



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

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

(Session: 2017-2021)

Roll No.

Subject: English-I (Language in Use)

PAPER CODE: ENG-001

TIME ALLOWED: 2 hrs. & 30 mins.

MAX. MARKS: 50

Subjective

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

NOTE: ATTEPMT ALL QUESTION

Q.2 (Short Questions): Attempt only FIVE (20 Marks)

- 1 What are the strategies to improve listening skill.
- 2: Describe the process of comprehension?
3. What is skimming and scanning in reading skill?
- 4: What are the essentials for paragraph writing??
- 5: What are the different kinds of reading?
- 6: Which skill of English language is the most important skill?

Subjective Type (30 Marks)

Q.3 What is critical reading and how it is different from active reading? (5)

Q.4 (A) Read the following paragraph and answer the questions. (6+4)

When we survey our lives and efforts we soon observe that almost the whole of our actions and desires are bound up with the existence of other human beings. We notice that whole nature resembles that of the social animals. We eat food that others have produced, wear clothes that others have made, live in houses that others have built. The greater part of our knowledge and beliefs has been passed on to us by other people though the medium of a language which others have created. Without language and mental capacities, we would have been poor indeed comparable to higher animals.

We have, therefore, to admit that we owe our principal knowledge over the least to the fact of living in human society. The individual if left alone from birth would remain primitive and beast like in his thoughts and feelings to a degree that we can hardly imagine. The individual is what he is and has the significance that he has, not much in virtue of the individuality, but rather as a member of a great human community, which directs his material and spiritual existence from the cradle to grave.

- A) Suggest a suitable title for the above passage.
- B) Describe the main idea.
- C) According to the writer, what is the definition of an "individual"?

Q.4 (B) Summarize the above passage (Part A of Question 4)

Q.5 Write an essay on ONE of the following topics:

1. Terrorism
2. An Ideal Student

(15)



ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

SECTION-A (MCOs) (1x10=10)

Objective

Encircle the best possible answer: (10)

- 1) I can't afford that coat. I need to find a _____ one.
A) black B) cheaper C) fashionable
- 2) He gets up early ----- the morning.
A) on B) in C) at
- 3) There is a bridge _____ the river.
A) upon B) in C) across
- 4) I heard her singing ----the living room
A) on B) in C) at
- 5) Happiness is ----- noun.
A) countable B) collective C) abstract
- 6) Biscuit is a ----- noun.
A) countable B) collective C) abstract
- 7) I thought the film was very long and boring.
How many adjectives are there in the above sentence?
A) 1 B) 2 C) 3
- 8) The shopkeeper has charged me ten rupees ----- this book.
A) upon B) in C) for
- 9) He is capable --- doing anything.
A) of B) in C) off
- 10) Which word is an adjective?
A) after B) pretty C) taste



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

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

(Session: 2017-2021)

Roll No.

TIME ALLOWED: 2 hrs. & 30 mins.

MAX. MARKS: 50

Subject: Foundation of Education
PAPER CODE: EDU-001

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

نوٹ: تمام سوالات حل کریں۔

Part II: Answer the following short questions

4x5=20

1. Define Epistemology and Ontology.
2. Give Salient features of Education Policy 2009.
3. What is the basic concept of philosophy of Pragmatism?
4. Describe the Domains of Education?
5. What are the aims of Education in the philosophy of Realism?

Part III: Answer the following questions

10x3=30

1. Describe Bloom's Taxonomy with its effective domains.
2. What is the basic concept of Individual differences? Give the importance of Individual Differences for a good teacher.
3. Describe the philosophy of Idealism with reference to aims of education, curriculum, methodology and teacher.

OR

What are the sources of Knowledge? Give their details with examples.



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(Session: 2017-2021)

Subject: Foundation of Education

TIME ALLOWED: 30 Mins.

PAPER CODE: EDU-001

MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

SECTION-A (MCQs) (1x10=10)

Part I: Encircle the correct option from the following statements. 10

1- Which school held the view, "God makes all things good; man meddles with and they become evil"?

Marxism Pragmatism Naturalism Existentialism

2- Which branch of philosophy deals with knowledge, its structure, method and validity?

Logic Metaphysics Epistemology Aesthetics

3- Which branch of philosophy examines issues pertaining to the nature of "reality"?

Axiology Metaphysics Ontology Epistemology

4- What is the goal of education according to Idealism?

Realization of moral values Satisfaction of human wants

Perfect adaptation to the environment

Cultivation of dynamic, adaptable mind, resourceful and enterprising in all situations

5-The aim of education according to the Existentialists is

Objective knowledge good understanding of the world outside

Adaptation to practical life Humanitarian and humanist self-realization

6 -The Realist's aim of education is

Self-realization Happy and moral development

Total development of personality Spiritual and moral development

7-Religious education is strongly advocated by

Realist Pragmatists Idealists Existentialists

8- Which one of the following education systems supports scientific progress?

Idealistic Naturalistic Realistic None of above

9- Why are curriculum activities used in teaching?

Make teaching easy To assist the teacher

To make teaching attractive To make teaching effective

10- What is the main centre of informal Education?

Family Society Radio & TV All of above



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program
(Session: 2017-2021)

Roll No.

Subject: Botany-I

PAPER CODE: BOT-001(Plant Diversity)

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

Note. All questions are compulsory. Draw diagrams where necessary.

SECTION B (MARKS 4X5=20)

Q.2. Give brief answer of the following questions.

- i. Enlist salient features of cynophyta.
- ii. What is Transforming Principle?
- iii. Throw light on fossilization.
- iv. Comment on stellar system in lower vascular plants.
- v).- Point out primitive features of cycas.

SECTION C (MARKS 10X3=30)

Q.3.- Explain the life cycle of puccinia.

10

Q.4.- (a) What do you know about sporocarp of marsilea.

5

(b) Describe the female cone of pinus.

5

Q.5.- Write notes on

a) Sexual reproduction in spirogyra

5

b) Sporophyte of funaria

5



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Subject: Botany-I

PAPER CODE: BOT-001 (Plant Diversity)

TIME ALLOWED: 30 Mins.

MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

SECTION- A (Marks 1x10=10)

Q.1 Choose the best answer.

- i. A very small circular naked RNA molecule without capsid
(a) Phage virus (b) Retrovirus (c) Viroid (d) TMV
- ii. Hollow, non-helical and filamentous appendages present on cell wall of bacteria.
(a) Capsule (b) Pili (c) Mesosomes (d) Plasmid
- iii. The female sex organ in chara.
(a) Spermatium (b) Carpogonium (c) Globule (d) Nucule
- iv. The hyphae having cross walls.
(a) Aseptate (b) Septate (c) Pitted (d) Coenocytic
- v. The thallus of lichen is flat, leaf like, lobed and branched.
(a) Crustose (b) Foliose (c) Fruticose (d) Homiomorous
- vi. The amphibian plants belong to group.
(a) Algae (b) Fungi (c) Bryophyte (d) Pteridophyte
- vii. The fossilized primitive vascular plants are devoid of.-
(a) Leaf (b) Rhizome (c) Stem (d) Rhizoid
- viii. The leaves of selaginella are arranged in rows of.-
(a) 1 (b) 2 (c) 3 (d) 4
- ix. If female gamete develop into new individual without fertilization.
(a) Ovagenesis (b) Parthenogenesis (c) Spermatogenesis (d) Sporogenesis
- x. Which of the following is absent in the xylem of most Gymnosperm?
(a) Tracheid (b) Vessel (c) Sieve tube (d) Companion cell



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

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

(Session: 2017-2021)

Roll No.

Subject: Chemistry-I

PAPER CODE: CHEM-001 (Physical Chemistry)

TIME ALLOWED: 2 hrs. & 30 mins.

MAX. MARKS: 50

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

SECTION B

SECTION B (Descriptive Part-II)

Attempt this paper on separate Answer sheet provided.

Q#2: Explain the short questions

(5*4= 20)

1. Give reason why the flow of current depends upon the resistance, give example ?
2. Define the term electrolysis?
3. State Farady's Ist and Second law?
4. What is the relation of Cv and Cp?
5. What is carnot cycle ? How the efficiency of heat engine can be increased?

SECTION C (Subjective III)

(3*10 = 30)

Q#3. Explain in detail The first law of thermodynamics and also describe Reversible and irreversible processes.

Q#4 Describe the rate of equation for first order reaction?

Q#5 What do you mean by adsorption isotherm ? Given the mathematical and graphical explanation of freundlich adsorption isotherm.



Subject: Chemistry-I

PAPER CODE: CHEM-001 (Physical Chemistry)

TIME ALLOWED: 30 Mins.

MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

Attempt all Questions in Part I and Part II, all questions carry equal marks
Section A (OBJECTIVE)

- The branch of chemistry which deals with the Relationship between chemical change and electricity
(a) neutrons in the nucleus (b) protons in the nucleus
(c) neutron minus protons in the nucleus (d) neutrons plus proton in the nucleus
- A gas which has a high critical temperature has
(a) a high critical pressure
(b) a low critical pressure
(c) a high or low critical pressure depending on the nature of gas
(d) a high critical volume
- The properties of a system, which are also the properties of the matter in bulk, rather than that of the individual isolated molecules, which are easily measurable, are known as
(a) Microscopic (b) Macroscopic (c) Colligative (d) Interval
- There aretypes of catalysts
(a) one (b) two (c) three (d) four
- Thelaw of thermodynamics is "Energy cannot be created and destroyed although it may change from one form to the other".
(a) 1st law (b) 2nd law
(c) 3rd law (d) 4th law
- The Symbol H is called for
(a) External Energy (b) Internal energy
(c) Average energy (d) Total energy
- Any process in which the driving and opposing force differ infinitesimally, so that the process can be carried out in either direction by bringing about an infinitesimal amount of the driving or opposing force is called as aprocess
(a) reversible (b) irreversible (c) constant (d) simultaneous
- The driving and opposing forces differ greatly and the system is far away from the equilibrium with its surroundings, it is known as
(a) reversible (b) irreversible (c) constant (d) simultaneous
- The relationship " $Q = E/R$ " explains.....law
(a) Ohm's (b) Farady's (c) Henry's (d) dilution
- If the catalyst is present in same phase with the solution the it is called as.....
(a) Homogeneous (b) Heterogeneous (c) Transition (d) Semiconductor



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

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

(Session: 2017-2021)

Roll No.

Subject: Mathematics A-I

PAPER CODE: MATH-001 (Calculus-I)

TIME ALLOWED: 2 hrs. & 30 mins.

MAX. MARKS: 50

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

SECTION-II

Q.2 Solve the following short questions.

(2 × 10 = 20)

(i) Solve the inequality $\frac{x^2 + 2x}{2x + 4} > 1$.

(ii) Solve the inequality $|5x + 6| \geq 5$.

(iii) Express $\sqrt{3} + i$ in polar form.

(iv) Determine domain of $f(x) = \sqrt{\frac{x-4}{x+1}}$.

(v) Evaluate $\lim_{x \rightarrow 0} x^3 \left[\frac{1}{x} \right]$.

(vi) Evaluate $\int \frac{1}{x^3} \left(1 + \frac{1}{x^2} \right) dx$

(vii) Differentiate $x^y = e^{x \cdot y}$ with respect to x .

(viii) Evaluate $\int \frac{1}{\sqrt{x}} \sec \sqrt{x} \tan \sqrt{x} dx$

(ix) Find the n th derivative of $y = \frac{1}{ax + b}$ with respect to x .

(x) Find the points of discontinuity of the function

$$f(x) = \begin{cases} x^3, & \text{if } x < 1 \\ -4 - x^2, & \text{if } 1 \leq x \leq 10 \\ 6x^2 + 46, & \text{if } x > 10 \end{cases}$$

SECTION-III

Solve the following questions. All questions carry equal marks. (10 × 3 = 30)

Q.3. If $y = \tan^{-1} \left(\frac{x \sin \alpha}{1 - x \cos \alpha} \right)$. Find $\frac{dy}{dx}$.

Q.4. Evaluate the integral $\int \frac{dx}{(x^2 - 1)\sqrt{x^2 + 1}}$

Q.5. Evaluate the integral $\int_0^{\frac{\pi}{3}} \sin^2 6x \cos^4 3x dx$



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1st Semester - 2018

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(Session: 2017-2021)

Subject: Mathematics A-I
PAPER CODE: MATH-001 (Calculus-I)

TIME ALLOWED: 30 Mins.
MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

Q.1. Choose the correct answer and encircle it. Cutting and overwriting is not allowed. (10)

- (i) Every polynomial function is _____
(a) linear (b) trigonometric (c) differentiable (d) exponential
- (ii) If $f(x) = \cos x$, then $f'(\pi) = ?$
(a) $-\sin x$ (b) -1 (c) 1 (d) 0
- (iii) $(\sqrt{3} - i)^3$ is equal to
(a) $3\sqrt{3}$ (b) $8i$ (c) $-8i$ (d) none of these
- (iv) $\lim_{x \rightarrow \infty} \frac{2 - 3x}{\sqrt[3]{3 + 8x^3}}$
(a) $\frac{2}{3}$ (b) $-\frac{3}{2}$ (c) $-\frac{2}{81}$ (d) none of these
- (v) $\cos 45^\circ - i^2 \sin 45^\circ$ is equal to
(a) $\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}i$ (b) $\frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}}i$ (c) $\sqrt{2}$ (d) none of these
- (vi) $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} = ?$
(a) 0 (b) 1 (c) 2 (d) 4
- (vii) If z is a complex number, then $z + \bar{z}$ is
(a) real (b) complex (c) 0 (d) undefined
- (viii) If $\frac{2x}{x+2} \geq \frac{x}{x-2}$, then $x = -2, 2$
(a) boundary numbers (b) free boundary numbers
(c) represents $-2 < x < 2$ (d) solution of given inequality
- (ix) If $z = -\sqrt{3} + i$, then $\text{Arg}(z)$ is
(a) $-\frac{\pi}{6}$ (b) $\frac{\pi}{6}$ (c) $\frac{5\pi}{6}$ (d) $\frac{3\pi}{2}$
- (x) The inequality $|x - 4| < 3$ is true for
(a) $x < 1$ (b) $1 < x < 7$ (c) $0 < x < 1$ (d) $x < 7$



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

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

(Session: 2017-2021)

Roll No.

Subject: B Course of Mathematics-I
PAPER CODE: MATH-002

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

SECTION I

Q.2. Solve the following Short questions. All questions carry EQUAL marks. (5 × 4 = 20)

- Determine 'c' if the vector $ci + 2j - k$ is perpendicular to the vector $-5i + j + 2k$.
- If the mid-points of the consecutive sides of any quadrilateral are connected by straight lines, prove that the resultant quadrilateral is a parallelogram.
- Prove that $\vec{A} \times (\vec{B} \times \vec{C}) + \vec{B} \times (\vec{C} \times \vec{A}) + \vec{C} \times (\vec{A} \times \vec{B}) = 0$
- Forces X, P+X, Q+X act at a point in the directions of the sides of an equilateral triangle, taken one way round. Show that they are equivalent to two forces P and Q acting at an angle of 120° .
- Four equal heavy uniform rods are freely jointed to form a rhombus ABCD which is freely suspended from A, and kept in the shape of a square by an in extensible string connecting A and C. Show that tension in the string is 2W, where W is the weight of one rod.

SECTION II

Solve the following questions. All questions carry EQUAL marks. (3 × 10 = 30)

- Forces P, 2P, 3P, 6P, 5P and 4P act respectively along the sides AB, CB, CD, ED, EF and AF of a rectangular hexagon of side 'a'. The sense of the forces being indicated by the order of the letters. Prove that the six forces are equivalent to a couple.
- Two bodies, weights W_1 and W_2 , are placed on an inclined plane and are connected by a light string which coincides with a line of greatest slope of the plane. If the coefficients of friction between the bodies and the plane be respectively μ_1 and μ_2 . Find the inclination of the plane to the horizon when both bodies are on the point of motion, it being assumed that the smoother body is below the other.
- Six equal rods AB, BC, CD, DE, EF and FA each of weight W are freely jointed to form a regular hexagon. The rod AB is fixed in a horizontal position and the shape of the hexagon is maintained by a light rod joining C and F. Show that the thrust in this rod is $\sqrt{3} W$.



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Roll No.

1st Semester - 2018

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

(Session: 2017-2021)

Subject: B Course of Mathematics-I
PAPER CODE: MATH-002

TIME ALLOWED: 30 Mins.
MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

Q.1. Choose the correct answer and encircle it. Cutting and overwriting is not allowed. (10)

i) A boat moves 10 km due west, 5 km due north, and then 10 km due east. The displacement of the boat from its initial position is

- A. 5 km, North B. 10 km, East C. 25 km, South D. 0 km

ii) What is the relationship between the two vectors $\vec{a}=3\mathbf{i} - 4\mathbf{j}$, $\vec{b}=6\mathbf{i} - 8\mathbf{j}$

- A. They have same magnitude B. They are parallel
C. They have opposite direction D. They are perpendicular

iii) What is the relationship between the two vectors $\vec{v}=4\mathbf{i}-3\mathbf{j}$ and $\vec{w}=3\mathbf{j}-4\mathbf{i}$

- A. They are equal B. They have same direction
C. They have opposite direction D. They are perpendicular

iv) The point having position vectors $2\mathbf{i} + 3\mathbf{j} + 4\mathbf{k}$, $3\mathbf{i} + 4\mathbf{j} + 2\mathbf{k}$, $4\mathbf{i} + 2\mathbf{j} + 3\mathbf{k}$ are the vertices of _____

- A. Right angled triangle B. Equilateral triangle C. Isosceles triangle D. Collinear

v) $\vec{P} \cdot (\vec{Q} \times \vec{R}) =$ -----

- A. $\vec{R} \cdot (\vec{P} \times \vec{Q})$ B. $\vec{Q} \cdot (\vec{R} \times \vec{P})$ C. both (a) and (b) D. none of these

vi) Type of force that opposes motion and releases thermal energy is termed as

- A. Resistance B. Tension C. Weight D. Friction

vii) If two forces of 20 N towards north and 12 N towards south are acting on an object. Resultant force will be

- A. 32 N toward west B. 20 N towards east
C. 12 N towards south D. 8 N towards north

viii) The body will move only when

- A. Force of friction = Applied force B. Force of friction < Applied force
C. Force of friction > Applied force D. All of the these

ix) The ratio of the force of friction (F) to the normal reaction (R) is known as

- A. Coefficient of friction B. Force of friction C. Angle of friction D. None of these

x) If λ is the angle of friction then coefficient of friction (μ) is equal to

- A. $\tan \lambda$ B. $\cot \lambda$ C. $\sin \lambda$ D. $\cos \lambda$



UNIVERSITY OF THE PUNJAB

1st Semester - 2018

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

(Session: 2017-2021)

Roll No.

Subject: General Method of TEACHING
PAPER CODE: EDU-002

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

نوٹ: تمام سوالات حل کریں۔

Q. No. 2: Give comprehensive answers of the following short questions. (5×4 = 20)

- 1) Differentiate between the concepts of Good Teaching and Effective Teaching.
- 2) What steps are necessary in Lesson Planning?
- 3) Explain the advantages of Individual Project.
- 4) How can a successful discussion be planned?
- 5) How can extrinsic motivation enhance the learning?

Give extensive answers for the following questions. (10×3 = 30)

Q. No. 3: What are Audio Visual Aids? Describe in detail the use, application and limitations of using any three A.V. Aids.

Q. No. 4: What is Lesson Planning? Give different approaches to Lesson Planning.

Q. No. 5: What is Inquiry Method? Give its advantages and limitations.



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Roll No.

1st Semester - 2018

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

(Session: 2017-2021)

Subject: General Method of TEACHING
PAPER CODE: EDU-002

TIME ALLOWED: 30 Mins.
MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY
SECTION-A (MCQs) (1x10=10)

Q. No. 1: Encircle the correct/ best possible answer in each of the following; no credit will be given to two attempts.

i) Which is not true about lesson plan:

- a) It develops confidence
- b) It helps in orderly delivery of contents
- c) It is developed by the students
- d) It saves from haphazard teaching

ii) Encouraging students to “use their own ideas” is mostly used in the indirect instruction strategy is called:

- a) Content organization
- b) Learner Experience
- c) Conceptual movement
- d) Discussion

iii) An effective teacher is the one who can:

- a) Control the class
- b) Give more information in less time
- c) Motivate students to learn
- d) Correct the assignments carefully

iv) When teacher rephrase or reiterate the answers to previous questions, it may be:

- a) More complex questions
- b) Less complex questions
- c) Open- ended questions
- d) Close-ended Questions

v) Which is the best method of teaching science at school level:

- a) Lecture
- b) Analytical
- c) Direct
- d) Demonstration

P.T.O.

- vi) Induction and Deduction are the core elements of the indirect instruction strategy which is known as:
- Content Organization
 - Conceptual movement
 - Examples and non-examples
 - Student self-evaluation
- vii) Blackboard belongs to the group/category of A.V. Aids:
- Audio aids
 - Visual aids
 - Audio-visual aids
 - None of the above
- viii) The helping behavior that elicits, solicits and redirects a student response in a more fruitful direction is called:
- Structuring
 - Probing
 - Questioning
 - Teacher Affect
- ix) Suppose a child has learning impairment but you have no idea about him. What will be your duty towards the child:
- Recognize the child and manage accordingly
 - You become neutral because it is not your headache
 - You send him to specialist for treatment
 - You report to teachers, parents and principal to send him to special school
- x) Personality, attitudes and experiences are usually used to describe the characteristics of:
- Effective teacher
 - Good teacher
 - Expert teacher
 - Excellent teacher



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1st Semester - 2018

Examination:- B.S.Ed. (Hons.) 4 Years Degree Program
(Session: 2017-2021)

Roll No.

Subject: Physics-I

PAPER CODE: PHY-001(Elementary Mechanics)

TIME ALLOWED: 2 hrs. & 30 mins.

MAX. MARKS: 50

ATTEMPT THIS PAPER ON THE SEPARATE ANSWER SHEET PROVIDED

Section-B (Marks 4×5 = 20)

Q.2 Give brief answers of the following questions.

- What is dot product of two vectors. Write down its characteristics.
- State and prove Kepler' Law of Areas.
- Differentiate between inertial and non-inertial frames of reference.
- State and derive an expression of Escape Velocity.
- State law of conservation of Angular Momentum and explain it with examples.

Section-C (Marks 10×3 = 30)

Q.3 Give detailed answers of the following questions.

- Derive expressions for velocities of two particles after one dimensional elastic collision.
- State and prove parallel axis theorem.
- Derive moment of inertia of a solid sphere about an axis passing through its center.



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1st Semester - 2018

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

(Session: 2017-2021)

Subject: Physics-I

TIME ALLOWED: 30 Mins.

PAPER CODE: PHY-001(Elementary Mechanics)

MAX. MARKS: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY

Section-A (Marks 1×10 = 10)

- Q.1 Attempt all the MCQ's within 30 Minutes. Change of answer is not allowed.
- I. If i, j, k are unit vectors then $i \times k$ is -----.
- a) $-j$ b) j c) zero d) one
- II. The SI unit of tension is?
- a) Joule b) Watt c) Newton d) J/C
- III. The time of flight of a projectile projected with velocity 9.8 m/s at an angle 30° with horizontal is
- a) 2 sec b) 0.5 sec c) 9.8 sec d) 1 sec
- IV. The moment of inertia of a solid rod having mass 12 Kg, length 1 m about an axis perpendicular of its center is
- a) 12 Kg m^2 b) 144 Kg m^2 c) 1 Kg m^2 d) 6 Kg m^2
- V. If average distance of the Earth from the Sun is 1.5×10^{11} m. Then mass of the Sun is
- a) 2×10^{27} Kg b) 2×10^{30} Kg c) 6.5×10^{24} Kg d) 6.6×10^{11} Kg
- VI. A car engine has power 120 hp, rotates at 1750 rev/m. Its torque is -----.
- a) 488.73 Nm b) 210,000 Nm c) 208.89 Nm d) 0.06 Nm
- VII. The escape velocity depends on
- a) mass b) velocity of projection c) force d) constant
- VIII. The path of the Earth revolving around the Sun, throughout the year
- a) changes in summer b) changes in winter c) changes continuously d) remains same
- IX. An angle of one radian is equal to
- a) 57.3° b) 36° c) 0.017° d) 90°
- X. Which of the following is a vector quantity
- a) momentum b) work c) density d) mass