibitors? (10)

(B) Classify the drugs used in constipation and discuss prokinetic agents in detail? (10)

Q.No.5. Define pharmacokinetics. Describe the absorption of drugs. State the factors which can affect the absorption of drugs. (20)

Q.No.6 Classify bronchodilators? Discuss in detail pharmacology of beta 2 agonists and methylxanthines? (20)

Q.No.7. Write Short Notes on : (5+5+5+5)

- I. Physostigmine
- II. Phenoxybenzamine
- III. Pilocarpine
- IV. Reserpine



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacognosy-I (Old Course)  
PAPER: 3

TIME ALLOWED: 3 Hrs.  
MAX. MARKS: 100

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any Five questions. Each question carry equal marks.

- Q-No.1. Write notes on the following?
- (i) Adulteration and its types. 10
  - (ii) Drying of Crude drugs 10
- Q-No.2. (A) Define the following terms? (2x5=10)
- (i) Advanced crude drug (iii) Stomata Index
  - (ii) Phytoenzymes (iv) Iodine value
  - (v) Pharmacognosy
- (B) Write note on Apocynaceae? (10)
- Q-No.3. Write note on any two enzymes of plant origin? (10+10=20)
- Q-No.4. (A) Define Plant growth regulators? Write in detail Auxin and Cytokinin? 20
- Q-No.5. Explain organoleptic evaluation with examples? 20
- Q-No.6. Explain the following crude drugs? (5x4=20)
- 1) Acacia 2) Papaver somniferum 3) Rauwolfia 4) Colchicum
- Q-No.7. Define allergy and describe its various types? Explain inhalant allergy 20



# UNIVERSITY OF THE PUNJAB

Second Prof:Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmaceutics-III (Pharmaceutical Microbiology & Immunology) (New Course)**

**TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80**

**PAPER: 4 Part – II**

***Attempt this Paper on Separate Answer Sheet provided.***

**Attempt any Four questions. Each question carry equal marks.**

- Q.2. a). Give classification of bacteria with their characteristic features. (10)  
b). Discuss growth of microbes and factors regulating their growth. (10)
- Q.3. a). Define virus and classify virus by nature of Genomes? (10)  
b). What are the modes of viral multiplication? (10)
- Q.4. a). Name different classes of disinfection, describe how will you disinfect clean room of an industry? (08)  
b). Define fermentation, describe steps in the production of antibiotics at industrial scale. (12)
- Q.5. Why Hospital Hygiene is important? Discuss briefly nosocomial infections. (20)
- Q.6. Give brief answers of the followings: (5 marks each)  
i. Type-I hypersensitivity reactions  
ii. Gaseous sterilization  
iii. Artificially acquired active immunity  
iv. Monitoring of sterilization process



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Second Prof: Annual – 2018

**Examination: Doctor of Pharmacy (Pharm.D.)**

**Subject: Pharmaceutics-III (Pharmaceutical Microbiology & Immunology) (New Course)**

**TIME ALLOWED: 30 min.  
MAX. MARKS: 20**

**PAPER: 4 Part – I (Compulsory)**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCQ carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

Q. I. Select the most appropriate answer.

1. Robert Koch's postulates which provide guidelines to identify the causative agents of an infection endorse;
  - a) Germ theory of Fermentation
  - b) Germ theory of Immunization
  - c) Germ theory of Disease
  - d) Germ theory of Bacteria
2. Who developed Immunization techniques?
  - a) Edward Jenner
  - b) Louis Pasteur
  - c) Fanny Hesse
  - d) Robert Koch
3. An important procedure for differential staining of bacteria was developed by,
  - a) Hans Christian Gram
  - b) Walter Reed
  - c) Theobald Smith
  - d) William Henry
4. In bright field Microscopy, organisms appear
  - a) Bright
  - b) Dark
  - c) Transparent
  - d) None of these
5. Which of the following bacteria lack a cell wall and therefore resistant to penicillin;
  - a) Cyanobacteria
  - b) Mycoplasmas
  - c) Spirochetes
  - d) None of these
6. Methylene Blue is a/an
  - a) Acidic dye
  - b) Neutral dye
  - c) Basic Dye
  - d) None of these
7. In dry heat sterilization ----- damage occur to the microbes
  - a) oxidative
  - b) reductive
  - c) hydrolytic
  - d) nuclear damage
8. Artificially acquired passive immunity can be achieved by-----
  - a) through placenta
  - b) by colostrum
  - c) injecting antibodies
  - d) injecting vaccines
9. Sutures, ointments and syringes are usually sterilized by
  - a) dry heat
  - b) moist heat
  - c) Radiation
  - d) gaseous method
10. Butterfly rash is the typical symptom of following autoimmune disease
  - a) Systemic lupus erythematosus
  - b) Graves disease
  - c) Hashimoto disease
  - d) Rheumatoid arthritis

(P.T.O.)

11. In sterilization, D-value represents the
- Temperature at which 90% of viable cells are killed
  - Increase in temperature at which 90% of viable cells are killed
  - Time taken to kill 90% of viable cells
  - Radiation exposure to kill 90% of viable cells
12. Bacteria that grow at temperature as high as 55°C are known as -----
- Psychrophiles
  - Thermophiles
  - Mesophiles
  - Auxotrophs
13. A declining growth rate occurs during which of the following phase of bacterial cell growth
- Lag phase
  - Exponential phase
  - Stationary phase
  - Death phase
14. Bacteria that makes either a fermentative or respiratory of enzymes are known as
- Obligate anaerobes
  - Obligate aerobes
  - Microaerophile
  - Facultative organism
15. Viruses are obligate intracellular parasite replicate only ----- living host cell .
- Inside
  - Outside
  - Both a and b
  - None of the above
16. Pseudomembranous colitis, a severe disease of bowel is caused by
- Clostridium tetani*
  - Clostridium perfringens*
  - Clostridium difficile*
  - None of these
17. Which of the following heavy metal compound has antimicrobial activity?
- Mercury
  - Silver
  - Copper
  - All of these
18. Which of the following microorganism is used in baking and brewing industry
- Saccharomyces cerevisiae*
  - Saccharomyces rouxii*
  - Candida utilis*
  - None of these
19. The microorganism associated with tooth surface and appears to be the major etiological agent of dental caries (Tooth decay) is
- Propionibacterium acnes*
  - Streptococcus mutans*
  - Corynebacterium*
  - None of these
20. The name Homocytotropic antibodies is given to which antibodies?
- IgM
  - IgA
  - IgE
  - None of these



# UNIVERSITY OF THE PUNJAB

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacy Practice-I (Pharmaceutical Mathematics and Biostatistics (New Course))

TIME ALLOWED: 2 Hrs. & 30 min.  
MAX. MARKS: 80

PAPER: 6 Part – II

Attempt this Paper on Separate Answer Sheet provided.

Attempt any Five questions in all, selecting Three questions from Section I and Two from Section II. Use of Scientific Calculators and Statistical Tables are allowed.

Graph paper may be supplied on demand.

## SECTION – I

Q.1 a) Define the following terms:

(3x2=6)

- skewness
- Co-efficient of variance
- Descriptive Statistics

b) In a series of 100 individual the mean blood glucose in mg/dl was found to be 155 with standard deviation 52, in the same individuals the mean serum cholesterol level in mg/dl was found to be 210 with standard deviation 36. Find which shows greater variation.

(10)

Q.2 a) Clarify each variable a qualitative or quantitative.

(06)

- Color of eyes
- Number of Red cells
- Marital status of faculty member
- Students weight
- Number of shoes
- Brand of cars

b) The following table shows the age distribution of cases of certain disease reported during a year in a particular state.

(10)

Classes:	5 – 14,	15 – 24,	25 – 34,	35 – 44,	45 – 54,	55 – 64,
No. of cases:	5,	10,	20,	22,	13,	5

- find the cumulative frequency distribution
- Find the relative frequency distribution
- Find the mean age
- Find the median age
- Find the upper and lower quartiles.

Q.3 a) Describe properties of Normal distribution.

(06)

b) A Hospital records the weight of every new born child at the hospital. The distribution of weights is normally shaped, has a mean 2.9 Kg., and has a standard deviation, 0.45. Determine the following:

(10)

- The percentage of new born who weigh less than 2.1 Kg
- The percentage of new born who weigh between 1.8 Kg and 3 Kg.
- If 1500 babies have been born at the hospital how many babies have weight less than 2.5 Kg?

Q.4 a) Write down the different steps in testing of hypothesis.

(06)

b) Define the following terms:

(10)

- Null hypothesis
- Alternative hypothesis
- Level of significance
- Test-statistic
- Rejection region

Q.5 a) Write down the testing procedure to test association of two qualitative variables.

(06)

b) A group of 15 normal children in a study had a mean serum iron level of 148  $\mu\text{g}\%$  and standard deviation 44.03. Another groups of 16 children with infantile cirrhosis of liver had mean serum iron level of 151  $\text{Mg}\%$  and standard of 49.04. Is the difference between the two serum means statistically significant?

(10)

deviation

(P.T.O.)

Q.6. The following data obtained in a randomized complete block design with four treatment A, B, C, D and 3 blocks. (16)

Blocks	Treatments			
	A	B	C	D
I	5	12	15	16
II	7	10	14	20
III	8	16	18	17

Prepare a table for analysis of variance and test treatments and blocks at 5% level of significance.

SECTION-II

Q.7. a) Solve the system of equation: (6,5,5)

$\frac{x}{x+1} + \frac{x+1}{x} = \frac{5}{2}$

- b) Insert three harmonic means between  $\frac{1}{3}$  and  $\frac{1}{23}$ .
- c) In how many ways can the letters of the word 'ASSOCIATION' be arranged if all letters are to be used?

Q.8. a) Two cities A and B lie on the equator such that their longitudes are 40° E and 30° W. Find distance between these two cities, taking radius of Earth equal to 6400 Km. (6,5,5)

- b) Find equation of the perpendicular bisector of the line segment joining the points A (3,5) and B (9,8).
- c) Find the Centre and radius of the circle whose equation is  $4x^2 + 4y^2 - 8x + 12y - 25 = 0$

Q.9. a) Express the volume V of a cube as a function of total surface area A. (5,6,5)

- b) If  $f(x) = \sin^3 2x + \ln (2x^3 - 3x)$ , find  $f'(x)$ .
- c) Find  $\int \left[ e^{3x+2} + \frac{x}{\sqrt{4+x^2}} \right] dx$
-



# UNIVERSITY OF THE PUNJAB

Roll No. ....

Second Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

**Subject: Pharmacy Practice-I (Pharmaceutical Mathematics  
and Biostatistics (New Course))**

**TIME ALLOWED: 30 min.  
MAX. MARKS: 20**

**PAPER: 6 Part – I (Compulsory)**

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Each MCO carries 1 Mark. This Paper will be collected back after expiry of time limit mentioned above.**

## **Objective**

Encircle the correct option.

1. The Mean, Median and Mode in a normal distribution are
  - a) Equal
  - b) Not equal
  - c) All zero
  - d) None of these
2. Area under normal curve is
  - a) 0.25
  - b) 0.50
  - c) 0.75
  - d) 1
3. The standard deviation of constant values is
  - a) Zero
  - b) One
  - c) Two
  - d) Three
4. The Median of 10, 8, 9, 30, 15, is
  - a) 8
  - b) 30
  - c) 9
  - d) 10
5. If  $\sigma = 5$ , the mean deviation of normal distribution is
  - a) 4
  - b) 5
  - c) 6
  - d)  $\frac{10}{3}$
6. The coefficient of correlation is geometric mean of Two Regression
  - a) Constant
  - b) Coefficients
  - c) Variable
  - d) None of these
7. If  $b_{yx} = 0.8$  and  $b_{xy} = 0.7$  then coefficient of correlation is
  - a) 0.74
  - b) 0.75
  - c) 0.76
  - d) 0.77
8. The sum of errors of Regression line is always equal to
  - a) Zero
  - b) One
  - c) Maximum
  - d) Minimum
9. The shape of the curve of t-distribution varies with
  - a) Degree of freedom
  - b) Level of significance
  - c) Test-statistic
  - d) P-value
10. In simple t-Test if sample size is 20 then its degree of freedom is
  - a) 17
  - b) 18
  - c) 19
  - d) 20
11. The value of Chi-square lies between
  - a) 0 and  $\infty$
  - b)  $-\infty$  and  $+\infty$
  - c)  $-\infty$  and 0
  - d) -1 and +1

**PTO**

12. There are five treatments in ANOVA then treatment degree of freedom is  
 a) 2 b) 3  
 c) 4 d) 5
13. Solution set of the equation  $\sqrt{x^2 + 5x + 1} = -1$  is  
 a)  $\{0, -5\}$  b)  $\{\}$   
 c)  $\{0, 5\}$  d)  $\{0, 1\}$
14. If 5, 8 are two A.Ms between 'x' and 'y' then x is equal to  
 a) 2 b) 3  
 c) 11 d) 13
15. The number of triangles that can be formed by joining the vertices of 9-sided polygon is  
 a) 9 b) 3  
 c) 27 d) 84
16. The central angle subtended by an arc  $l = 1.5$  cm of a circle of radius  $r = 2.5$  cm is  $\theta$  equal to  
 a) 1.66 b) 3.6  
 c) 0.6 d) 3.75
17. Slope of the line passing through the points A (4, 5) and B (12, -1) is  
 a)  $\frac{3}{4}$  b)  $-\frac{3}{4}$   
 c)  $-\frac{4}{3}$  d)  $\frac{4}{3}$
18. The graph of the function  $f(x) = 12 - 8x + x^2$  will be a  
 a) Circle b) Ellipse  
 c) Straight line d) Parabola
19. The derivative of  $\left(\frac{1}{x^2} - \cos x\right)$  w.r. to  $x$  is  
 a)  $-\frac{2}{x^3} + \sin x$  b)  $\frac{2}{x^3} - \sin x$   
 c)  $\frac{1}{x} - \sin x$  d)  $\frac{1}{x} + \sin x$
20. Integral of  $(2x + e^x)$  w.r. to  $x$  is  
 a)  $2x^2 + e^x + c$  b)  $2 - e^x + c$   
 c)  $x^2 + e^x + c$  d)  $2x - e^x + c$



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018  
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pathology (Old Course)  
PAPER: 1

TIME ALLOWED: 3 hrs.  
MAX. MARKS: 50

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

Q.1

- a. Define Inflammation. Write down features of acute inflammation. 6
- b. Enumerate four causes of chronic granulomatous inflammation. 4

Q.2

- a. Define hyperplasia and hypertrophy and explain with examples. 5
- b. What is calcification and discuss its types. 5

Q.3

- a. What is healing by primary and secondary intension? 5
- b. What are factors which can cause delay in wound healing? 5

Q.4

- a. Define shock and write down its types. 4
- b. Enlist the factors contributing to the pathophysiology of septic shock. 6

Q.5

- a. What is hypersensitivity reaction? What are its types? 2, 3
- b. Describe in detail type IV hypersensitivity reaction and its example. 5

Q.6

Define Neoplasia. Discuss in detail the features of malignant tumors. 10

Q.7

Write short notes on

- a) Hypertrophy 3
- b) Fat Embolism 4
- c) Caseous Necrosis 3



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018  
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacology & Therapeutics-II (Old Course)  
PAPER: 2

TIME ALLOWED: 3 hrs.  
MAX. MARKS: 100

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

- Q1. Classify Non-steroidal anti-inflammatory drugs. Give the pharmacology of Diclofenic. (20)
- Q 2. Classify antimetabolites. Discuss the mechanism of action, therapeutic uses and adverse effects of methotrexate. (20)
- Q 3. Classify antifungal drugs. Discuss the mechanism(s) of action and resistance of Azoles. (20)
- Q 4. a) Classify antibiotics which inhibit Protein and Cell wall synthesis. (10)  
b) Discuss the mechanism of action and adverse effects of Aminoglycosides? (10)
- Q 5. a) Discuss the mechanism of action and adverse effects of Metronidazole. (10)  
b) Describe the mechanism(s) of action, clinical uses and adverse effects of Albendazole. (10)
- Q 6. Classify Anxiolytics. Describe the pharmacological actions, clinical uses and adverse effects of Benzodiazepines. (20)
- Q 7. Classify general anesthetics? Explain in detail the pharmacokinetics and pharmacodynamics of Thiopental? (20)



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018  
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmacognosy-II (Old Course)  
PAPER: 3

TIME ALLOWED: 3 hrs.  
MAX. MARKS: 100

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

- Q: No: 1-(a) Define tannins? Discuss Hamamelis? 10  
(b) Briefly describe lanolin? 10
- Q: No: 2- Write note on the following. (10x2=20)  
(a) Honey (b) Tragacanth
- Q: No: 3-What are alkaloids. Describe Catharanthus and Ergot. 20
- Q: No: 4-Give the classification of glycosides and write a note on Saponin glycosides? 20
- Q: No: 5-Draw the structures of the following; (5x4=20)  
a. Morphine  
b. Bufedolide  
c. Ephedrine  
d. Tetrahydrocannabinol
- Q: No: 6-(a) Give the classification of chromatography. Explain TLC. 20
- Q: No: 7-Give the extraction methods for volatile oil? 20



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018  
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-III (Dispensing & Community Pharmacy) (Old Course) TIME ALLOWED: 3 hrs.  
PAPER: 4 MAX. MARKS: 100

Note : Attempt FIVE questions. Select TWO from first part and THREE from second part.  
All questions carry equal marks.

## Part-I (Dispensing Pharmacy)

- Q.1 (a) Define prescription and Discuss the parts of prescription. (12)  
(b) Write down the general method for preparation of in-diffusible suspension. (8)
- Q.2 Define Radiopharmaceuticals and give the applications of radio pharmacy. (20)
- Q.3 (a) Discuss single and double dilution for calculation of unit dose powder. (10)  
(b) Define pharmaceutical incompatibilities and discuss in detail chemical in-Compatibilities. (10)

## Part II (Community Pharmacy)

- Q.4 Define Etiology, symptoms and treatment of following (5x4=20)  
1. Constipation  
2. Otitis media  
3. Sore throat  
4. Upper respiratory tract infection
- Q.5 (a) Describe various methods of family planning also discuss hormonal method. (10)  
(b) Define communication and discuss different barriers of communication. (10)
- Q.6 (a) How you will counsel a patient for smoking cessation? (5)  
(b) Describe various strategies for control of drug use and dependence and discuss various types of risks using injectable therapy. (15)
- Q.7 (a) Discuss preventive health by giving at least five examples. (10)  
(b) What are various level of health care and give their importance. (10)



# UNIVERSITY OF THE PUNJAB

Third Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutical Chemistry-II (Instrumentation) (Old Course)

TIME ALLOWED: 2 Hrs. & 30 min.

MAX. MARKS: 80

PAPER: 5 Part – II

*Attempt this Paper on Separate Answer Sheet provided.*

Attempt any 4 questions. Each questions carry equal marks.

No. of question	Question	Marks	Specific heading
Q.2	a- Write note on types of vibrations of organic molecules in mid-infrared region. (5 marks) b-Write note on theory and applications of atomic absorption spectroscopy. (10 marks) c- describe electronic transitions in UV/Visible spectroscopy (5 marks)	20	
Q.3	a-Describe the different parts of a modular HPLC system and describe the qualitative use of HPLC. (10 marks) b- Describe the types of adsorption isotherms and their role in peak shape (10 marks)	20	
Q.4	a- Describe the process or methodology of column chromatography (10 marks) b- Differentiate between normal phase and reverse phase chromatography and their orders of elution (5 marks) c- Differentiate between isocratic and gradient elution (5 marks)	20	
Q-5	a- What are the basic types of a DSC instrument and describe different phase transitions occurring in a polymer in DSC analysis. (10 marks) b- Define chemical shift, delta scale, internal standard, role of $\frac{1}{2}$ spin in NMR and N+1 rule in spin-spin splitting. (10 marks)	20	
Q.6	a- Define capacity factor and describe relationship of R <sub>f</sub> and partition coefficient (7 marks) b- Draw diagrammatic illustration of gas chromatography instrument and working of different parts. (7 marks) c- Describe different types and procedure for developments of planer chromatography (6 marks)	20	
Q. 7	Write note on the following: a- Plastic membrane electrodes (10 marks) b- Potentiometric electrodes (10 marks)	20	



# UNIVERSITY OF THE PUNJAB

**Third Prof: Annual – 2018**  
**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmaceutical Chemistry-II (Instrumentation) (Old Course)**  
**PAPER: 5 Part – II**

**TIME ALLOWED: 2 Hrs. & 30 min.**  
**MAX. MARKS: 80**

*Attempt this Paper on Separate Answer Sheet provided.*

**Attempt any 4 questions. Each questions carry equal marks.**

No. of question	Question	Marks	Specific heading
Q.2	a- Write note on types of vibrations of organic molecules in mid-infrared region. (5 marks) b-Write note on theory and applications of atomic absorption spectroscopy. (10 marks) c- describe electronic transitions in UV/Visible spectroscopy (5 marks)	20	
Q.3	a-Describe the different parts of a modular HPLC system and describe the qualitative use of HPLC. (10 marks) b- Describe the types of adsorption isotherms and their role in peak shape (10 marks)	20	
Q.4	a- Describe the process or methodology of column chromatography (10 marks) b- Differentiate between normal phase and reverse phase chromatography and their orders of elution (5 marks) c- Differentiate between isocratic and gradient elution (5 marks)	20	
Q-5	a- What are the basic types of a DSC instrument and describe different phase transitions occurring in a polymer in DSC analysis. (10 marks) b- Define chemical shift, delta scale, internal standard, role of $\frac{1}{2}$ spin in NMR and N+1 rule in spin-spin splitting. (10 marks)	20	
Q.6	a- Define capacity factor and describe relationship of R <sub>f</sub> and partition coefficient (7 marks) b- Draw diagrammatic illustration of gas chromatography instrument and working of different parts. (7 marks) c- Describe different types and procedure for developments of planer chromatography (6 marks)	20	
Q. 7	Write note on the following: a- Plastic membrane electrodes (10 marks) b- Potentiometric electrodes (10 marks)	20	



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

— Subject: Pharmaceutics-IV (Hospital Pharmacy) (Old Course) TIME ALLOWED: 3 hrs.  
PAPER: 1 MAX. MARKS: 100

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

**Q #1:** Write down the Generic name, company name, Dosage form, Strengths, indications, contra indication and Drug-Drug interactions of the following drugs: (2 x 10 = 20)

1. Septran      2. Tenormin      3. Getformin      4. Timorex      5. Ascard  
6. Dulcolax      7. Pulmonol      8. Nims      9. Wintogeno      10. Valium

**Q#2:**

- (a) What is unit dose dispensing? Discuss different categories and locations for outpatient dispensing? (10)  
(b) Define medication errors? What types of medication errors usually occur in a hospital? (10)

**Q#3:**

- (a) What is hospital formulary? Describe general principles and guidelines to develop formulary? (10)  
(b) What is the role of Pharmacy & Therapeutic committee in hospital formulary? (10)

**Q#4:**

- (a) Name the types of purchasing? Describe the procedure of bulk purchase by making a flow chart? (10)  
(b) What are the important factors in planning of CSSR? (10)

**Q#5:**

- (a) Discuss in detail abilities required for a hospital pharmacist in a health institution? (10)  
(b) Write a detail note on surgical gauze and bandages? (10)

**Q#6:**

- (a) What is the importance of manufacturing of Bulk and Sterile? Discuss in detail budgetary and quality control under the manufacturing programme? (10)  
(b) Define P&TC? Discuss its composition, operation and policies? (10)

**Q#7:**

- (a) Define the hospital? What types of supportive services are provided in a hospital? (15)  
(b) Write a note on hospital medical staff? (05)



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-V (Clinical Pharmacy-I) (Old Course)  
PAPER: 2

TIME ALLOWED: 3 hrs.  
MAX. MARKS: 100

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

- Q. No 1 (a) Define the following
- (i) Drug-food interactions (5)
  - (ii) Drug-laboratory interactions (5)
- Q. No 1 (b) Explain pharmacodynamic mechanism of drug interactions (10)
- Q. No 2 (a) Discuss reporting and monitoring of ADRs and the role of pharmacists. (10)
- Q. No 2 (b) Discuss pharmacokinetic factors responsible for adverse drug reactions. (10)
- Q. No 3 (a) Define Clinical trials. (5)
- Q. No 3 (b) Explain how clinical trials are carried out? (15)
- Q. No 4 (a) Define clinical pharmacy. (5)
- Q. No 4 (b) What are standards of practice of clinical pharmacy in a healthcare setting? (15)
- Q. No 5 (a) Define the following
- a. Primary source of drug information (6)
  - b. Secondary source of drug information
  - c. Tertiary source of drug information
- Q. No 5 (b) Explain the working and role of pharmacist in drug information. (14)
- Q. No 6 (a) What is the significance of taking patient history? Explain different parts of patients' history. (10)
- Q. No 6 (b) What are different components of drug profile. (10)
- Q. No. 7 Write notes on any TWO of the following:
- (i) Role of pharmacist in emergency treatment. (10)
  - (ii) ADRs in pregnancy. (10)
  - (iii) Discuss use of computers in clinical pharmacy (10)



# UNIVERSITY OF THE PUNJAB

**Fourth Prof: Annual – 2018**  
**Examination: Doctor of Pharmacy (Pharm.D.)**

Roll No. ....

**Subject: Pharmaceutics-VI (Industrial Pharmacy) (Old Course)**  
**PAPER: 3**

**TIME ALLOWED: 3 hrs.**  
**MAX. MARKS: 100**

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

- Q1 a) Describe theory of heat transfer, what are the application of heat transfer in pharmaceutical industry? 10  
b) Give classification of dryers used in pharma industry, discuss Fluidized bed air dryer in detail. 10
- Q2 a) Define suspension. Discuss in detail different method for the preparation of suspension at industrial scale 10  
b) Define the Packaging. How many kinds of Packaging is there? Describe Pilfer proof packing in detail. 10
- Q3 a) Why powder volume is difficult to measure? What is the solution then? How affects the porosity affects the tablets properties? 10  
b) Describe some approaches to avoid chemical hazards in pharmaceutical industry. 10
- Q4 a) How sterility is maintained in the clean room of a pharmaceutical industry? 10  
b) Why granulation is important? Name its various types and describe the steps in wet granulation process. 10
- Q5 Give brief answers of following. 5 Marks each  
i. Preparation of water for injection (Flow diagram)  
ii. Tablet defects of capping and lamination with reasons and remedy to avoid.  
iii. Excipients used in Tablets  
iv. Different tablet coating techniques
- Q6 a) What are the different mechanism for mechanical size reduction? Discuss in construction and operation of Planetary Ball mill. 10  
b) Discuss different characteristics and selection criteria which should be exhibited by packaging material to be used in pharmaceuticals. 10
- Q7 a) How batch mixing of liquids is different from continuous mixing, describe Silverson mixer in detail. 10  
b) Can we dry solution/suspension? Describe the principal of such methods. 10



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018  
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

Subject: Pharmaceutics-VII (Biopharmaceutics) (Old Course)  
PAPER: 4

TIME ALLOWED: 3 hrs.  
MAX. MARKS: 100

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

- Q. 1 a) Define the following terminologies: 5 Marks  
I) Pharmaceutical equivalents II) Absolute bioavailability  
III) Catenary model IV) Area under the curve  
V) Dissolution  
b) What is relative the bioavailability? Briefly describe how the bioavailability is determined using urine data. 15 Marks
- Q. 2 a) What is therapeutic drug monitoring? Describe the process of therapeutic drug monitoring. 10 Marks  
b) Discuss pharmacokinetics of intravenous infusion and calculate half-life of a drug after IV infusion. 10 Marks
- Q. 3 a) What is the first-pass effect? Describe phase II biotransformation reactions with at least one example. 14 Marks  
b) Discuss the parameters of multiple dose regimens. 6 Marks
- Q. 4 a) What are the parameters required for determination of one compartment open model after oral administration? 8 Marks  
b) Demonstrate, with illustration the calculation of distribution rate constant for two compartment IV model. 12 Marks
- Q. 5 a) Describe the physicochemical characteristics of drug affecting their absorption 15 Marks  
b) What are different steps in absorption? Discuss which steps are the rate limiting in drug absorption. 5 Marks
- Q. 6 a) Describe the volume of distribution and its significance. 10 Marks  
b) What are different types of proteins involved in drug protein binding? Explain clinical significance of plasma protein binding. 10 Marks
- Q. 7 Explain following terms briefly: 5+6+9 Marks  
I) Half life II) Total body clearance  
III) Absorption mechanisms



# UNIVERSITY OF THE PUNJAB

Fourth Prof: Annual – 2018

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No. ....

**Subject:** Pharmaceutics-VIII (Pharmaceutical Quality Control) (Old Course)  
**PAPER: 5**

**TIME ALLOWED: 3 hrs.**  
**MAX. MARKS: 100**

**NOTE: Attempt any FIVE questions. All questions carry equal marks.**

**Question No 1**

- A. Define pharmacopoeia. Differentiate between appendices and monograph given in pharmacopoeia (10)
- B. Define "Good Manufacturing Practice". Explain the difference between Quality Control and Quality. (10)

**Question No 2**

- A. Classify physical and chemical testing of Suppositories, Explain importance and determination of liquefaction and Melting range (melting point, melting zone) in detail (10)
- B. What are common procedures used in the pharmacopoeias for assay of active ingredient? Differentiate between chemical and biological assay. (10)

**Question No 3**

- A. What is dissolution? Give name of official dissolution test apparatus. Explain construction and working of Dissolution Test (Apparatus I) (12)
- B. Explain interpretation criteria for the dissolution of the following dosage forms (8)
  - Immediate release dosage form
  - Delayed release dosage form

**Question No 4**

- A. What is pyrogen. Give principle, method and specifications of LAL test. (8)
- B. Write a note on the sterility testing of parenteral preparations. (12)

**Question No 5**

Write a note on following

- A. Apparatus used for viscosity determination of liquid dosage form (10)
- B. Requirements and specification for clarity testing of large and small volume parenteral (5)
- C. Water attack test for glass containers (5)

**Question No 6**

- A. Q2. How Shewhart charts differ from process acceptance charts. Discuss the control charts for attributes. (10)
- B. What is monocyte activation test (MAT). How it is better than LAL and animal pyrogen testing? (10)

**Question No 7**

- A. Write names of compendial and non-compendial QC tests for tablet. Write a note on weight variation test for tablets. (10)
- B. Discuss procedure and apparatus for disintegration test of enteric coated tablets. (10)