

PGIMER BSc Nursing Physics

Sample Paper – 12

Duration: 23 Minutes

Maximum Marks: 25

Instructions

- This paper contains **25** Multiple Choice Questions (Single Correct Answer), modelled on the Physics portion of the **PGIMER BSc Nursing** entrance exam.
- Each correct answer carries **+1 mark**. **0.25 mark** is deducted for every incorrect answer. Unattempted questions carry **0 marks**.
- Only **one** option is correct. Choose carefully.
- Syllabus level: **Class 11 and 12 Physics** with emphasis on core concepts, formulas and simple application.
- Calculators, mobile phones and other electronic gadgets are not allowed in the examination.

Q1. The dimensional formula of impulse is:

- (A) $[MLT^{-2}]$
- (B) $[ML^2T^{-2}]$
- (C) $[ML^{-1}T^{-1}]$
- (D) $[MLT^{-1}]$

Q2. Two forces of 6 N and 8 N act at right angles. The magnitude of their resultant is:

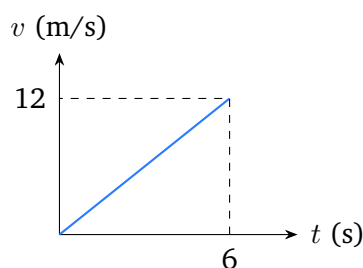
- (A) 2 N
- (B) 12 N
- (C) 14 N
- (D) 10 N



Q3. A body starts from rest and moves with uniform acceleration 4 m s^{-2} for 3 s. The distance covered is:

- (A) 6 m
- (B) 18 m
- (C) 12 m
- (D) 24 m

Q4. The velocity-time graph below represents motion of a body. The acceleration is:



- (A) 0.5 m s^{-2}
- (B) 2 m s^{-2}
- (C) 6 m s^{-2}
- (D) 12 m s^{-2}

Q5. A force of 20 N acts on a body of mass 5 kg. The acceleration produced is:

- (A) 2 m s^{-2}
- (B) 5 m s^{-2}
- (C) 25 m s^{-2}
- (D) 4 m s^{-2}

Q6. A block of weight 50 N rests on a rough horizontal surface. If the coefficient of friction is 0.2, the limiting friction is:

- (A) 5 N

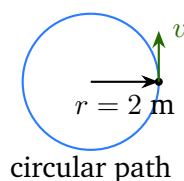


- (B) 25 N
- (C) 10 N
- (D) 100 N

Q7. A force of 15 N displaces a body through 4 m in its own direction. Work done is:

- (A) 60 J
- (B) 19 J
- (C) 30 J
- (D) 45 J

Q8. A stone of mass 0.5 kg moves in a circle of radius 2 m with speed 4 m s^{-1} as shown. The centripetal force is:



- (A) 4 N
- (B) 1 N
- (C) 2 N
- (D) 8 N

Q9. If the distance between two point masses is doubled, the gravitational force becomes:

- (A) Double
- (B) One-fourth
- (C) Four times
- (D) One-half

Q10. For a simple pendulum, the time period is increased by:



- (A) Increasing the length of the pendulum
- (B) Increasing the mass of the bob
- (C) Decreasing the amplitude slightly
- (D) Painting the bob

Q11. A wave has frequency 200 Hz and wavelength 1.5 m. Its speed is:

- (A) 100 m s^{-1}
- (B) 150 m s^{-1}
- (C) 300 m s^{-1}
- (D) 400 m s^{-1}

Q12. The phenomenon responsible for the change in apparent frequency of an ambulance siren as it passes an observer is:

- (A) Doppler effect
- (B) Reflection
- (C) Refraction
- (D) Diffraction

Q13. A metal rod is heated. Its length increases mainly because:

- (A) The average separation between atoms increases
- (B) The mass of atoms increases
- (C) The number of atoms doubles
- (D) The rod loses all electrons

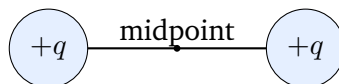
Q14. Heat required to raise the temperature of 2 kg of water by 5°C is: take $c = 4200 \text{ J kg}^{-1} ^{\circ}\text{C}^{-1}$.

- (A) 4200 J
- (B) 8400 J
- (C) 42000 J



(D) 21000 J

Q15. Two equal positive charges are placed as shown. The electric field at the midpoint is:

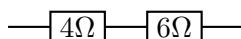


- (A) Towards left
- (B) Zero
- (C) Towards right
- (D) Infinite

Q16. A resistor of $6\ \Omega$ is connected to a 12 V battery. The current through it is:

- (A) 0.5 A
- (B) 6 A
- (C) 18 A
- (D) 2 A

Q17. Two resistors of $4\ \Omega$ and $6\ \Omega$ are connected in series as shown. Their equivalent resistance is:



- (A) $2.4\ \Omega$
- (B) $10\ \Omega$
- (C) $4\ \Omega$
- (D) $6\ \Omega$

Q18. The magnetic field lines around a straight current-carrying wire are:

- (A) Straight lines parallel to the wire
- (B) Straight lines perpendicular to the wire only

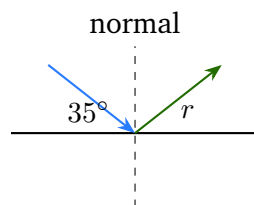


- (C) Concentric circles
- (D) Random open curves

Q19. The direction of induced current is given by:

- (A) Coulomb's law
- (B) Lenz's law
- (C) Hooke's law
- (D) Boyle's law

Q20. A ray of light strikes a plane mirror at an angle of incidence 35° as shown. The angle of reflection is:



- (A) 55°
- (B) 70°
- (C) 90°
- (D) 35°

Q21. A convex lens has focal length 20 cm. Its power is:

- (A) +5 D
- (B) +2 D
- (C) -5 D
- (D) +20 D

Q22. In the human eye, the image is formed on the:

- (A) Retina



- (B) Cornea
- (C) Iris
- (D) Pupil

Q23. In the photoelectric effect, increasing the intensity of light above threshold mainly increases:

- (A) Work function of the metal
- (B) Threshold frequency
- (C) Number of emitted photoelectrons
- (D) Charge of an electron

Q24. An alpha particle is identical to:

- (A) An electron
- (B) A proton only
- (C) A neutron only
- (D) A helium nucleus

Q25. In a p-type semiconductor, the majority charge carriers are:

- (A) Free electrons
- (B) Neutrons
- (C) Holes
- (D) Photons



Detailed Solutions**Q1.****Solution**

Concept — Units and Dimensions: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Impulse = force $\times$ time. Force has dimensions $[MLT^{-2}]$. Therefore impulse has dimensions $[MLT^{-2}] \times [T] = [MLT^{-1}]$.

Step 2 — Match with the options: The option placed at (D) is $[MLT^{-1}]$, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A ($[MLT^{-2}]$): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B ($[ML^2T^{-2}]$): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C ($[ML^{-1}T^{-1}]$): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ **D**

Answer: (D) [Go Back to Q1](#)

Q2.**Solution**

Concept — Vectors: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: For perpendicular vectors, $R = \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10 \text{ N}$.

Step 2 — Match with the options: The option placed at (D) is 10 N, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (2 N): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (12 N): this does not follow the relevant Physics principle, formula or calculation required in the question.



- Option C (14 N): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ D

Answer: (D) [Go Back to Q2](#)

Q3.

Solution

Concept — Kinematics: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Initial velocity $u = 0$, acceleration $a = 4 \text{ m s}^{-2}$, time $t = 3 \text{ s}$. Distance $s = ut + \frac{1}{2}at^2 = 0 + \frac{1}{2} \times 4 \times 3^2 = 18 \text{ m}$.

Step 2 — Match with the options: The option placed at (B) is 18 m, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (6 m): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (12 m): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (24 m): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ B

Answer: (B) [Go Back to Q3](#)

Q4.

Solution

Concept — Velocity-Time Graph: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Acceleration is the slope of the velocity-time graph. Here $a = \Delta v / \Delta t = 12/6 = 2 \text{ m s}^{-2}$.

Step 2 — Match with the options: The option placed at (B) is 2 m s^{-2} , which matches the calculated or conceptual result.

Why other options are wrong:



- Option A (0.5 m s^{-2}): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (6 m s^{-2}): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (12 m s^{-2}): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ **B**

Answer: (B) [Go Back to Q4](#)

Q5.

Solution

Concept — Newton's Laws: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: By Newton's second law, $F = ma$. Therefore $a = F/m = 20/5 = 4 \text{ m s}^{-2}$.

Step 2 — Match with the options: The option placed at (D) is 4 m s^{-2} , which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (2 m s^{-2}): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (5 m s^{-2}): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (25 m s^{-2}): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ **D**

Answer: (D) [Go Back to Q5](#)



Q6.

Solution

Concept — Friction: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: On a horizontal surface, normal reaction $R = 50$ N. Limiting friction $f = \mu R = 0.2 \times 50 = 10$ N.

Step 2 — Match with the options: The option placed at (C) is 10 N, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (5 N): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (25 N): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (100 N): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ C

Answer: (C) [Go Back to Q6](#)

Q7.

Solution

Concept — Work and Energy: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Work done $W = Fs \cos \theta$. Since force and displacement are in the same direction, $\theta = 0^\circ$ and $W = 15 \times 4 = 60$ J.

Step 2 — Match with the options: The option placed at (A) is 60 J, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (19 J): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (30 J): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (45 J): this does not follow the relevant Physics principle, formula or calculation required in the question.



Final Answer: The correct option is $\Rightarrow$ A

Answer: (A) [Go Back to Q7](#)

Q8.

Solution

Concept — Circular Motion: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Centripetal force $F = mv^2/r = 0.5 \times 4^2/2 = 0.5 \times 16/2 = 4 \text{ N}$.

Step 2 — Match with the options: The option placed at (A) is 4 N, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (1 N): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (2 N): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (8 N): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ A

Answer: (A) [Go Back to Q8](#)

Q9.

Solution

Concept — Gravitation: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Gravitational force varies inversely as the square of distance: $F \propto 1/r^2$. If r becomes $2r$, force becomes $F/4$.

Step 2 — Match with the options: The option placed at (B) is One-fourth, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (Double): this does not follow the relevant Physics principle, formula or calculation required in the question.



- Option C (Four times): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (One-half): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ **B**

Answer: (B) [Go Back to Q9](#)

Q10.

Solution

Concept — Simple Harmonic Motion: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: For a simple pendulum, $T = 2\pi\sqrt{l/g}$. The time period depends on length l and increases when l increases.

Step 2 — Match with the options: The option placed at (A) is Increasing the length of the pendulum, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (Increasing the mass of the bob): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (Decreasing the amplitude slightly): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Painting the bob): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ **A**

Answer: (A) [Go Back to Q10](#)

Q11.

Solution

Concept — Wave Motion: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Wave speed $v = f\lambda = 200 \times 1.5 = 300 \text{ m s}^{-1}$.

Step 2 — Match with the options: The option placed at (C) is 300 m s^{-1} , which matches the calculated or conceptual result.



Why other options are wrong:

- Option A (100 m s^{-1}): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (150 m s^{-1}): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (400 m s^{-1}): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$

Answer: (C) [Go Back to Q11](#)

Q12.

Solution

Concept — Sound: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: The apparent frequency changes due to relative motion between source and observer. This is called the Doppler effect.

Step 2 — Match with the options: The option placed at (A) is Doppler effect, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (Reflection): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (Refraction): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Diffraction): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$

Answer: (A) [Go Back to Q12](#)



Q13.

Solution

Concept — Thermal Expansion: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: On heating, atoms vibrate with larger amplitude and their average separation increases. This causes thermal expansion.

Step 2 — Match with the options: The option placed at (A) is The average separation between atoms increases, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (The mass of atoms increases): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (The number of atoms doubles): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (The rod loses all electrons): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ A

Answer: (A) [Go Back to Q13](#)

Q14.

Solution

Concept — Calorimetry: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Heat $Q = mc\Delta T = 2 \times 4200 \times 5 = 42000 \text{ J}$.

Step 2 — Match with the options: The option placed at (C) is 42000 J, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (4200 J): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (8400 J): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (21000 J): this does not follow the relevant Physics principle, formula or calculation required in the question.



Final Answer: The correct option is $\Rightarrow$

Answer: (C) [Go Back to Q14](#)

Q15.

Solution

Concept — Electrostatics: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: At the midpoint, the field due to the left positive charge is directed right, while the field due to the right positive charge is directed left. The magnitudes are equal, so the net field is zero.

Step 2 — Match with the options: The option placed at (B) is Zero, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (Towards left): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (Towards right): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Infinite): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$

Answer: (B) [Go Back to Q15](#)

Q16.

Solution

Concept — Current Electricity: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: By Ohm's law, $I = V/R = 12/6 = 2$ A.

Step 2 — Match with the options: The option placed at (D) is 2 A, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (0.5 A): this does not follow the relevant Physics principle, formula or calculation required in the question.



- Option B (6 A): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (18 A): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ D

Answer: (D) [Go Back to Q16](#)

Q17.

Solution

Concept — Resistors: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: In series, resistances add directly. Hence $R = 4 + 6 = 10\ \Omega$.

Step 2 — Match with the options: The option placed at (B) is $10\ \Omega$, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A ($2.4\ \Omega$): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C ($4\ \Omega$): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D ($6\ \Omega$): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ B

Answer: (B) [Go Back to Q17](#)

Q18.

Solution

Concept — Magnetism: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: By the right-hand thumb rule, magnetic field lines around a straight current-carrying conductor form concentric circles.

Step 2 — Match with the options: The option placed at (C) is Concentric circles,



which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (Straight lines parallel to the wire): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (Straight lines perpendicular to the wire only): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Random open curves): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ C

Answer: (C) [Go Back to Q18](#)

Q19.

Solution

Concept — Electromagnetic Induction: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Lenz's law states that induced current flows in a direction such that it opposes the change in magnetic flux producing it.

Step 2 — Match with the options: The option placed at (B) is Lenz's law, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (Coulomb's law): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (Hooke's law): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Boyle's law): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ B

Answer: (B) [Go Back to Q19](#)



Q20.

Solution

Concept — Ray Optics: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: According to the law of reflection, angle of reflection equals angle of incidence. Therefore it is 35° .

Step 2 — Match with the options: The option placed at (D) is 35° , which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (55°): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (70°): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (90°): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ D

Answer: (D) [Go Back to Q20](#)

Q21.

Solution

Concept — Lens Formula: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Power $P = 1/f$ where f is in metres. Here $f = 20$ cm = 0.20 m, so $P = 1/0.20 = +5$ D.

Step 2 — Match with the options: The option placed at (A) is +5 D, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (+2 D): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (−5 D): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (+20 D): this does not follow the relevant Physics principle, formula or calculation required in the question.



Final Answer: The correct option is $\Rightarrow$ A

Answer: (A) [Go Back to Q21](#)

Q22.

Solution

Concept — Human Eye: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: The lens of the eye focuses light on the retina, which contains light-sensitive cells.

Step 2 — Match with the options: The option placed at (A) is Retina, which matches the calculated or conceptual result.

Why other options are wrong:

- Option B (Cornea): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (Iris): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Pupil): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ A

Answer: (A) [Go Back to Q22](#)

Q23.

Solution

Concept — Modern Physics: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: Above threshold frequency, higher intensity means more photons incident per second. This increases the number of emitted photoelectrons.

Step 2 — Match with the options: The option placed at (C) is Number of emitted photoelectrons, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (Work function of the metal): this does not follow the relevant



Physics principle, formula or calculation required in the question.

- Option B (Threshold frequency): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Charge of an electron): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ C

Answer: (C) [Go Back to Q23](#)

Q24.

Solution

Concept — Radioactivity: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: An alpha particle contains two protons and two neutrons, which is the nucleus of a helium atom.

Step 2 — Match with the options: The option placed at (D) is A helium nucleus, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (An electron): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (A proton only): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option C (A neutron only): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$ D

Answer: (D) [Go Back to Q24](#)



Q25.

Solution

Concept — Semiconductors: Identify the physical law or formula required, substitute the given values carefully, and match the result with the options.

Step 1 — Apply the concept: In p-type semiconductors, trivalent impurities create holes. Hence holes are the majority carriers.

Step 2 — Match with the options: The option placed at (C) is Holes, which matches the calculated or conceptual result.

Why other options are wrong:

- Option A (Free electrons): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option B (Neutrons): this does not follow the relevant Physics principle, formula or calculation required in the question.
- Option D (Photons): this does not follow the relevant Physics principle, formula or calculation required in the question.

Final Answer: The correct option is $\Rightarrow$

Answer: (C) [Go Back to Q25](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	D	2	D	3	B	4	B	5	D
6	C	7	A	8	A	9	B	10	A
11	C	12	A	13	A	14	C	15	B
16	D	17	B	18	C	19	B	20	D
21	A	22	A	23	C	24	D	25	C

