



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

Roll No. ....

Subject: Teaching of Biology

TIME ALLOWED: 15 Mints.

PAPER CODE: BIO-001 Part – I (Compulsory)

MAX. MARKS: 10

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.

## Q.1. MCQs

(1x10=10)

- These are specific objects, variables, pieces of information acquired through observation and measurement  
a) Facts                      b) Concepts                      c) Principles                      d) Theory
- Which of the following method gives little opportunity to learning by doing?  
a) Lecture                      b) Heuristic                      c) Problem solving                      d) Demonstration
- Which of the following method promotes personal and social values such as thinking for common cause, tolerance and self-dependence?  
a) Project Method                      b) Lecture method                      c) Lecture cum demonstration method                      d) Assignment method
- Equipment longevity comes under criterion for evaluation of equipment  
a) Functionality                      b) Reliability                      c) Internal visibility                      d) Durability
- An instructional aid should be helpful in the realization of \_\_\_\_\_ objectives of science  
a) Cognitive                      b) Affective                      c) Psychomotor                      d) All of the Above
- Children deal with hypothetical situations during  
a) Sensorimotor stage                      b) Pre-Operational stage                      c) Concrete stage                      d) Formal stage
- Which of the following is the supporter of the spiral curriculum?  
a) David Ausubel                      b) Robert Gagne                      c) Jean Piaget                      d) Jerome Bruner
- For designing of an effective assessment, setter should focus on  
a) List of instructional Objectives                      b) Content outline                      c) Two way Chart                      d) None of these
- Describing some phenomenon in your own words comes under  
a) Knowledge Level                      b) Comprehension Level                      c) Application Level                      d) Analysis Level
- The level at which skills are well developed and individual can modify movement pattern to fit special requirement is called  
a) Guided response                      b) Mechanism                      c) Complex response                      d) Adaptation



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

**Subject: Teaching of Biology**

**PAPER CODE: BIO-001 Part – II**

**TIME ALLOWED: 2 Hrs. & 45 Mints.**

**MAX. MARKS: 50**

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

Give short answers of the following questions.

(4\*5=20)

- i) State importance of biology in everyday life.
- ii) Enlist characteristics of a good chart.
- iii) Write four ways of making biology teaching interesting.
- iv) Define improvised apparatus. Give an example.
- v) Describe subject area criteria in the selection of teaching material.

Give extensive answers of the following questions.

(3\*10=30)

Question No. 3: Discuss recent trends in teaching of biology.

Question No. 4 What is Assignment method? Discuss its advantages and disadvantages.

Question No. 5 Write a detailed note on scientific literacy and its importance.



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

Roll No. ....

Subject: Curriculum Development

PAPER CODE: EDU-007 Part – I (Compulsory)

TIME ALLOWED: 15 Mints.

MAX. MARKS: 10

**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.**

Q #1: MCQs choose the correct answer (10 marks)

(1)The word curriculum originates from-----word.

- A. Latin
- B. Greek
- C. Persian
- D. Arabic

(2)Body of knowledge contained in a course is

- A. Syllabus
- B. Content
- C. Curriculum
- D. Scope

(3)Philosophy means

- A. Search of education
- B. New examination
- C. Love of wisdom
- D. Curriculum theory

(4)Progressivism focused on

- A. Present and future trend
- B. Essential skills
- C. Classical subject
- D. Student interest and human problems

(5)The evaluation model CIPP was introduced by

- A. OLIVIA
- B. DAN STUFFLE BEAN
- C. LEWIS
- D. WHEELER

(6)The core curriculum does not emphasize

- A. Democratic procedures
- B. Problem solving
- C. A well-defined body of subject matter
- D. Cooperative planning

(7)Motivation is an ----- stage.

- A. External
- B. Internal
- C. Quality
- D. High

(8)Axiology deals with

- A. What is good
- B. What is true
- C. What is real
- D. What should be taught

(9)Blooms taxonomy has ----- domains.

- A. 5
- B. 3
- C. 6
- D. 8

(10)An outline of the topics of a subject to be covered in specific time is called

- A. Curriculum
- B. Course
- C. Program
- D. Syllabus





# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

Subject: Curriculum Development

PAPER CODE: EDU-007 Part – II

TIME ALLOWED: 2 Hrs. & 45 Mints.

MAX. MARKS: 50

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

Q.NO.2 Answer the following questions briefly (10\*2=20)

1. Define demonstration method and lecture-cum demonstration method
2. Write short note on types of evaluation
3. Define subject centered curriculum with example.
4. What is the importance of syllabus? Write briefly.
5. What is reporting and discuss briefly the role of reporting in evaluation
6. Write briefly the criteria of selecting curriculum design.
7. Explain the concept of teaching with example
8. Explain briefly the concept of instructional technology
9. Write a short note on projected and non-projected aids
10. Explain the concept of Time management.

Q NO.3 Answer the following questions (5\*6=30)

1. Briefly describe the curriculum revision and HEC
2. Explain in detail different phases of need assessment.
3. Describe briefly on factors influencing on curriculum development.
4. Discuss the problems and issues of curriculum development in Pakistan.
5. Write a brief note on Tyler's model of curriculum development.
6. Write note on psychological foundation of curriculum development.



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

Roll No. ....

**Subject: Environmental Education**

**TIME ALLOWED: 15 Mints.**

**PAPER CODE: EDU-008 Part – I (Compulsory)**

**MAX. MARKS: 10**

**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.**

**Q#1: Objective (1\*10=10)**

1. Making something unfit for a particular use through the introduction of undesirable material is known as.....
  - a) contamination
  - b) toxicology
  - c) carcinogen
  - d) none of the above
2. Pipe , drains outlets ,smoke stakes are
  - a) Mobile source
  - b) Point source
  - c) Area source
  - d) none of the above
3. The first article about environmental education as a new movement appeared in Phi Delta Kappan in 1969, authored by
  - a) James A. Swan
  - b) David Ausible
  - c) Anna Botsford
  - d) none
4. A national teach-in about environmental problems – paved the way for the modern environmental education movement the first Earth Day on
  - a) April 22, 1970
  - b) April 22, 1980
  - c) April 22, 1990
  - d) April 22, 2000
5. The United Nations Education Scientific and Cultural Organization (UNESCO) and United Nations Environment Program (UNEP) created three major declarations that have guided the course of environmental education.
  - a) The United Nations Education Scientific and Cultural Organization (UNESCO)
  - b) United Nations Environment Program (UNEP)
  - c) Both of the above
  - d) None of the above
6. Which of the following is not influenced by human activities?
  - a) Depletion of ground water
  - b) Destruction of wet land
  - c) Increased extinction rate of species
  - d) Average age of humanbeings
7. An ecosystem consist upon
  - a) Ecosystem
  - b) Phytosociology
  - c) Geography
  - d) Environmental sciences
8. Element of Environment are
  - a)physical,biological,cultural
  - b) physical,biological,situational
  - c) physical,biological,environmental
  - d) physical,agricultural,cultural
9. Alternative sowing of crops on a given land is called:
  - a) Terracing
  - b) Crop rotation
  - c) Suspension
  - d) None of these
10. Photochemical smog contains two air pollutants , one is hydrocarbon and the other is
  - a) Iron oxide
  - b) Nitrogen oxide
  - c) Both
  - d) Plants



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

**Subject: Environmental Education**

**PAPER CODE: EDU-008 Part – II**

**TIME ALLOWED: 2 Hrs. & 45 Mints.**

**MAX. MARKS: 50**

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

**Q.2. Questions with Short Answers.**

**(5x4=20)**

1. What is water logging? Enlist the causes of water logging
2. Differentiate between POTENTIAL and ACTUAL resources?
3. Define ecosystem and ecology?
4. What is fossil fuels ?
5. Write environmental protection act 1997 (Pakistan environment protection agency)?

**Q#3: Essay type Question**

**(3\*10=30)**

6. Explain in detail about the Goals and scope of environmental education? 10
7. Define chemical effluents? Discuss industrial waste treatment plant in detail 10
8. Explain the importance and need of in door and out door pollution according to your survey project report? 10



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

Roll No. ....

**Subject: School, Community & Teacher**

**TIME ALLOWED: 15 Mints.**

**PAPER CODE: EDU-009 Part – I (Compulsory)**

**MAX. MARKS: 10**

**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. Formal education is taken from the following:
  - a. Family
  - b. Community
  - c. Society
  - d. Institution
2. The process of education and learning continues till:
  - a. Childhood
  - b. Adulthood
  - c. Old age
  - d. Death
3. A temporary pattern of behavior that catches people's attention is:
  - a. Panic
  - b. Trend
  - c. Fashion
  - d. Fad
4. In early childhood, family members are generally responsible for the process of \_\_\_\_\_.
  - a. Primary socialization
  - b. Secondary socialization
  - c. Subcultural socialization
  - d. Adult socialization
5. Adjustment of man to both natural and man-made environment is:
  - a. Accommodation
  - b. Assimilation
  - c. Co-operation
  - d. Sub-ordination
6. Personality is the product of:
  - a. Socialization
  - b. Ideology
  - c. Heredity
  - d. Interaction

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



7. Collective behavior of individual is guided by a leader in:
  - a. Crowd
  - b. Mobs
  - c. Riots
  - d. Mass hysteria
  
8. Social norms are standard of \_\_\_\_\_:
  - a. Good and Bad
  - b. Customs
  - c. Habits
  - d. Culture
  
9. Which of the following is building block of the society?
  - a. Institutions
  - b. Status and roles
  - c. Groups
  - d. All of the above
  
10. Pushing stopped bus is \_\_\_\_\_.
  - a. Socialization
  - b. Social Interaction
  - c. Social action
  - d. Social stratification



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

Subject: School, Community & Teacher  
PAPER CODE: EDU-009 Part – II

TIME ALLOWED: 2 Hrs. & 45 Mints.  
MAX. MARKS: 50

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

**(SHORT ANSWERS)**

**Marks: 2 x 10 = 20**

**Note: Attempt all questions**

- Q1. Define community with examples.
- Q2. What are the major functions of social institutions?
- Q3. Differentiate between social action and social interaction.
- Q4. How education can strengthen the society?
- Q5. List the components of Shannon's Model of communication process.
- Q6. What is the difference between culture and community?
- Q7. Explain propaganda as a form of collective behavior with examples.
- Q8. Define Mores with examples.
- Q9. Mention any two recreational activities in rural areas of Pakistan.
- Q10. Discuss competition as dis-associative social process with example.

**(LONG QUESTIONS)**

**(Marks: 3 x 10 = 30)**

**Attempt all questions. All questions carry equal marks**

- Q1. How social institutions act as an agency of social control.
- Q2. Discuss the various functions of Education in the light of Pakistani Society.
- Q3. Define culture. Explain various elements of culture in detail.



**UNIVERSITY OF THE PUNJAB**  
**Fifth Semester – 2018**  
**Examination:- B.S.Ed. (Hons.) 4 Years Degree Program**

Roll No. ....

**Subject: Teaching of Chemistry**

**TIME ALLOWED: 15 Mints.**

**PAPER CODE: CHEM-009 Part – I (Compulsory)**

**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.**

**Q.1. MCQs**

**(1x10=10)**

1. Science is a blend of:
  - a. Logic and Imagination
  - b. Evidence and Prediction
  - c. Facts and Observation
  - d. Principles and Experimentation
2. The background information that we use as the basis for further exploration and experimentation, termed as:
  - a. Content knowledge
  - b. Contextual knowledge
  - c. Experimental knowledge
  - d. Experiential knowledge
3. The skills involved in evaluating one's own current teaching practice in order to improve future practice identified as:
  - a. Assessment and evaluation
  - b. Assessment and reflection
  - c. Reflection and evaluation
  - d. None of these
4. All are key elements of quality lesson plan EXCEPT:
  - a. Aims
  - b. Objectives
  - c. Methodology
  - d. Evaluation
5. According to Piaget, child at the age of two to seven exists in stage of:
  - a. Concrete operational
  - b. Formal operations
  - c. Preoperational
  - d. Sensori-motor
6. All are visual aids of teaching EXCEPT:
  - a. Overhead Projector
  - b. Epidiascope
  - c. Computer
  - d. Radio
7. The method leads from concrete to abstract is:
  - a. Inductive method
  - b. Deductive method
  - c. Unit method
  - d. Lecture-cum-demonstration method
8. According to Gagne's principles different instruction is required for different:
  - a. Demonstration
  - b. Experimentation
  - c. Instructional events
  - d. Learning outcomes
9. Interpreting a new experience within the context of one's existing schema is known as:
  - a. Accommodation
  - b. Assimilation
  - c. Discquilibrium
  - d. Equilibrium
10. Which statement is true?
  - a. Facts become Laws
  - b. Theories become Laws
  - c. Principles become Laws
  - d. None of them



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

Subject: Teaching of Chemistry

PAPER CODE: CHEM-009 Part – II

TIME ALLOWED: 2 Hrs. & 45 Mints.

MAX. MARKS: 50

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

(Short Questions)

Marks: 4 x 5 = 20

Q. No. 2 Answer the following questions:

1. Define chemistry. Explain the importance of chemistry in everyday life.

1. کیمسٹری کی تعریف کریں۔ روزمرہ زندگی میں کیمسٹری کی اہمیت واضح کریں۔

2. Write down the aims of teaching chemistry.

2. ٹیچنگ کیمسٹری کے مقاصد تحریر کریں۔

3. Explain the responsibilities of chemistry teacher.

3. کیمسٹری ٹیچر کی ذمہ داریاں واضح کریں۔

4. Describe briefly the process of learning according to Piaget.

4. - پیاجے کے مطابق لرننگ پراسس مختصر طور پر تحریر کریں۔

5. Discuss the significance of lesson plan in teaching chemistry.

5. ٹیچنگ کیمسٹری میں لیسن پلان کی اہمیت اجاگر کریں۔

(Long Questions)

Marks: 10 x 3 = 30

Answer the following questions:

Q. No. 3

Discuss different methods of teaching Chemistry.

ٹیچنگ کیمسٹری کے مختلف طریقوں پر بحث کریں۔

Q. No. 4.

What is the lesson plan? Write various features and steps in a lesson planning.

لیسن پلان کیا ہے؟ لیسن پلاننگ کی مختلف خصوصیات اور مراحل لکھیں۔

Q. No. 5.

Explain process of learning according to Bruner.

برونر کے مطابق لرننگ پراسس کی وضاحت کریں۔



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

**Examination:- B.S.Ed. (Hons.) 4 Years Degree Program**

(Session: 2014 – 2018)

Roll No. ....

**Subject: Advance Chemistry-I (Environmental Chemistry)**

**TIME ALLOWED: 2 Hrs. & 45 Mints.**

**PAPER CODE: CHEM-010 Part – II**

**MAX. MARKS: 50**

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

**Q#2: Explain the short questions**

**(5\*4= 20)**

1. Write down definition of Environmental Chemistry?
2. What is Population growth rate?
3. Enlist 5 global environmental problems?
4. What is integrated pest management? give example of any pest control.
5. What are the hazards of nuclear energy?

**3. Write down the long Answers.**

**(10\*3=30)**

1. Describe in detail About the concept of “ polar amplification” , with respect to Global warming?
2. Explain how can we minimize the impact of various environmental pollutant in our environment?
3. What is industrial pollution ? explain its sources and means of control?



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

Roll No. ....

Subject: Advance Chemistry-I (Environmental Chemistry)

TIME ALLOWED: 15 Mints.

PAPER CODE: CHEM-010 Part – I (Compulsory)

MAX. MARKS: 10

**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.**

**Q.1. MCQs**

**(1x10=10)**

1. The process that cause weather and interaction of the atmosphere with the earth's surface is called as :.....  
a) Weather                      b) Climate                      c) Metrology                      d) Wind
2. During inhalation only O<sub>2</sub> is passed in to the lungs because of .....  
a) Electronegativity                      b) Partial pressure of Gases  
c) Gravitational force                      d) Electronegativity
3. Uneven heating of air is called :  
a) Climate                      b) Wind                      c) Weather                      d) all of above
4. The earth's surface is composed of .....  
a) Liquid particles                      b) Gases particle                      c) Solid particles                      d) None of the above
5. Decrease in the thickness of ozone layer present in stratosphere is called  
a) Ozone hole                      b) smog                      c) air pollution                      d) global warming
6. DDT pesticide is classified in  
a) Carbamate pesticide                      b) chlorinated pesticide  
c) organophosphate pesticide                      d) phosphate pesticide
7. The pollution resulting from the release of excessive waste heat is called  
a) radioactive pollution                      b) thermal pollution  
c) atmospheric pollution                      d) industrial pollution
8. How many fresh water..... %age amount is available on total earth surface ?  
a) 10                      b) 2                      c) 50                      d) 1
9. Which waste water treatment method is used to remove the toxic pollutant  
a) Flotation                      b) Ion exchange                      c) Coagulation                      d) Filtration
10. Optimum value for DO in a good quality of water is .....mg/l  
a) 4-8                      b) 2-6                      c) 3-8                      d) 1-2



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

**Subject: Teaching of Mathematics**  
**PAPER CODE: MATH-009 Part – II**

**TIME ALLOWED: 2 Hrs. & 45 Mints.**  
**MAX. MARKS: 50**

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

Q- 2. Give short answers to the following questions.

[Marks 4 x 5 = 20]

- I. What are the cultural and aesthetic aims of teaching mathematics?
- II. What is the importance of audio visual aids in teaching of mathematics?
- III. What is project method? How it is helpful in teaching mathematics?
- IV. Write down any four drawbacks of deductive method.
- V. Describe the role of mathematics teacher in effective mathematics teaching?

Give detailed answers to the following questions.

[Marks 3 x 10 = 30]

Q. 3. Why lecture method is not helpful in teaching mathematics? How problem-solving method helps in teaching mathematics? (4+6)

Q. 4. Differentiate between objective and subjective types of tests in mathematics. Explain any three types of objective type tests along with their advantages and disadvantages. (4+6)

Q. 5. Name the components of a lesson plan. Make a lesson plan on “factorization” having question  $8b^2+51b+55$  (3+7)



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

Roll No. ....

**Subject: Teaching of Mathematics**

**TIME ALLOWED: 15 Mints.**

**PAPER CODE: MATH-009 Part – I (Compulsory)**

**MAX. MARKS: 10**

**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.**

**Q.1. MCQs**

**(1x10=10)**

1. Measurement of inheritance of stature of children and their parents uses mathematics in which subject?
  - a. Biology
  - b. Chemistry
  - c. Astrophysics
  - d. Geophysics
2. What is the other name of lecture method?
  - a. Speech
  - b. Chalk and talk
  - c. Presentation
  - d. Question and answer
3. Which technique of teaching mathematics is used for teaching larger classes?
  - a. Group work
  - b. Discovery
  - c. Supervised study
  - d. Written work
4. How the effectiveness of whiteboard can be enhanced?
  - a. Using colored markers
  - b. Drawing rough diagrams
  - c. Using each portion of the whiteboard
  - d. Keep silent while writing on whiteboard
5. The mathematics laboratory can contain the picture of which scientist?
  - a. Pythagoras
  - b. Louis Pasteur
  - c. Alexander Fleming
  - d. Marie Curie
6. What is the major defect of essay type questions?
  - a. Lacks validity and reliability
  - b. 100% reliable
  - c. Easy to administer
  - d. Economical in time
7. Which type of test uses two columns?
  - a. True False
  - b. Multiple choice
  - c. Matching
  - d. Filling blanks
8. What were the elements of abacus in its earliest form?
  - a. Dust and sand
  - b. Rods and sticks
  - c. Beans and spheres
  - d. Needles and rods
9. What is the very first step of a lesson plan?
  - a. Setting objectives
  - b. Devising the required apparatus
  - c. Assessing previous knowledge
  - d. Assessment
10. Which of the following is a Muslim mathematician?
  - a. Jabir ibn Hayyan
  - b. Al-Kindi
  - c. Abbas Ibn Firnas
  - d. Al-Khwarizmi







# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

**Subject: Teaching of Physics**

**TIME ALLOWED: 2 Hrs. & 45 Mints.**

**PAPER CODE: PHY-009 Part – II**

**MAX. MARKS: 50**

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

**Q.No.02. Give the brief answer of the following questions. (5 x 4 = 20)**

- i. What are the needs of teaching aids?
- ii. Enlist the main aims of teaching physics at secondary level.
- iii. Write merits and demerits of demonstration method.
- iv. How can we make teaching of physics more interesting?
- v. Define test, measurement, assessment and evaluation.

**Q. 3 Give detailed answer of the following questions. (3 x 10 = 30)**

- i. Explain the aims of teaching physics.
- ii. What are characteristics of good lesson plan?
- iii. How you can establish physics laboratory at secondary level?



**UNIVERSITY OF THE PUNJAB**  
**Fifth Semester – 2018**  
**Examination:- B.S.Ed. (Hons.) 4 Years Degree Program**

Roll No. ....

**Subject: Teaching of Physics**  
**PAPER CODE: PHY-009 Part – I (Compulsory)**

**TIME ALLOWED: 15 Mints.**  
**MAX. MARKS: 10**

**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.**

Q.No.01. Multiple choice questions. Encircle the most appropriate option. (10 x 1= 10)

- i. The method of teaching which involves breakup of concept into its component is called:  
(a) Synthetic                      (b) Project                      (c) Analysis                      (d) None
- ii. The quantitative assessment of any thing is called:  
(a) Evaluation                      (b) Assessment                      (c) Measurement                      (d) Test
- iii. The method of teaching which is now a day use for introducing lesson is:  
(a) Demonstration                      (b) Inquiry                      (c) Lecture                      (d) None
- iv. The first step in scientific investigation is:  
(a) Hypothesis                      (b) Observation                      (c) Deduction                      (d) Induction
- v. Teaching aids which require use of artificial light are called:  
(a) Non projected                      (b) Projected                      (c) Graphical                      (d) None
- vi. The objective of education comes from:  
(a) Philosophy                      (b) Psychology                      (c) Curriculum                      (d) Sociology
- vii. The basic source of educational objectives is:  
(a) human experience                      (b) Schools                      (c) educational psychology                      (d) professional organization
- viii. The rules of presenting the contents to make them easy are called:  
(a) Method of teaching                      (b) Maxims of teaching                      (c) Techniques of teaching                      (d) Teaching strategies
- ix. Students are passive in:  
(a) Project method                      (b) Discovery method                      (c) Lecture method                      (d) Inquiry method
- x. Activity involves:  
(a) Physical action                      (b) Mental action                      (c) Physical and mental action                      (d) None



# UNIVERSITY OF THE PUNJAB

Fifth Semester – 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program

(Session: 2014 – 2018)

Roll No. ....

Subject: Advance Physics-I  
(Mathematical Methods of Physics-I)

TIME ALLOWED: 2 Hrs. & 45 Mints.

MAX. MARKS: 50

PAPER CODE: PHY-010 Part – II

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

## Section–B (Marks 4×5 = 20)

Q.2 Give brief answers of the following questions.

- I. Differentiate between smooth curve and level surface.
- II. Differentiate between Dirichlte and Neumann boundary conditions.
- III. If  $x^2y'' + xy' + (x^2 - \frac{1}{4})y = 0$  then prove that  $J_{\frac{1}{2}}(x) = \sqrt{\frac{2}{\pi x}} \sin x$
- IV. Prove that Kronecker delta is tensor of rank 2.
- V. Show that  $\Gamma(n + 1) = n \Gamma(n)$ .

## Section–C (Marks 10×3 = 30)

Q.3 Determine the eigen functions and eigen values of  $(xy')' + \frac{\lambda}{x}y = 0$  with boundary conditions

$$y'(1) = 0 \text{ and } y'(e^{2\pi}) = 0.$$

Q.4 Find the Christoffel symbol of 2<sup>nd</sup> kind of spherical coordinate system, where

$$g_{ab} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & r^2 & 0 \\ 0 & 0 & r^2 \sin^2 \theta \end{pmatrix}$$

Q.5 a. State and prove Gauss' divergence theorem.

b. Using Gauss' divergence theorem, find the value of

$$\int \int_s \vec{F} \cdot ds$$

Where  $\vec{F} = x^3i + y^3j + z^3k$  and s is surface of sphere.

