



UNIVERSITY OF THE PUNJAB

First Prof. A/2016
Examination:- Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutical Chemistry-I (Organic)
PAPER: 1 (Old & New Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q. No 1 a) Describe in detail conjugation. 10

b) Discuss in detail Optical Isomerism. 10

Q. No 2 What is hemolytic and heterolytic fission? Explain the stability of free radicals. 20

Q. No 3 a) What is Resonance? Give conditions for resonance, illustrate your answer with examples. 10

b) Write a note on Inductive Effect. 10

Q. No 4 Explain the following reactions: (10, 10)

a) Aldol Condensation b) Favorskii Rearrangement

Q. No 5 Write note on: (10, 10)

a) Cannizzaro Reaction b) Wolf Kishner Reduction

Q.No.6 Write down the methods of preparation, properties and applications of the following Heterocyclic Compounds: (10, 10)

a) Pyrrole b) Isoquinoline

Q.No.7 Describe in detail about the methods of preparation, tests for identification of Ketones and Amides. 20



UNIVERSITY OF THE PUNJAB

First Prof. A/2016
Examination:- Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutical Chemistry-II (Biochemistry)
Pharmaceutical Biochemistry
PAPER: 2 (Old & New Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q. No. 1: (20)

Write the introduction, chemistry, physiological functions, regulation and disorders of parathyroid hormone

Q.No.2: (20)

Write the introduction, chemistry, functions, regulations and disorders of adrenal medullary hormone

Q. No. 3: (20)

What is the process of gene expression? What happens during transcription? Write the major steps of translations

Q. No. 4: (10+10)

- Draw the structure of purine and pyrimidine bases
- What are the three types of RNA and describe their functions

Q.No.5: (10+10)

- What are the assumptions of Mischaelis Menten equation?
- What are the various types of inhibitions of enzyme activity and their medicinal importance?

Q.No.6: (10+10)

- Describe the chemical reactions of monosaccharides
- Describe the hexose monophosphate shunt and its significance

Q.No.7: (10+10)

Write a note on following

- Vitamin E
- Haem



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First Prof. A/2016

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

Roll No.

Subject: Pharmaceutics-I (Physical Pharmacy)
PAPER: 3 (Old & New Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

- Q.1. (a) Define Raoult's law for ideal and non ideal solutions. What are applications of solution in pharmacy? (12)
- (b) Explain surface tension and adsorption? (8)
- Q.2. (a) Define suspension and differentiate between flocculated and deflocculated suspension? (10)
- (b) Define emulsion. Give various types of emulsion. What are applications of emulsions in pharmacy? (10)
- Q.3. (a) Define colloids. Enlist various types of colloidal dispersion citing example. (5)
- (b) Explain kinetic and optical properties of colloids. (15)
- Q.4. (a) What are methods of crystallization and discuss applications of crystallization in pharmacy? (12)
- (b) Explain principle and applications of vacuum distillation. (08)
- Q.5. (a) Explain lyophilization. What are advantages and disadvantages of lyophilization? (12)
- (b) Discuss in detail the particle size and size distribution of powders.. (08)
- Q.6 (a) Explain the Newton's law of flow with help of diagram and equation? (10)
- (b) Define the term Thixotropy. Explain its importance in Non Newtonian systems. (10)
- Q.7 Write a note on the following (5 each)
- (a). Exciccation
- (b). Hydrolysis
- (c). Solubilization
- (d). Hospital pharmacy



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First Prof. A/2016

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

Roll No.

Subject: Physiology & Histology / Physiology

TIME ALLOWED: 3 hrs.

PAPER: 4 (Old & New Course)

MAX. MARKS: 100

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

Q.No.		Marks
1	What are the subdivisions of autonomic nervous system (ANS)? Describe the effects of sympathetic nervous system on major organs?	20
2	Define GFR? Discuss its mechanism of regulation?	20
3	Define immunity? Discuss in detail different types of immunity?	20
4	A) What is the morphological structure of neuron? Classify it on functional basis? B) Describe the functions of different centres located in the brain stem?	10 10
5	A) Classify blood vessels? Write down their structure and function? B) Define shock? Describe four types of shock?	10 10
6	Define blood pressure? Discuss in detail the mechanisms of regulation of blood pressure?	20
7	Write note on following A) Cerebrospinal fluid B) Deglutition	10 10



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First Prof. A/2016

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

Roll No.

Subject: Anatomy/ Anatomy & Histology
PAPER: 5(Old & New Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 50

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

- Q.1 Write a note on Male Reproductive System both internal and external genital organs. 10
- Q.2 (a) Draw and label blood flow to Kidney. Renal vessels in sequence 05
b) Write a note on organelles of Cell 05
- Q.3 (a) Draw and label histology of Skin. Dermis and Epidermis 05
(b) Describe Squamous stratified epithelium 05
- Q.4 Write a note on Cranial nerves. Their origin from brain and respective foramens through which they exit from base of skull. 10
- Q.5 Draw and label topographical and general anatomy of Lungs 10
- Q.6 Write a note on anatomy of Ear. 10
- Q.7 Draw and label coronary circulation of Heart. 10



UNIVERSITY OF THE PUNJAB

First Prof. A/2016

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

Roll No.

Subject: English Compulsory
PAPER: 6 (New Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

NOTE: Attempt all the given questions.

Q.1 Read the following passage and answers the questions. (15)

A material is what something is made of. There are 5 basic materials. Most things are made with these materials. Some things are made of metal. Some things are made of glass. Some things are made of wood. Some things are made of cloth. And some things are made of plastic. There are some other materials. But they are not used as much as these 5 materials. Let's talk about metal first. Metal is very heavy. And it is very hard and strong. It usually feels cool if you touch it. We use metal to make lots of things. We use it for forks and knives. We use it for keys. We use it for cars. We use it for these things because it is very strong. Next, let's talk about glass. Glass is very smooth. It feels cool to touch. It is not as heavy as metal. It is hard. But it is not strong. It breaks very easily! Then why do we use it? We use it because it is clear! You can see through glass! That's why we use it for windows. That's also why we use it for glasses. Now, let's talk about wood. Wood is lighter than metal and glass. It is not as strong as metal. But it is much stronger than glass. We use wood to make lots of things. Things made from wood are usually light and hard and strong. Chairs and tables are made from wood. Pencils are made from wood. Now let's talk about cloth. Cloth is very light. It is much lighter than wood. And it is very soft. We use cloth to make lots of things. For example, it is used to make clothing. And it is used to make blankets. Last, let's talk about plastic. Plastic is also very light. But it is different from cloth. Sometimes it is soft. And sometimes it is hard. Plastic can be used to make thin plastic bags. These are light, soft, and strong. But plastic can also be used to make bicycle helmets. These are light, hard, and strong. A helmet and a bag seem different. But they are both made from plastic.

1) Which sentence from the passage best describes the main idea?

- A. "We use cloth to make lots of things."
- B. "Metal is very heavy."
- C. "There are 5 basic materials."
- D. "A helmet and a bag seem different."

2) According to the passage, which of these things is a material?

- A. chairs
- B. clothing
- C. windows
- D. wood

3) According to the passage, how does glass feel?

- A. smooth and cool
- B. warm and soft
- C. light and hard
- D. sharp and heavy

4) In paragraph 4, the passage says, "Wood is lighter than metal and glass." What is the main purpose of this sentence?

- A. to explain something
- B. to recommend something
- C. to compare something
- D. to demonstrate something

P.T.O.

5) Which material would you use if you wanted to make something that was strong and very light? A. plastic

B. wood

C. metal

D. glass

Q2. Write an essay on the following topic. (15)

A) An Ideal College B) Life in College Hostel

Q3. What is paragraph writing according to you? (10)

Q4. Write a letter on the given topic. (10)

Write a letter to friend and invite him to do peer study for exams.

Q5. How good speed reading can make you proficient in reading? (10)

Q6. Prepare sample of CV. (10)

Q7. Apply scanning on the given text and extract the required information. (10)

The Red Fox

The red fox couldn't have chosen a worse time to bring a litter of kits into the world. Nestled in a small hollow beneath a hickory tree, curled against their mother's plush fur, the three young kits were warm and comfortable. But when the freezing storms came, the shallow nest would surely let in the snow. And it would be too easy for predators to find the babies when their mother left them to search for food. The fox knew she would have to seek a new home, and soon."

1. Where had the red fox chosen to nestle?

2. How many young kits did the red fox have?

3. Who might be able to find the babies if the red fox left them alone?

Q8. What is inference according to you? (10)

Q9. Write a dialogue on the given situation. (10)

- A) Dialogue between a student and a police sergeant on one-wheeling
- B) Dialogue between a teacher and a student who is habitual latecomer



UNIVERSITY OF THE PUNJAB

First Prof. A/2016

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

Roll No.

Subject: Pharmaceutical Mathematics & Biostatistics
PAPER: 6 (Old Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

NOTE: Attempt FIVE question 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) Differentiate between: (10, 10)

- (i) Discrete and continuous variables
- (ii) Primary and secondary data

b) Given below are the mean annual death rates per 1000 at ages 20 – 65 in different occupational groups

7.5,	8.2,	6.2,	8.9,	7.8,	8.4,	9.4,	9.9,	10.9,	10.8,	7.4,	9.7
11.6,	12.6,	8.0,	10.2,	9.2,	12.0,	9.9,	7.3,	8.4,	10.3,	10.1,	10.0
11.1,	6.5,	12.5,	7.8,	6.5,	8.7,	9.3,	12.4,	10.6,	9.1,	9.7,	9.3

Obtain frequency distribution with classes 6.0 – 6.9, 7.0 – 7.9 and so on.

Q.2 The grade point average of pharmacy students selected at random are as follows: (20)
3.2,1.9,2.7,2.4,2.8,2.9,3.8,3.0,2.5,3.3,2.9,2.5,3.7,2.9,2.0,3.2,2.8,2.1,2.6,2.9.

Obtain mean, median, mode and standard deviation.

Q.3 a) Define the main properties of Normal distribution. (5, 15)

b) If the cholesterol value for a group of persons is normally distributed with mean of 200 mg /100 ml and standard deviation of 20 mg/ 100 ml. Find the proportion of individuals whose cholesterol values is (i) between 185 and 220 mg (ii) greater than 225 mg.

Q.4 a) Differentiate between Regression and correlation (4, 16)

b) In a study between X = the amount of rain fall (0.01 cm) and Y = the quantity of air pollution removed (mcg/cubic meter), the following data were collected:

X:	4.3	4.5	5.9	5.6	6.1	5.2	3.8	2.1	7.5
Y:	125	121	116	118	114	118	132	141	108

Find the equation of linear regression and predict the amount of particulate removed when amount of rain fall is 4.8 units.

Q.5 a) Define level of significance and level of confidence. (6, 14)

b) A random sample of 10 cigarettes of a certain brand has an average nicotine content of 3.6 mg and a standard deviation of 0.9 mg. Is this in line with the manufacturer's claim that the average nicotine content does not exceed 3.2 mg. Use a 0.01 level of significance and assume the distribution of nicotine contents to be normal.

P.T.O.

- Q.6 a) Discuss the applications of t-statistic. (6, 14)
 b) A random sample of college students are classified according to class status and drinking habits

Habit	Freshman	Sophomore	Junior	Senior
Heavy drinkers	29	41	33	28
Moderate drinkers	32	29	36	39
Non-drinkers	55	34	27	17

Test the hypothesis that the class status and drinking habits are independent. Use a 0.05 level of significance.

SECTION-II

- Q.7. a) Solve the equation (10, 10)
 $X(X - 7) = (2X - 1)(X + 4)$

- b) Find the 20th term and the partial sum of 20 terms of the series: $2, \frac{7}{2}, 5, \frac{13}{2}, \dots$

- Q.8. a) Find the middle term in the expansion of $\left(2a - \frac{x}{a}\right)^{12}$ (10, 10)

- b) Prove that $\sqrt{\frac{1 - \sin \theta}{1 + \sin \theta}} = \sec \theta - \tan \theta$

- Q.9. a) Find the derivative of $6x^9 + 8x^5 + 9$ (10, 10)

- b) Integrate the function: $f(x) = 6x^3 + 3x^2 + 8x + 5$



UNIVERSITY OF THE PUNJAB

Second Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutics-II (Pharmaceutical Preparations)

Pharmaceutics-II (Dosage Forms Science)

PAPER: 1 (Old & New Course)

TIME ALLOWED: 3 hrs.

MAX. MARKS: 100

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

Q.1 (a) Define and classify official syrups. Discuss different methods of preparation of syrup.

(10)

(b) Define the Displacement value. Calculate the displacement value of oil and water soluble bases with examples.

(10)

Q.2 Write note on

(a) Tinctures and spirit

(08)

(b) Lotions and liniments

(07)

(c) Pyrogen and its method of prevention

(05)

Q.3 (a) What are various route for the delivery of drugs through skin, describe the advantages and disadvantages of transdermal drug delivery

(10)

(b) Define TDDS, Describe various technologies for TDDS.

(10)

Q.4 (a) Write note on ophthalmic dosage form. What are essential characteristics of an ideal ophthalmic solution.

(10)

(b) Give application of dosage form in pharmacy

(10)

Q.5 (a) Discuss in detail ointments and creams

(10)

(b) Define Aerosol disperse system? Briefly explain the Types of aerosol system? (10)

Q.6 (a) Define capsules. How many kinds of capsules are there, also discuss its application in pharmacy

(10)

(b) What types of added substances are used in parenterals. Discuss their advantages.

(10)

Q.7 (a) What is a base. Classify and discuss in detail different types of suppositories-bases.

(15)

(b) How the suppositories are classified according to their route of administration. (05)



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Second Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

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

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

- Q. # 1 What are the different classes of receptors. Discuss G-Protein Coupled Receptors (GPCRs) in detail. 20
- Q. # 2 What is bioavailability? What factors can modify the bioavailability of the drug. 20
- Q. # 3 Classify diuretics. Describe mechanism of action, effects on renal hemodynamics, adverse effects and therapeutic uses of Spironolactone. 20
- Q. # 4 Classify antimuscarinic drugs. Discuss mechanism of action, pharmacological properties, toxicity and therapeutic uses of Atropine. 20
- Q. # 5 What is asthma? Classify Anti-Asthmatic drugs and discuss pharmacology of Leukotriene antagonist and IgE antibodies in detail. 20
- Q. # 6 Classify direct acting sympathomimetics. Discuss Epinephrine with respect to its mechanism of action, effects on different organ\system, toxicity and contraindication. 20
- Q. # 7 Write notes on:
- a. Nitroglycerine 10
 - b. Irritant laxatives 10

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Second Prof. A/2016
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

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

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

- Q-No.1. What are different steps involved in the preparation of crude drugs? 20
- Q-No.2. (a) Define allergen and give classification of allergens. 10+10
(b) Discuss in detail cell mediated allergy with examples.
- Q-No.3. (a) What are enzymes? Discuss enzymes having thrombolytic activity. 10+10
(b) Write a note on Bromelain.
- Q-No.4. (a) Discuss organophosphate poisoning. 10+10
(b) What are the herbicide and fungicide? Give examples.
- Q-No.5. Explain chemical evaluation of crude drugs with examples. 20
- Q-No.6. Explain the drugs of Apocynaceae and Liliaceae family. 20
- Q-No.7. Write a note on plant growth promoters. 20

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Second Prof. A/2016
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

**Subject: Pharmaceutical Microbiology
 Pharmaceutics-III (Pharmaceutical Microbiology &
 Immunology
 PAPER: 4 (Old & New Course)**

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

**Instructions: Attempt any FIVE questions. Question No.1 is COMPULSORY.
 Illustrate your answer with Diagrams and Examples where necessary. All
 questions carry equal marks.**

Q. No. 1	Define the following terms:	05
(A)	1. Immunology 2. Epidemic disease 3. Vaccine 4. Virus 5. Nosocomial infection	
(B)	Multiple Choice Questions (MCQs)	08
1	The Ig that mediates allergic reaction is a) Ig D b) Ig E c) Ig A	
2	All of the following comes under nonspecific defense mechanism except a) Fever b) Cell mediated immunity c) Complement system	
3	DNA vaccine elicit protective immunity against a microbial pathogen by activating a) Humoral immune system b) Cellular immune system c) Both a & b	
4	Antibodies are a) Proteins b) Glycoproteins c) carbohydrates	
5	The most common class of antibody involved in Type II hypersensitivity is a) Ig G b) Ig M c) Ig E	
6	Antigen binding site on an antibody is called a) Antitope b) Epitope c) Paratope	
7	In an immune response the type of cells which gets activated earliest is a) Helper T cells b) Plasma cells c) Cytotoxic T cells	

P.T.O.

	8	Antibody dependent cytotoxicity is associated with a) Type I b) Type II c) Type IV	
(C)		Fill in the following statements	07
	1	A defense process in which body's white blood cells engulf and destroy microorganisms is called _____.	
	2	The ability of a lens system to transmit light without variation and permit nearby objects to be clearly distinguished is called _____.	
	3	_____ is a preparation of modified microorganisms treated toxins or parts of microorganisms used for immunization process.	
	4	The existence of microorganisms was first reported in late 1660's by _____.	
	5	A highly resistant oval body formed by certain types of bacteria are called _____.	
	6	The doctrine that held that lifeless objects give rise to living organisms is _____.	
	7	_____ is an accumulation of one type of microorganisms formed by the growth of colonies of that microorganism.	
Question No. 2		What you understand by cell-mediated immunity. Discuss in detail.	20
Question No. 3		Write note on the following a) Antigens b) Dengue Fever	20
Question No. 4		Define virus, parts of virus, its replication and cultivation.	20
Question No. 5	a)	Discuss the structure of bacteria with the help of diagram and explain their functions in maintaining the bacterial cell growth.	10
	b)	Write a note on spontaneous generation.	10
Question No. 6		Define Hypersensitivity, list its types and discuss Type I and Type II in detail.	20
Question No. 7	a)	What is a Nosocomial infection and compromised host. How it is transmitted n discuss control of this infection.	15
	b)	Enlist Koch's postulates.	05



UNIVERSITY OF THE PUNJAB

Second Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pakistan Studies and Islamiyat (Comp.)

TIME ALLOWED: 3 hrs.

Paper: 5 (Old & New Course)

MAX. MARKS: 100

USE SEPARATE ANSWER BOOK FOR EACH PART

Part I - Pakistan Studies

For this portion Time Allowed is 1 hr. and Max. Marks 40.

Note: The candidates who attempt their questions keeping in view Allama Iqbal's Poetry will be given special weightage. Attempt any TWO questions. All questions carry equal marks.

نوٹ: سلیپس میں شامل علامہ اقبالؒ کے اشعار کی روشنی میں جواب دینے والے امیدواروں کو ترجیحی نمبر دیے جائیں گے۔ کوئی سے دو سوال حل کریں۔ سب سوالوں کے نمبر یکساں ہیں۔

- Q. # 1: Write an essay on the Ideology of Pakistan with reference to the two Nation Theory. (20)
سوال نمبر ۱ ﴿ دو قومی نظریے کے حوالے سے نظریہ پاکستان پر ایک مضمون تحریر کریں۔
- Q. # 2: Discuss the Quaid-e-Azam's role as the leader in the Freedom Movement. (20)
سوال نمبر ۲ ﴿ تحریک پاکستان کے راہنما کے طور پر قائد اعظمؒ کے کردار کا جائزہ لیں۔
- Q. # 3: What steps have been taken for Islamisation in our beloved country? (20)
سوال نمبر ۳ ﴿ وطن عزیز میں نفاذ اسلام کے لیے کیا اقدامات کیے گئے ہیں؟
- Q. # 4: Give an appraisal to Pakistan - China Relations. (20)
سوال نمبر ۴ ﴿ پاک - چین تعلقات کا جائزہ لیں۔

Part II - Islamic Studies

For this portion Time Allowed is 2 hrs. and Max. Marks 60.
(For all Muslim Candidates)

Note: Question # 5 is compulsory.

- Q. 1 Translate and explain any two of the following Quranic Verses. (10+10)
سوال نمبر ۱ ﴿ درج ذیل قرآنی آیات میں سے کسی دو کا ترجمہ و تشریح کریں۔
- (الف) يَا أَيُّهَا الَّذِينَ آمَنُوا صَلُّوا عَلَيْهِ وَسَلِّمُوا تَسْلِيمًا
(ب) وَاللَّهُ لَا يَهْدِي الْقَوْمَ الظَّالِمِينَ.
(ج) يَا أَيُّهَا الَّذِينَ آمَنُوا لِمَ تَقُولُونَ مَا لَا تَفْعَلُونَ
(د) فَضَلَّ مِنَ اللَّهِ وَنِعْمَةً وَاللَّهُ عَلِيمٌ حَكِيمٌ
- Q. 2 Translate and explain any one of the following Ahadith. (10)
سوال نمبر ۲ ﴿ درج ذیل احادیث میں سے کسی ایک کا ترجمہ و تشریح کریں۔
- (الف) وَالَّذِي نَفْسِي بِيَدِهِ لَا يُؤْمِنُ عَبْدٌ حَتَّى يُحِبَّ لِأَخِيهِ مَا يُحِبُّ لِنَفْسِهِ
(ب) خَيْرُكُمْ مَنْ تَعَلَّمَ الْقُرْآنَ وَعَلَّمَهُ

P.T.O.

Q.3 Illustrate the blessing and advantages of the Muslim Traternity established at Madina. (10)

OR

Highlight the cardinal features of the Prophet's last address on the eve of forewell pilgrimage.

سوال نمبر ۳ ﴿ مواخات مدینہ کے فوائد و برکات بیان کیجیے۔ یا سرور کونین آقائے نامدار کے خطبہ حجۃ الوداع کے نمایاں نکات پر روشنی ڈالیے۔

Q.4 Point out the negative aspects of the Western Civilization. (10)

OR

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

سوال نمبر ۴ ﴿ مغربی تہذیب کے منفی پہلوؤں کی نشاندہی کیجیے۔ یا تہذیبوں کے تصادم کے نظریے کا تنقیدی تجزیہ کیجیے۔

Q.5 Write short answers of the following questions. (10)

- Why was the name of Yasrab Changed?
- Which event was called a peaceful revolution?
- What is the number of Quranic Haroof-e-Muqaatat?
- What is meant by Fath-e-Mubeen?
- Identify Najjashi.

سوال نمبر ۵ ﴿ مندرجہ ذیل سوالات کے مختصر جوابات لکھیے۔

- بیرت کا نام کیوں تبدیل کیا گیا؟ -a
- کس واقعے کو پر امن انقلاب قرار دیا گیا؟ -b
- قرآنی حروف مقطعات کی تعداد کیا ہے؟ -c
- فتح مبین سے کیا مراد ہے؟ -d
- نجاشی کون تھا؟ -e

OR یا

Part II - ETHICS

(Only for non Muslim Candidates)

(Max. Marks: 60)

NOTE: Attempt any THREE questions. All questions carry equal marks.

- Q.1 "Islam protects the religious rights of Minorities" Comment.
- Q.2 Highlight the need and importance of Honesty in human life.
- Q.3 Why is lying considered to be moral ill & social evil?
- Q.4 Do you agree with the view that Religions & Ethics are Co-related?
- Q.5 "Islam advocates & Projects humanitasianism" Comment.
- Q.6 Evolute and assess the attitude of an Islamic State towards Minorities.

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Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmacy Practice-I (Pharmaceutical Mathematics and Biostatistics)
PAPER: 6 (New Course)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

NOTE: Attempt 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) Differentiate between discrete and continuous variables, give examples. (6, 14)
 b) Following still birth rate per 1000 total birth were reported by different cities.
 25, 36, 40, 28, 27, 30, 29, 26, 35, 37, 36, 27, 29, 40, 34,
 25, 30, 40, 30, 35

Compute Arithmetic mean, median and mode.

- Q.2 a) Define absolute and relative dispersion. (6, 14)
 b) Following frequency distribution shows the daily sodium intake by different persons.

Sodium intake:	6.0 – 6.2	6.3 – 6.5	6.6 – 6.8	6.9 – 7.1	7.2 – 7.4	7.5 – 7.7
No. of Persons:	2	13	29	40	15	8

Compute Mean deviation about mean and standard deviation.

- Q.3 a) In an experiment to study the dependence of Hypertension on smoking habits, the following data were taken on different individuals. (10,10)

	Non Smokers	Moderate Smokers	Heavy Smokers
Hypertension	21	36	30
Non Hypertension	48	26	19

Test, at 0.05 level of significance, that the presence or absence of hypertension is independent of smoking habits.

- b) A sample of 12 jars of peanut butter was taken from a lot, each jar being labeled "8 ounces net weight". These 12 jars have an average weight of 7.64 ounce with standard deviation as 0.30 ounce. Test whether jar weights are consistent with a population mean weight of 8 ounce. Assume that the weights are normally distributed.
 Q.4 a) Compute and interpret the correlation co-efficient for the following data: (12, 8)

X (height)	12	10	14	11	12	09	13
Y (weight)	18	17	23	19	20	15	20

- b) A certain type of medicine expires on the average 3.0 years with a standard deviation of 0.5 year. Assume that the medicine lives are normally distributed, find the probability that a given medicine will expire less than 2.4 years.

- Q.5 In a biological experiment four concentrations of a certain chemical are used to enhance the growth of a certain type of plant over a specified period of time. The following growth data, in cm., were recorded for the plants. (20)

Concentration	1	8.2	8.7	9.4	9.2	9.6	10.5	
	2	7.7	8.4	8.0	7.9	7.5		
	3	6.9	5.8	6.8	6.1	5.7	6.0	5.9
	4	8.5	9.6	9.9	9.8	8.9	9.1	

Is there a significant difference in the average growth of these plants for the different concentrations of the growth chemical? Use a 0.05 level of significance. Also find *l*_{sd} value.

P.T.O.

Q.6 a) Discuss the applications of t-statistic and analysis of variance.

(6, 14)

- b) A certain drug is claimed to be effective in curing colds. In an experiment on 328 people with colds, half of them were given the drug and half of them were given sugar pills. The patients reactions are recorded in the following table. Test the hypothesis that the drug is no better than sugar pills for curing colds. Let level of significance is 0.05.

Category	Helped	Harmed	No effect
Drug	104	20	40
Sugar	88	24	52

SECTION-II

Q.7. a) Solve the system of equations

(7,7,6)

$$x + y = 7$$

$$x^2 - xy + y^2 = 13$$

- b) Which term of the A.P: $-2, 4, 10, \dots$, is 148? Write down its general term a_n and hence deduce the value of its 20th term.
- c) Use binomial theorem to expand $\left(2x - \frac{y}{2}\right)^6$ and simplify each term.

Q.8. a) Two angles of a triangle are $50^\circ 11' 15''$ and $43^\circ 48' 45''$ find third angle.

(4,8,8)

b) Show that the points A (3, 1), B (-2, -3) and C (2, 2) are the vertices of an isosceles triangle.

c) The daily profit from the sale of pharmaceutical product is given by

$$P = -0.1x^2 + 16x - 100, \text{ dollars.}$$

What level of production maximizes profit?

And what is the maximum possible profit?

Q.9. a) The Fahrenheit temperature reading F is a linear function of the Celsius reading C, if C=0 (6,8,6)

when F=32, and C=100 when F=212, express F as a function of C.

b) Find dy/dx of $y = (x^2 - 3)^5 + \cos^4(7x) + e^{2x} \ln(4 - x)$

c) Integrate

$$x^{\frac{1}{2}} + \frac{1}{3}x + 4x^2 - 3$$



UNIVERSITY OF THE PUNJAB

Third Prof. A/2016
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pathology
PAPER: 1

TIME ALLOWED: 3 hrs.
MAX. MARKS: 50

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

Question no 1:

What is Pigmentation? Briefly describe its different types. (10)

Question no 2:

What is chronic inflammation? What are the cells of Chronic Inflammation? Explain morphological features of Chronic Inflammation. (10)

Question no 3:

- a) Write down the factors that affect the Wound Healing ? (5)
- b) Explain secondary Wound Healing. (5)

Question no 4:

What is shock? Briefly describe its different types? (10)

Question no 5

- a) Briefly describe Cell Mediated Hypersensitivity Reaction? (6)
- b) Draw and label structure of antibody. (4)

Question no 6

- a. Define Malignant Tumor. Briefly describe its features (5)
- b. Nomenclature of Malignant Tumor? Give examples (5)

Question no 7

Write short notes on

- a) Dystrophic Calcification (4)
- b) Difference between Transudate and Exudate fluid (3)
- c) Complications of Wound Healing (3)



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Third Prof. A/2016
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmacology & Therapeutics-II
PAPER: 2

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

1. Classify **Narcotics Analgesics**. Discuss the Pharmacology of **Morphine**. (20)
2. Classify **General Anesthetic**? Explain in Detail the Pharmacokinetics and pharmacodynamics of **Thiopental & Nitrous Oxide**. (20)
3. Classify **Anxiolytics**. Describe the pharmacological action, clinical uses and adverse effects of **Benzodiazepines**. (20)
4. Classify **Alkylating agents**. Discuss the mechanism of action, therapeutic uses and adverse effects of **Cyclophosphamide & Doxorubicin**. (20)
5. Classify **Antiretroviral Drugs**. Discuss the mechanism (s) of action and resistance of **Zidovudine & Amantadine**. (20)
6. Classify **β -Lactum Antibiotics**. Discuss the mechanism of action and therapeutic uses of **Cephalosporins**? (20)
7. Define **POISON**. Discuss various principles of treatment of Poisoning. Explain **ORGANOPHOSPHOROUS COMPOUND**. (20)

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Third Prof. A/2016
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmacognosy-II
PAPER: 3

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

- | | |
|--|-----|
| Q 1. a) Define tannins. Give chemical classification of tannins. | 10 |
| b) Write note on Nut galls | 10 |
| Q 2. What are alkaloids? Discuss in detail tropane alkaloids. | 20 |
| Q 3. Write note on saponin glycosides. | 20 |
| Q 4. a) Differentiate between fixed oils and Volatile oils. | 10 |
| b) Write note on almond oil | 10 |
| Q 5. Discuss in detail partition chromatography | 20 |
| Q 6. Give structure and therapeutic uses of following drugs, | 5x4 |
| 1. Ergotamine | |
| 2. Physostigmine | |
| 3. Digitoxin | |
| 4. Ephadrine | |
| Q 7. a) Define resins. Discuss their occurrence and uses. | 10 |
| b) Write note on Cinnamon and Caraway. | 10 |



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Third Prof. A/2016
Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutics-III (Dispensing & Community Pharmacy)
PAPER: 4

TIME ALLOWED: 3 hrs.
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. Discuss therapeutic incompatibilities in detail? (20)
- Q. 2. (a) Discuss the general method for the preparation of in-diffusible suspensions? (10)
(b) What is Displacement Value? Discuss General Method for preparation and Packaging of Suppositories? (10)
- Q. 3. (a) What are basic operations used in compounding? (10)
(b) Write a note on containers and closures used for oral liquid dosage forms? (10)

PART-II (Community Pharmacy)

- Q.4. (a) Define the following terms (10)
Cohort studies, Family planning, Acute disease, Public health, Prospective studies, Placebo.
(b) Define community pharmacy; describe the emergence of community pharmacy in Pakistan. (10)
- Q.5. (a) Define epidemiology, what are various observational studies conducted at community level? (10)
(b) Describe various methods of family planning, discuss barrier method in detail? (10)
- Q. 6. (a) Describe the health outcome related with the drug abuse (10)
(b) What are the objectives of national drug policy? How the concept of essential drug list is promoted in it? (10)
- Q. 7. (a) Write a detail note on patient's pharmacist's communication (10)
(b) Write the different components of counselling in terms of patient's education (10)



UNIVERSITY OF THE PUNJAB

Roll No.

Third Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Subject: Pharmaceutical Chemistry-II (Instrumentation) TIME ALLOWED: 20 min.
PAPER: 5 MAX. MARKS: 20

Attempt this Paper on this Question Sheet only.

Note: This paper comprises of TWO Parts, Part – I (MCQs) and Part – II (descriptive). Part – I is compulsory, whereas attempt any FOUR questions from Part – II. Each question carries equal marks.

Part – I Multiple Choice Questions (MCQs). Please encircle the correct statement, each MCQ carries 2 marks, total Marks. 20.

No. of question	Question	Marks
Q.1	<p>1- Which one of the following is true for constant flow pump?</p> <p>a- Pressure depends on flow resistance b- Pressure depends on speed of the pump c- Pressure does not depends on flow resistance d- Pressure depends the type of column</p> <p>2- Witch of the following is correct for packing diameter and number of plates?</p> <p>a- Number of plates increase with decrease in diameter b- Number of plates decrease with decrease in diameter c- Number of plates remains constant d- Number of plates decrease from 15 to 10 and the remain unchanged</p> <p>3- The electrode solution within the glass electrode (ref) of the pH-meter is which of the following?</p> <p>a- Concentrated KCl b- Dilute KCl c- Dilute HCl d- Saturated KCl</p> <p>4- What will be the order of elution if stationary phase is polar, mobile phase is non polar and separation mechanism is polar adsorption?</p> <p>a- non polar elute first b- Polar elute first c- Polar and non polar co-elute d- None of a, b, c</p> <p>5- Precision stands for which of the following?</p>	20

P.T.O.

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

6- The EMF of the sample is determined by which of the following?

- a- $E_{\text{cell}} = E_{\text{cathode}} + E_{\text{Ij}} - E_{\text{anode}}$
- b- $E_{\text{cell}} = E_{\text{anode}} - E_{\text{Ij}} - E_{\text{cathode}}$
- c- $E_{\text{cell}} = E_{\text{cathode}} - E_{\text{Ij}} - E_{\text{anode}}$
- d- $E_{\text{cell}} = E_{\text{anode}} + E_{\text{Ij}} - E_{\text{cathode}}$

7- Which of the following is correct for UV/VIS spectroscopy?

- a- Generate colored spectrums
- b- Determine the concentration
- c- Used to make light visible
- d- used to bend and rotate bonds

8- Which one of the following will be true for partition coefficient (K) if concentration of analyte in stationary phase is 3 mg and mobile phase is 2 mg?

- a- 1.5
- b- 1.25
- c- 1.90
- d- 1.45

9- A CH₂ group generates which of the following in a ¹H NMR at a neighbouring C-Atom?

- a- Singlet
- b- Doublet
- c- Triplet
- d- Quadruplet

10- Differential scanning calorimetry (DSC) is a technique useful in determining which of the following?

- a- Glass transition temperatures
- b- Softening points of amorphous polymers and glasses
- c- Melting point of a crystalline polymer
- d- all of the above



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Third Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutical Chemistry-II (Instrumentation)
PAPER: 5

TIME ALLOWED: 2 hrs. & 40 min.
MAX. MARKS: 80

Attempt this Paper on Separate Answer Sheet provided.

NOTE: Attempt any 4 questions. All questions carry equal marks.

No. of question	Question	Marks
Q.1	a- Write note on stretching and bending 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.2	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.3	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- Describe isocratic and gradient elution (5 marks)	20
Q.4	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.5	a- Define capacity factor and describe relationship of R _f and partition coefficient (5 marks) b- Draw diagrammatic illustration of gas chromatography instrument and working of different parts. (5 marks) c- Describe different types and procedure for developments of planer chromatography (5 marks)	20
Q.6	Write note on the following a- Plastic membrane electrodes (10 marks) b- Potentiometric electrodes (10 marks)	20



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Fourth Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutics-IV (Hospital Pharmacy)

TIME ALLOWED: 3 hrs.

PAPER: 1

MAX. MARKS: 100

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 interactions of the following drugs: (20)
(I) Keflex (II) Risek (III) Migril (IV) Synflex (V) Rocephin (VI) Ventolin (VII) Brexin
(VIII) Concor (IX) Glucophage (X) Fucidin
- Q.2 a) Define hospital formulary? Discuss different contents of hospital formulary? (10)
b) Discuss merits and demerits of formulary system? (05)
c) What are the Complications of TPN (05)
- Q.3 a) Define the hospital and discuss in detail the organizational pattern of a hospital. (10)
b) Discuss in detail dispensing to ambulatory patients. (10)
- Q.4 Define sutures and ligatures? Discuss different steps involved of its preparation and sterilization (20)
- Q.5 a) What is the job description of a Pharmacist in a hospital? (10)
b) What is the importance of dispensing during off hours in a hospital (10)
- Q.6 a) Discuss in detail abilities required of hospital pharmacist in a health institution. (10)
b) Write a detail note on surgical gauze and bandages (10)
- Q.7 a) Define medication errors and near miss? Explain types of medication errors (10)
b) Discuss the role of Pharmacist in controlling the medication errors (10)



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Fourth Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

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

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q.1 : (a) Write a detailed note on pharmacokinetics mechanisms of drug-drug interactions (12)
(b) Discuss the importance of study population issues, outcome and influencing variables selection in designing clinical trials (8)

Q.2 : (a) Explain primary drug literature with examples. Write a note on its advantages and disadvantages. (8)
(b) What are the normal ranges of vital physiological parameters that should be monitored for a patient presented in an emergency department (ED)? (8)
(c) Write a note on TYPES of clinical trials (4)

Q3: (a) An unconscious patient is admitted to ED with MAP 50 mmHg, pulse 35/min, PCWP 2 mm Hg and lactic acid 7 mmol/L. Write down diagnose and treatment protocol for this patient. (12)
(b) Enlist four ADRs in pediatrics due to altered metabolism. (4)
(c) Classify ADRs based on pregnancy category (4)

Q4: (a) Write a detailed note on the use of computers in retail pharmacies. (10)
(b) Write a note on drug-induced diarrhea. (10)

Q5: (a) Describe the responsibilities of a clinical pharmacist regarding clinical pharmacokinetics. (10)
(b) What are the precautions, contraindication and administration guidelines for Morphine? (10)

Q6: (a) What is blinding in clinical trials? Explain (7)
(b) Differentiate between hemorrhagic and ischemic stroke and discuss its treatment protocol. (7)
(c) Highlight any five ADRs in geriatrics. (6)

Q 7: (a) Describe the hepatitis induced by following medications (10)
(i) Acetaminophen
(ii) Isoniazid
(iii) Phenytoin
(b) Define chronic kidney disease and describe its stages (3)
(c) Write a detailed note on analgesics-induced chronic kidney disease (7)



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Fourth Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutics-VI (Industrial Pharmacy)

TIME ALLOWED: 3 hrs.

PAPER: 3

MAX. MARKS: 100

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

Question 1:

- (a) - Define Hazard, Safety and Risk. Discuss different detailed aspects of chemical hazards? (10)
- (b) - Write a detailed note on the Fire as an industrial hazard and explain the detection and prevention of fire in an industry. (10)

Question 2: Define Good Manufacturing Practices (GMP) and Current Good Manufacturing Practices (cGMP) and discuss the significance and different aspects of GMP for Finished pharmaceutical products (FPP). (20)

Question.3:

- (a) - Discuss in detail the principal and working of Ball mill and colloidal mill. (10)
- (b) - Briefly discuss spray drying technique and its application in detail? (10)

Question.4:

- (a) - Describe the aqueous solvent systems used for the parenteral preparations (12)
- (b) - Describe the method of production for a terminally sterilized formulation. (8)

Question: 5

- (a) - Discuss the methods used for ampules sealing? (6)
- (b) - What is clean-in-place concept? How equipment are cleaned for sterile manufacturing? (14)

Question: 6: write a short note on four (04) of the followings where each part contains equal (05) marks.

- 1- Filter press
- 2- Clarification
- 3- Mechanism of freeze drying
- 4- Mechanism of milling
- 5- Mass transfer

Question: 7:

- (a) - Discuss the problems associated with the manufacturing of tablets and suggest the solutions to overcome these problems (10)
- (b) - Define angle of Repose and write in detail the method of its measurement (10)



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Fourth Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutics-VII (Biopharmaceutics)

TIME ALLOWED: 3 hrs.

PAPER: 4

MAX. MARKS: 100

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

- Q1 a) Define the following terms: 5 Marks
i) Absolute bioavailability ii) Bioequivalent products
iii) Closed compartment iv) Steady state concentration
v) Pharmaceutical equivalents
- b) Discuss the importance of physicochemical nature of drugs in drug absorption through gastrointestinal tract. 15 Marks
- Q2 a) What is the sampling compartment for measuring drug concentration? Why drug concentration cannot be measured at the receptor site? 4+4 Marks
b) Describe the measurement of bioavailability using the urine data. 12 Marks
- Q3 a) Describe, with illustration the method used to calculate the rate for distribution in two compartment open model after I/V administration. 12 Marks
b) What are compartment models? Write down the Pharmacokinetic parameters of non-compartmental analysis. 8 Marks
- Q4 a) Which drug types are given through I/V infusion? Describe the Pharmacokinetics parameters necessary for determination of I/V infusion? 15 Marks
b) Describe the factors affecting drug concentration in body during multi-dose drug administration. 5 Marks
- Q5 a) What is apparent volume of distribution? Discuss its significance. 6 Marks
b) What are the Disposition parameters required for determination of one compartment open model after oral administration? 14 Marks
- Q6 a) Explain which proteins are available in body for drug binding. Describe the significance of protein binding. 6+4 Marks
b) What are the non-hepatic sites for drug biotransformation? Explain Phase II biotransformation reactions with at least one example. 10 Marks
- Q7 Write short notes on the following: 6+6+8 Marks
i) Mammillary and Catenary Models ii) Renal Clearance
iii) Pharmacokinetics applications in age-based dose adjustment



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Fourth Prof. A/2016

Examination: Doctor of Pharmacy (Pharm.D.)

Roll No.

Subject: Pharmaceutics-VIII (Pharmaceutical Quality Control)

TIME ALLOWED: 3 hrs.

PAPER: 5

MAX. MARKS: 100

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

Question 1.

- A. Enlist the quality control tests performed for suppositories. Also explain the disintegration test for suppositories. (10)
- B. Describe the procedure for weight variation test of compressed tablets. (05)
- C. Name four commonly used methods for testing flow properties of powders and also define compressibility index and Hausner ratio. (05)

Question 2.

- A. Define dissolution and disintegration? Why these tests are performed for solid dosage forms and also describe apparatus and method used for the disintegration testing of compressed tablets. (10)
- B. Tabulate the acceptance criterion for dissolution testing of uncoated tablets? (03)
- C. Describe various official apparatuses used for the dissolution testing of tablets. (07)

Question 3.

- A. What is importance of toxicity testing in pharmaceuticals? Why we perform toxicity testing of plastic containers. (10)
- B. Describe biological assays? Provide the official methods used for the quality control of Vitamin D? (10).

Question 4.

- A. Write down the quality control tests applied to different types of glass and explain quality control test for Type II glass. (10)
- B. Define initial, maximum temperature and response in pyrogen testing. Provide interpretation of results for *in-vivo* pyrogen test. (10)

Question 5.

- A. What antimicrobial precautions have to be taken into consideration during sterility testing. (06)
- B. Name two major methods of sterility testing. How you will carry out sterility testing on injectables. (14)

Question 6.

- A. Define Statistical Quality Control and give different control charts for variables. (10)
- B. Write a note on any two of the followings: (5 each)
 - A. Leakers test
 - B. Method of alcohol determination in gelatinicals
 - C. Alkaloidal drug assay
 - D. Determination of total solids

Question 7.

- A. What quality control tests are performed for syrups? (12)
- B. What is role of Long Term Stability and Accelerated Stability Studies during drug development? (8)

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Final Prof. A/2016
Examination: Doctor of Pharmacy
(Pharm.D.)

Roll No.

Subject: Pharmaceutical Chemistry-III (Medicinal Chemistry)
PAPER: 1

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

NOTE: Attempt any FIVE questions, Each question carries equal marks.

Q.1: Discuss the chemistry, mechanism of action, synthesis, SAR of the followings (10+10)
(i) Pyrazinamide. (ii) Isoniazid

Q. 2: Describe the medicinal chemistry of intravenous anaesthetics (20)

Q. 3: Discuss the medicinal chemistry of Alkylating agents as Anti-cancer. (20)

Q. 4: Discuss chemistry, SAR and mechanism of action of Chloramphenicol. (20)

Q. 5: Write note on the following (10+10)
(i) Chemistry and uses of Vitamin-A
(ii) Chemistry and uses of Ferrous Sulphate

Q. 6: Discuss the mechanism of action, synthesis, SAR of 9-aminoacredines. (20)

Q. 7: Write note on the followings. (10+10)
(i) Furosemide (ii) Diclofenac sodium

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Final Prof. A/2016
Examination: Doctor of Pharmacy
(Pharm.D.)

Roll No.

Subject: Pharmaceutics-IX (Clinical Pharmacy-II)
PAPER: 2

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q. # 1: (a) Briefly explain the followings (10)

- (i) Multi-stage sampling (ii) Systematic sampling with probability proportional to size
(iii) Components to learn drug use problems
(iv) Sampling Unit (v) Impaired glucose tolerance test (IGTT)
- (b) Formulate an algorithm to manage type II diabetic patients and explain the pharmacological options for the management of these patients. (7marks)**
- (c) Enlist qualitative methods to study drug use indicators (3 marks)**

Q. # 2: (a) Describe the factors contributing towards irrational use of drugs (6 marks)

(b) Formulate drug utilization evaluation criteria of Cimetidine. (6 marks)

(c) Write a detailed note on therapeutic drug monitoring of Phenytoin (8 marks)

Q. # 3: (a) Write a note on therapeutic drug monitoring process and the significance of sampling time. (8)

(b) Explain with examples cost-benefit and cost-utility analysis in detail (8 marks)

(c) According to JNC, what are different stages of HTN (4 marks)

Q. # 4: (a) Write a note on Tetanus. (10 marks)

(b) Write a detail note on therapeutic drug monitoring of Lithium (10 marks)

Q. # 5: (a) Describe the role of Pharmacist in Community Pharmacies. (10)

(b) Enlist the sign and symptoms and pathophysiology of Tuberculosis. (10)

Q. # 6. a) Describe how hepatitis is induced by the following medications (10 marks)

i) Acetaminophen
ii) Isoniazid
iii) Phenytoin

(b) Define acute kidney injury and describe its stages (3 Marks)

(c) Write a detailed note on angiotensin converting enzyme inhibitors/angiotensin receptor blockers-induced acute kidney failure (7 Marks)

Q. # 7. (a) Write down the etiology of common cold. (4 marks)

(b) What are pathophysiological differences between different types of IHD (8 marks)

(c) Describe the pharmacotherapy options used for viral URTIs. (8 marks)

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Final Prof. A/2016
Examination: Doctor of Pharmacy
(Pharm.D.)

Roll No.

Subject: Pharmaceutical Technology
PAPER: 3

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q. No	Question	Marks
1	a Differentiate between solubility and dissolution, Name different approaches for the improvement of solubility of poorly soluble drugs.	10
	b What are various processing and compression factors that are importance in the development of oral solid dosage form?	10
2	a Define polymorphism, what is its effect on the physicochemical properties of drug substances?	10
	b What are the different techniques for the identification of active pharmaceutical compounds? Discuss in terms of their sensitivity and selectivity?	10
3	a What are different factors/characteristics to be considered for the development of a parenteral formulation?	10
	b What are liposomes? Describe different methods for their production.	10
4	a Define microencapsulation, what are various methods to prepare microcapsules? Give applications of this technique.	10
	b Define the followings and give their application	10
	i) Drug targeting ii) Micro-emulsions iii) Biodegradable polymers.	
5	a Differentiate between delayed and extended release drug delivery systems, why we need these systems?	10
	b Describe various diffusion based formulation designs to achieve extended release of drugs.	10
6	a Describe briefly quality by design (QbD), what is six sigma concept in formulation design?	10
	b Write a note on floating drug delivery system.	10
7	a What is the immobilization of enzymes? What are its applications?	10
	b How insulin is produced using recombinant DNA technology? Give illustration.	10

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Final Prof. A/2016
Examination: Doctor of Pharmacy
(Pharm.D.)

Roll No.

Subject: Forensic Pharmacy
PAPER: 4

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q.No	Question	Marks
1	Give brief answers of the following i. Define adulterated drug ii. Qualification of Govt. Analyst iii. Seasonal factory iv. Landed cost v. Validation	4 each
2	a) Discuss Good Manufacturing Practices (GMP) related to design of building and services for License to manufacture by way of formulation (Schedule B-II) b) Is the advertisement of every drug legal? Provide a list of drug/categories that can be advertised	10 10
3	a) Define the following terms as per DRAP Act 2012. i) Pharmacy services ii) Biologicals iii) Alternative medicine b) Describe the power and functions of Drug Regularity Authority of Pakistan (DRAP).	5+3+2 10
4	a) Describe the following under Drug (labeling and packing) Rules 1986 i) Exemption ii) Labelling of drugs for export b) Describe prohibitions and penalties related to owning premises, possession of assets, aiding/abetment in narcotic offences given under Control of Narcotic Substances Act 1997.	5+5 10
5	a) What types of health and safety measures should be provided to workers under Factory Act? b) What is the composition and functions of Central Pharmacy Council?	10 10
6	a) How many types of drug sale license are? How you will apply for the new license of your pharmacy? b) What are conditions of drug sale license related with i) Schedule B & D drugs ii) schedule E drug	10 5+5
7	Describe the following as under Drug Act 1976 i. Composition of Drug Registration Board. ii. Offences and Penalties.	10 10

UNIVERSITY OF THE PUNJAB



Final Prof. A/2016
Examination: Doctor of Pharmacy
(Pharm.D.)

Roll No.

Subject: Pharmaceutical Management & Marketing
PAPER: 5

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

Q. NO. 1: (a) Define distribution channel and discuss different types of a distribution channels with their significance? (15)

(b) What is the importance of Price in Economic System. (05)

Q. NO. 2: Define Production management and its elements. Discuss in detail input management and its control. (20)

Q. NO. 3: (a) Define Advertising and discuss different types of Advertisements. (15)

(b) Discuss selection criteria for an advertising media. (05)

Q. NO. 4: (a) Explain organizational conditions that hinder and promote creativity. (10)

(b) List five categories that distinguish creative person from non-creative persons. (10)

Q. NO. 5: Define Detailing or Selling Process and Discuss Selling Process in detail. (20)

Q. NO. 6: (a) Discuss functions of Management. (8)

(b) Define Price and Discuss Price formulation strategies. (12)

Q. NO. 7: Define the importance of controlling and discuss in detail three key steps of Controlling. (20)

UNIVERSITY OF THE PUNJAB



Final Prof. A/2016
Examination: Doctor of Pharmacy
(Pharm.D.)

Roll No.

Subject: Computer and its Applications in Pharmacy
PAPER: 6

TIME ALLOWED: 3 hrs.
MAX. MARKS: 50

Instructions:

- Solve entire paper (both Objective and Subjective Parts) on Answer Book.
- In case of MCQs, write the Correct Option only, cutting / overwriting is not allowed.
- There is no choice among questions, you have to attempt all questions.
- Read the Questions carefully before attempting.
- No lead pencils, only BLUE or BLACK ink is allowed to solve the paper.

"BEST OF LUCK"

OBJECTIVE SECTION

[20 Marks]

Determine the correct option for each of the following questions. Write the **Question Number** and your selected option like **(A, B, C or D)** in **CAPITAL** letters on the **Answer Book** only in a clear manner. You do not need to write the question statement on the Answer Book.

Q.1. A group of 8 bits is called

- A. Nibble
- B. Byte
- C. Giga Byte
- D. None of Above

Q.2. Hardware refers to

- A. Collection of Programs
- B. Electronic and Electromagnetic Devices
- C. Data of Information
- D. Any Collection of Data

Q.3. Which of the followings is a Primary Storage Device?

- A. Hard Disk
- B. RAM
- C. Flash USB Drive
- D. CPU

Q.4. Which of the following is generally called "The heart of the Computer".

- A. Memory
- B. Central Processing Unit
- C. Hard Disk
- D. Registers

Q.5. 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.6. Cache Memory exist in

- A. ROM
- B. Hard Disk
- C. Central Processing Unit
- D. Registers

Q.7. 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.8. Pictures/Images may have the following file extensions.

- A. exe, doc, pdf
- B. dll, lib, ppt
- C. bmp, gif, jpg
- D. txt, zip

Q.9. 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.10. HTML is a programming language and it can be used for development of _____.

- A. Application Software
- B. Banking System
- C. Websites
- D. Management Information System

Q.11. A _____ website is one whose content is regenerated every time a user visits or reloads the site.

- A. Informative
- B. Entertainment
- C. Static
- D. Dynamic

Q.12. What is a portion of a document in which you set certain page formatting options?

- A. Page
- B. Document
- C. Page Setup
- D. Section

Q.13. The _____ allows you to copy the format setting applied to selected text to other text MS Word.

- A. Font
- B. Clipboard
- C. Design
- D. Format Painter

Q.14. What is gutter margin?

- A. Margin that is added to the left margin when printing
- B. Margin that is added to right margin when printing
- C. Margin that is added to the outside of the page when printing
- D. Margin that is added to the binding side of page when printing

Q.15. How are data organized in a spreadsheet?

- A. Lines and spaces
- B. Layers and planes
- C. Height and width
- D. Rows and columns

Q.16. A _____ is a built-in or predefine formula that makes it easy to perform a complex calculation in MS Excel.

- A. Function
- B. Label
- C. Value
- D. Argument

Q.17. Using MS Excel when you want to preserve the exact cell address in a formula and cell reference does not change when the formula is copied to another location is called

- A. Absolute Cell Referencing
- B. Relative Cell Referencing
- C. Mixed Cell Referencing
- D. None of the Above

Q.18. In a computer network, there are number of ways to join computers to speed up the performance and fault tolerance, which are called as network.

- A. Network Topologies
- B. Network Terminologies
- C. Network Resources
- D. Network Processing

Q.19. A _____ is a communications device that connects multiple computer together and transmits data to its correct destination on a network.

- A. Router
- B. Firewall
- C. Modem
- D. Multiplexer

Q.20. A cable, consisting of a center glass core surrounded by layers of plastic that transmits data using light rather than electricity is called.

- A. Fiber optic
- B. Coaxial Cable
- C. Twisted pair Cable
- D. None of the above

SUBJECTIVE SECTION [30 Marks]

Question.1 [06 Marks]

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

Question.2 [06 Marks]

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

Question.3 [06 Marks]

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

1. Disk Controller
2. Interactive Whiteboard
3. Ports and Bays in a System Unit
4. Disk Defragmentation
5. HTML
6. Name any five software applications for data analysis

Question.4 [06 Marks]

Define Local Area Network (LAN) & Wide Area Network (WAN), also draw sample LAN implementation.

Question.5 [06 Marks]

Consider the following UCP Pharmacy Voucher. You are required to write MS Excel Formulae by considering the following constraints.

- Article Price is a product of Rate and Quantity
- Gross Total is a sum of all articles' prices.
- Calculate Tax 3% of Gross Total IF Gross Total is up to Rs.1000/- otherwise Tax would be 7% of Gross Total.
- Calculate Discount 8% of Gross Total IF Gross Total is up to Rs.800/- otherwise Discount would be 12% of Gross Total.
- Payable Amount is the calculation of Gross Total, Tax and Discount.

	A	B	C	D	E
1	UCP Pharmacy				
2	Sr. No.	Article Name	Rate	Quantity	Price
3	1	Panadole	20	2	40
4	2	Omega	150	6	900
5	3	Desprine	10	2	20
6	4	Concor	60	5	300
7	5	Simva	50	4	200
8	Gross Total				1460
9	Tax				102.2
10	Discount				175.2
11	Payable Amount				1387