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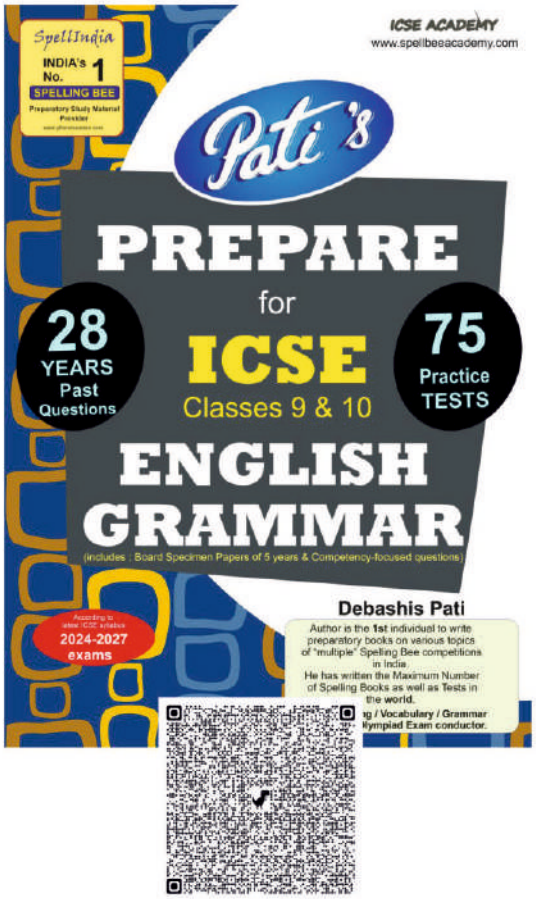

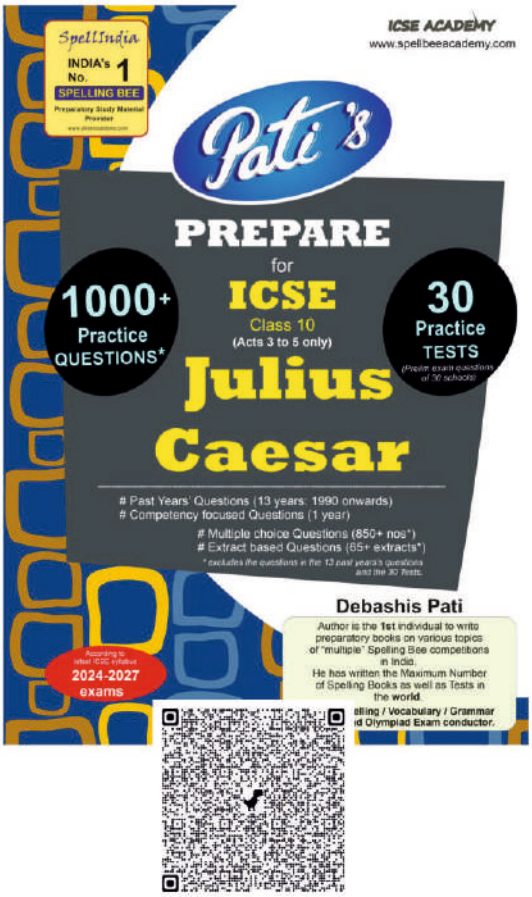

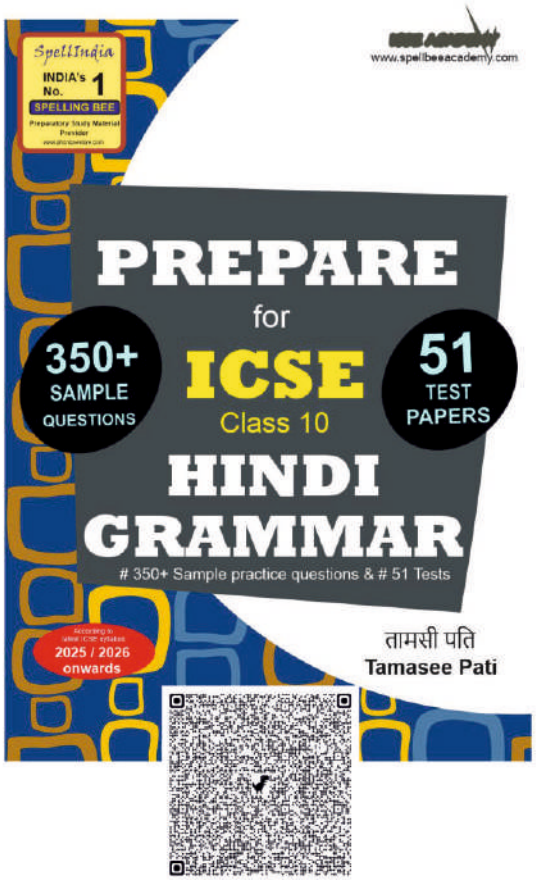

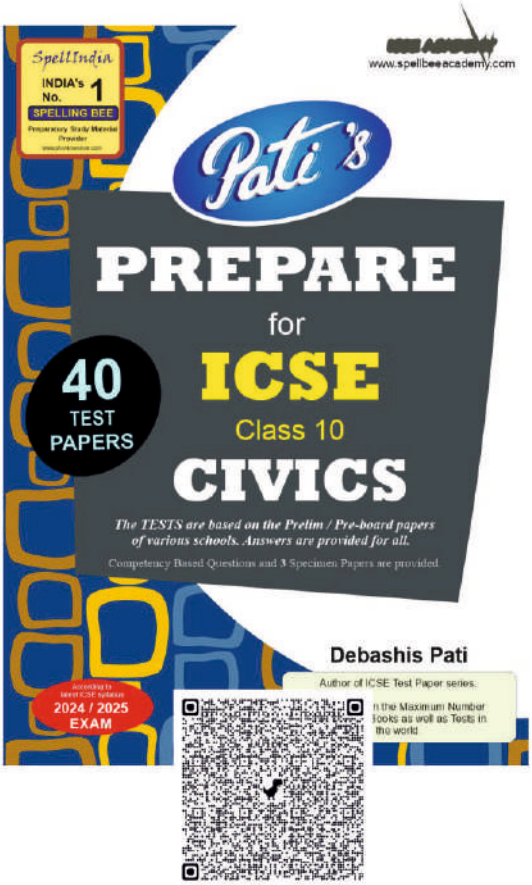

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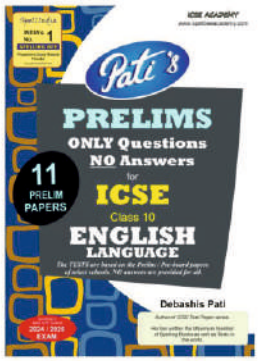

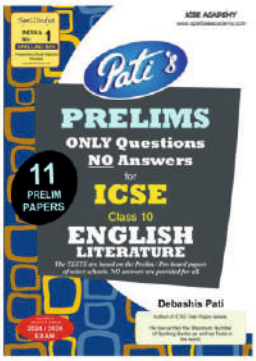

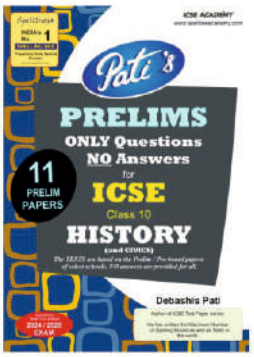

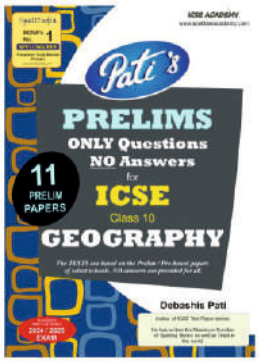

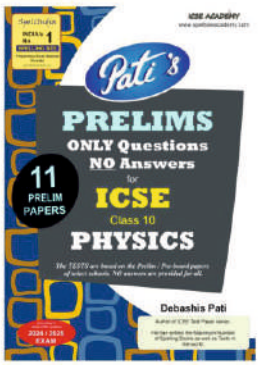

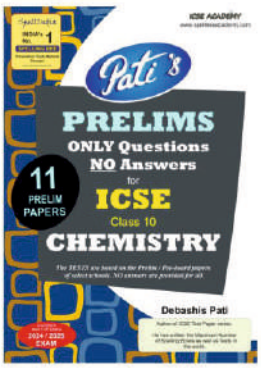

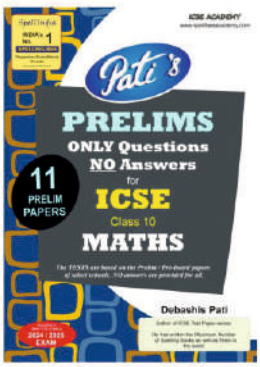

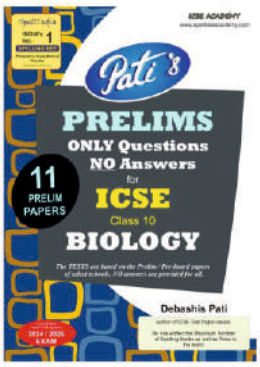

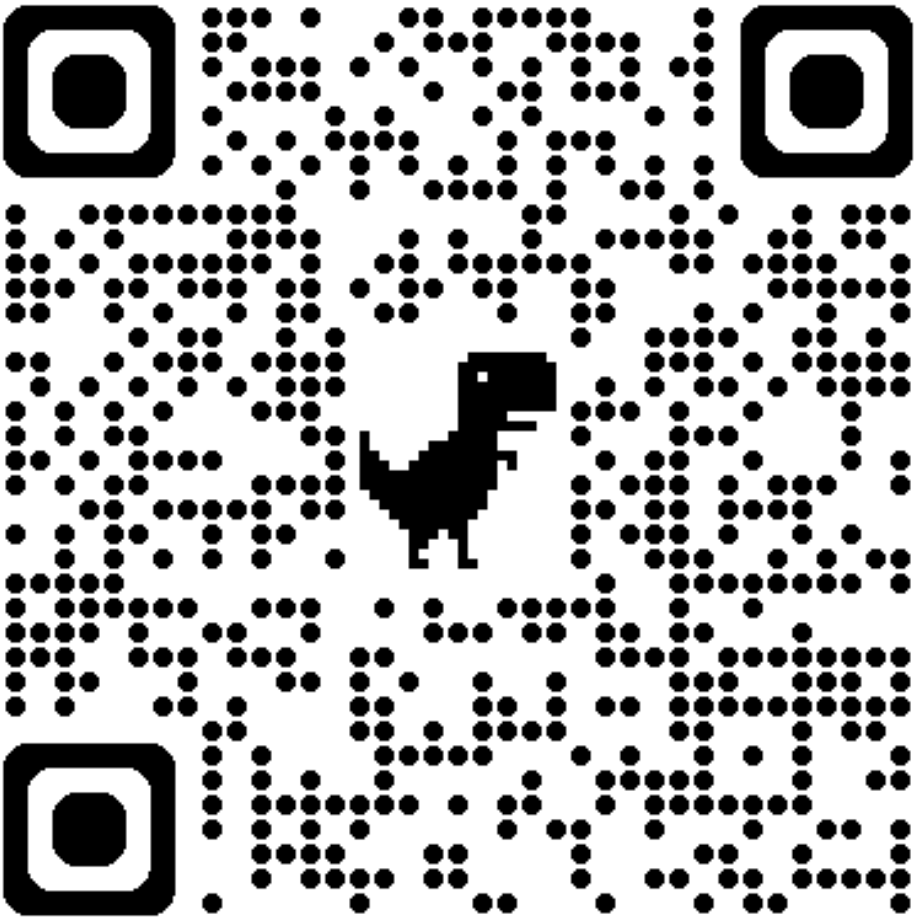

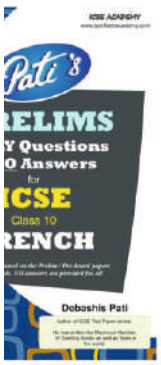

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Q. Choose the correct answers to the questions from the given options.

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3. Past Year Ppaers : 2023 - 2025*

* 2026 will be included here soon.

ICSE CLASS X

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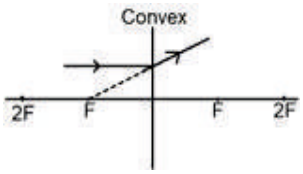
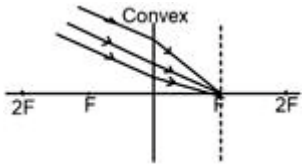
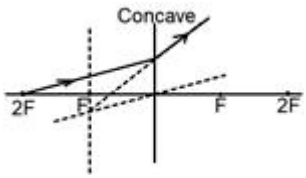
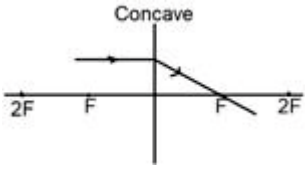
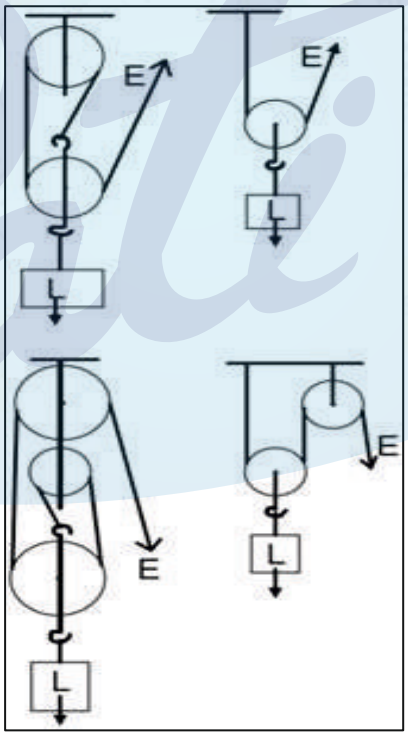
COMPETENCY-FOCUSED PRACTICE QUESTIONS

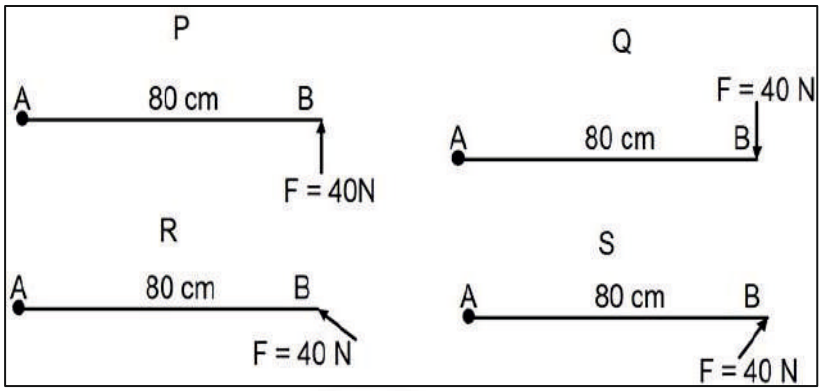
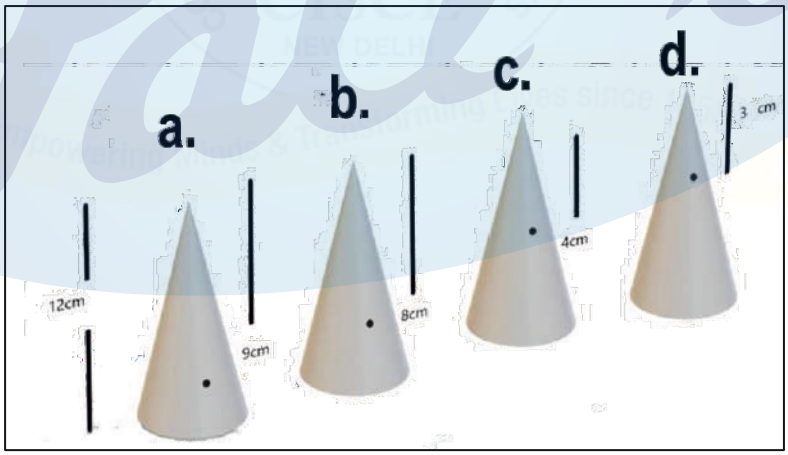
Physics

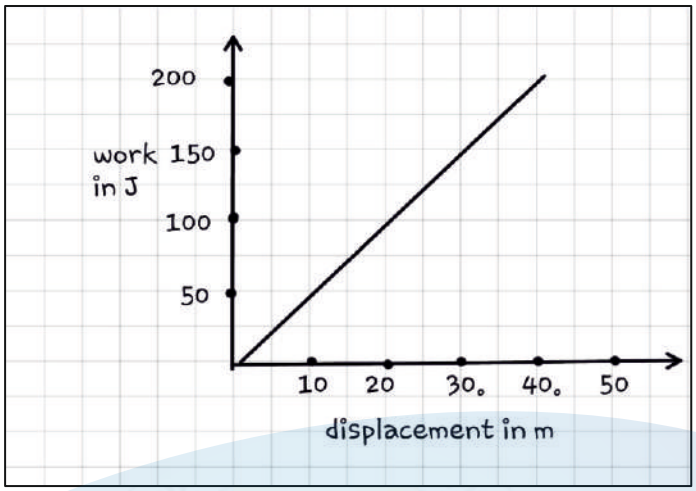
I: Multiple Choice Questions (1 Mark Each)

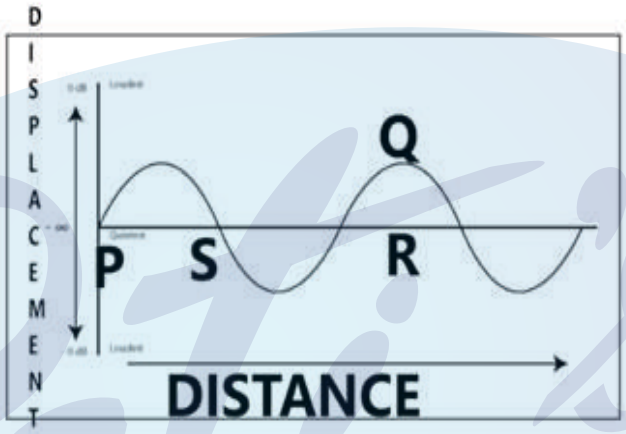
S.No.	Questions
1.	*[Light]* When light enters from air to glass, it bends toward the normal. If red, blue, and yellow colours are allowed to enter the same glass block at the same angle of incidence, then for which colour, the value of $\angle i - \angle r$, be greater? (a) green (b) red (c) blue (d) yellow **[Understanding & Application]**
2.	*[Light]* **Assertion (A):** When light passes through a triangular prism, it is observed that for two angles of incidence, the angle of deviation is the same. **Reason (R):** According to the principle of reversibility, the light retraces the path in reversing the direction. (a) A and R are true, and R is the reason for A. (b) A and R are true, and R is not the reason for A. (c) A is true, but R is false. (d) A is false, but R is true. **[Understanding & Analysis]**

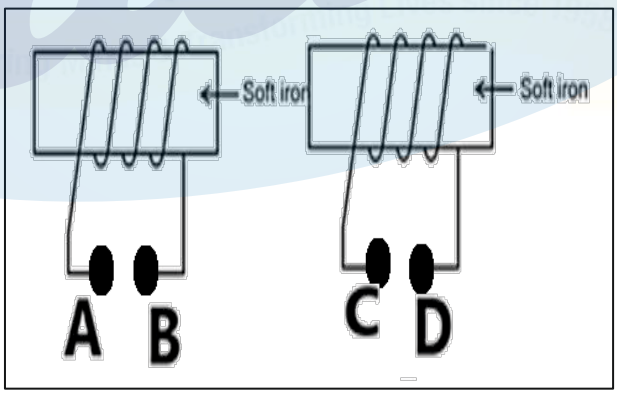
Note : This is part of a CISCE document.

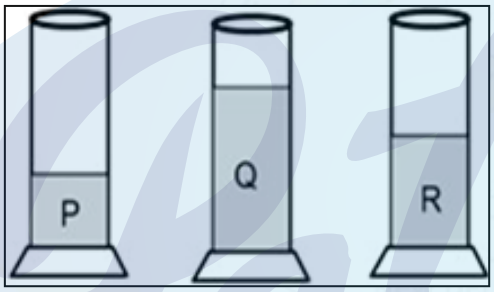
S.No.	Questions
3.	*[Light]* Which of the following diagrams shows the correct path of light through the lens? (a)  (c)  (b)  (d)  **[Analysis]**
4.	*[Force, Work, Power and Energy]* The diagrams below show four pulley systems. State which of the statements following the diagrams is true.  (a) There are three pulley systems with V.R. = 2 and one pulley system with V.R. = 1. (b) There are two pulley systems with V.R. = 2, one pulley system with V.R. = 3 and one pulley system with V.R. = 1. (c) There are two pulley systems with V.R. = 2, one pulley system with V.R.= 3 and one pulley system with V.R. = 4. (d) There are two pulley systems with V.R. = 2 and two pulley system with V.R. = 3. **[Analysis & Application]**

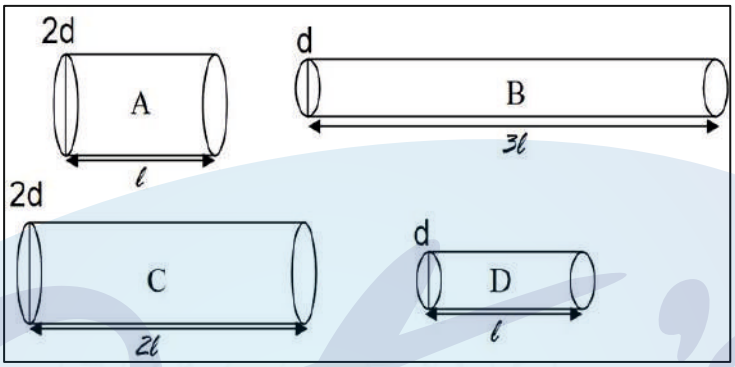
S.No.	Questions
5.	*[Force, Work, Power and Energy]* The diagrams below show a force F = 40 N acting on a rod AB pivoted at A in different directions. Identify the correct statement.  (a) P and S have opposite moments. (b) The magnitude of the moment of force is maximum in R. (c) The magnitude of the moment of force is maximum in P and Q. (d) The moment of force in R is negative. **[Analysis and Application]**
6.	*[Force, Work, Power and Energy]* In the diagram below, four cones are depicted, each with a height of 12cm. The position of the center of gravity is indicated by dots located at 9cm, 8cm, 4cm, and 3cm from the apex of each cone. Which of these cones is completely solid?  (a) 9cm (b) 8cm (c) 4cm (d) 3cm **[Analysis]**

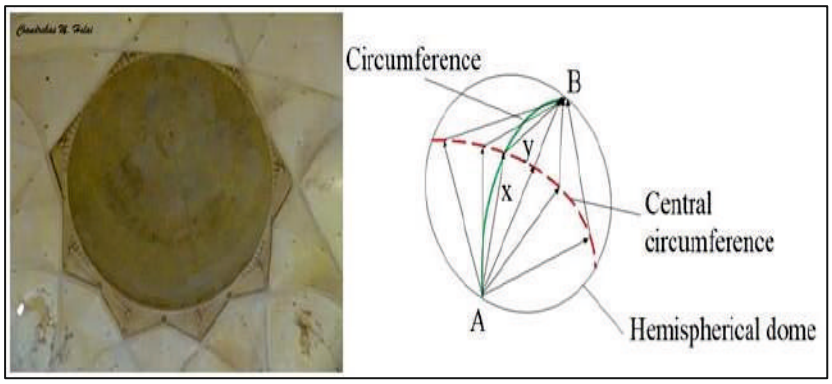
S.No.	Questions
7.	*[Force, Work, Power and Energy]* The given figure depicts the graph of work done vs. displacement under a constant force of 10N. Which of the following statements is true?  (a) Force is acting at an angle of 0^o with the displacement. (b) Force is acting at an angle of 45^o with the displacement. (c) Force is acting at an angle of 60^o with the displacement. (d) Force is acting at an angle of 90^o with the displacement. **[Analysis]**
8.	*[Force, Work, Power and Energy]* During his experiments with a single movable pulley, Jas determined the effort, mechanical advantage and efficiency as X, Y & Z, respectively. Subsequently, after lubricating the pulley thoroughly, he recalculated the effort, MA and efficiency. X', Y' & Z' respectively. Which of the following relationships accurately represents the scenario? (a) X'> X (b) Y'< Y (c) Z'> Z (d) Z' = Z **[Understanding]**
9.	*[Light]* **Assertion**: For a glass block, the *i* vs. *r* graph is a straight line. **Reason**: When a ray of light undergoes refraction, it follows Snell's law. (a) Both Assertion and Reason are true, and the Reason is the correct explanation of the Assertion. (b) Both Assertion and Reason are true, but Reason is not the correct explanation of the Assertion. (c) Assertion is true, but the Reason is false. (d) Assertion is false, but the Reason is true. **[Understanding]**

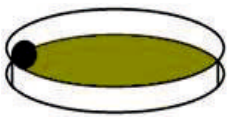
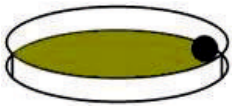
S.No.	Questions
10.	*[Sound]* _____ of UV > _____ of microwaves The quantity suitable for filling in both the blanks is: (a) speed in vacuum (b) speed in a medium (c) frequency (d) wavelength. **[Recall]**
11.	*[Sound]* Sumit, a teenager, enjoys playing his music loudly. However, his grandmother consistently lowers the volume of the music player. Analyse the wave to identify which characteristic of the wave has been altered when the grandmother reduces the volume.  (a) The length PS becomes more. (b) The length SR becomes less. (c) The length QR becomes less. (d) The length PR becomes less. **[Analysis]**
12.	*[Heat]* Data: mass =10g quantity of heat supplied =120J rise in temperature = 10^0 C **STATEMENT A**: The heat capacity of the substance is 12 J/g. **STATEMENT B**: The specific heat capacity of the substance is 1.2 J/gK. (a) Only statement A is correct. (b) Only statement B is correct. (c) Both statements A and B are correct. (d) Both statements A and B are incorrect. **[Evaluate]**

S.No.	Questions
13.	*[Electricity and Magnetism]* Given that the resistivity of Gold and Platinum is 2.1×10^{-8} and 10.5×10^{-8} ohm m, respectively, which is the *correct* statement? **STATEMENT A**: 5 metres of platinum wire will have the same resistance as one metre of gold wire. **STATEMENT B**: Gold wire of 1cm radius will have the same resistance as platinum wire of 5cm radius. (a) Only statement A is correct. (b) Only statement B is correct. (c) Both statements A and B are correct. (d) Both statements A and B are incorrect. **[Understanding & Application]**
14.	*[Electricity and Magnetism]* **Assertion:** A switch will serve the purpose of making and breaking a circuit when it is connected to the neutral wire. **Reason**: Neutral wire is at zero potential. (a) Both Assertion and Reason are true, and the Reason is the correct explanation of the Assertion (b) Both Assertion and Reason are true, but Reason is not the correct explanation of the Assertion (c) Assertion is true, but the Reason is false. (d) Both Assertion & Reason are false. **[Recall]**
15.	*[Electricity and Magnetism]* The given rods will attract each other when:  (a) A and C are connected to positive terminal of the battery. (b) B and C are connected to the positive terminal of the battery. (c) A and D are connected to the positive terminal of the battery. (d) A and D are connected to the negative terminal of the battery. **[Analysis]**

S.No.	Questions
16.	*[Modern Physics]* Which of the following equations are correctly balanced? **A.** $^{q-1}_{p-5}X \longrightarrow {}^{q-5}_{p-3}Y + {}^{4}_{2}He$ **B.** $^{q-4}_{p-4}Z \longrightarrow {}^{q-4}_{p-5}X + {}^{0}_{-1}e$ **C.** $^{q-1}_{p-5}X \longrightarrow {}^{q-5}_{p-7}Y + {}^{4}_{2}He$ **D.** $^{q-4}_{p-7}Z \longrightarrow {}^{q-4}_{p-5}X + 2\,{}^{0}_{-1}e$ (a) Only D (b) Only C (c) Both A & B (d) Both C & D **[Evaluate]**
17.	*[Sound]*   The above picture shows three cylinders filled with water to a different extent. The tuning forks L, M and N in vibration produce louder sound when held above the mouth of the cylinders. Which combination is correct for hearing a louder sound of the tuning fork? (a) L – R, M – Q, N – P (b) L – P, M – Q, N – R (c) L – R, M – P, N – Q (d) L – Q, M – R, N – P **[Analysis and Application]**

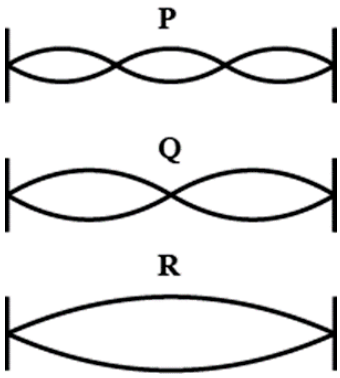
S.No.	Questions
18.	*[Heat]* Three metals, A, B and C, are supplied with the same quantity of heat. Their masses are in the ratio 2:3:4. If they show the same rise in the temperature, then the ratio of their thermal capacities will be: (a) 1:1:1 (b) 4:3:2 (c) 2:3:4 (d) 2:3:1 **[Evaluate & Application]**
19.	*[Electricity and Magnetism]*  The above diagram shows different copper conductors of diameters d and 2d and lengths, which are multiples of l. The increasing order of their resistances will be: (a) A < B < C < D (b) A < C < D < B (c) A < D < C < B (d) D < A < C < B **[Analysis, Evaluate & Application]**

S.No.	Questions
20.	*[Sound]*  The diagram shows the magnificent dome at *Gol Ghumbaz* at Bijapur. A boy standing at A whispers, and it is clearly heard at B across the huge dome. [Speed of sound is 330 ms^{-1}] **Assertion (A):** The distance travelled by sound waves (x+y) should be < 33 m. **Reason (R):** Sound reflected within 0.1 s is not heard by humans. (a) A and R are true, and R is the reason for A. (b) A and R are true, and R is not the reason for A. (c) A is true, but R is false. (d) A is false, but R is true. **[Analysis & Application]**
21.	*[Electricity and Magnetism]* A magnetic compass is present on a small table, very close to the wall in a room. A man enters the room and switches on the Air Conditioner fitted near the ceiling. He observes that the needle in the compass shows immediate deflection. Identify the most probable reason for the deflection. (a) Air blowing in the room. (b) Current starts flowing through AC wire concealed in the adjacent wall. (c) Vibrations are produced when the Man starts talking to his wife in the kitchen. (d) Vibrations were produced due to a file in his hand that fell on the ground. **[Analysis]**
22.	*[Heat]* Two substances, A and B, have the same mass. Substance A has a higher specific heat capacity than substance B. What consequences would you expect when these substances are subjected to the same amount of heat energy? (a) Substance A will experience a smaller temperature change than substance B. (b) Substance A will experience a larger temperature change than substance B. (c) Both substances will experience the same temperature change. (d) Either of them can show a greater change in temperature as the temperature change depends on factors other than specific heat capacity. **[Recall & Application]**

S.No.	Questions
23.	*[Light]* A student traces the path of a ray of light through a glass prism for different angles of incidence. He analyses each diagram and draws the following conclusion: I. On entering the prism, the light ray bends towards its base. II. Light ray suffers refraction at the point of incidence and at the point of emergence while passing through the prism. III. An emergent ray bends at a certain angle to the direction of the incident ray. IV. While emerging from the prism at the second surface, the angle of refraction is less than the angle of incidence at that surface. Which of the above inferences are correct? (a) I, II and III (b) I, III and IV (c) II, III and IV (d) All of these. **[Analysis]**
24.	*[Force, Work, Power and Energy]* A metal ball is whirled inside a ring placed on a table, as shown in the diagram P. The diagram Q shows the motion of the ball after the ring is lifted.  Which of the following diagrams shows the correct position of the metal ball in the ring when the ring is lifted? (a)  (c)  (b)  (d)  **[Analysis]**
25.	*[Light]* **Assertion (A):** Sometimes the sky appears reddish in the evening. **Reason (R):** Red, being longer in wavelength, scatter more than the other colours. (a) A and R are true, and R is the reason for A. (b) A and R are true, and R is not the reason for A. (c) A is true, but R is false. (d) A is false, but R is true. **[Analysis]**

S.No.	Questions
26.	*[Force, Work, Power and Energy]* **Assertion (A):** When the displacement is zero, then the work is zero. So, if the work done is zero, then it necessarily means the displacement is zero. **Reason (R):** Work done is calculated by the relation $W = FScos\theta$ (a) A and R are true, and R is the reason for A. (b) A and R are true, and R is not the reason for A. (c) A is true, but R is false. (d) A is false, but R is true. **[Understanding]**
27.	*[Force, Work, Power and Energy]* Which of the following statement is CORRECT? The frequency of a stretched string is: (a) directly proportional to its length but inversely proportional to the tension of the wire. (b) inversely proportional to its length but directly proportional to the tension of the wire. (c) directly proportional to the square root of its length but inversely proportional to the tension of the wire. (d) inversely proportional to its length but directly proportional to the square root of the tension of the wire. **[Recall & Analysis]**
28.	*[Light]* A ray of light passes obliquely from an optical medium of refractive index 1.33 to another medium of refractive index 1.5. While passing from the first medium to the second, the light ray will: (a) bend towards the normal. (b) bend away from the normal. (c) move along the normal. (d) suffer total internal reflection. **[Analysis]**

S.No.	Questions
29.	*[Light]* You want to register your name for an examination. For registration purposes, you need a passport-size photograph of yourself. When you went to a studio, the photographer told you to sit on a chair in front of a white screen in the room. **Assertion (A):** This is purposefully done so that you as an object should stand beyond the centre of curvature of the camera lens, but surely not at an infinite distance. **Reason (R):** The characteristics of the image formed are that it can be taken on a screen and is also diminished in size.  (a) Both A and R are true, and R is the correct explanation of A. (b) Both A and R are true, and R is *not* the correct explanation of A. (c) A is true, but R is false. (d) Both A and R are false. **[Analysis]**
30.	*[Heat]* Rivers which originate from the glaciers at high altitudes have a supply of water throughout the year. This is because ice in high mountains does not melt all at once. This is due to: (a) high specific heat of ice. (b) low specific heat of ice. (c) low specific latent heat of fusion of ice. (d) high specific latent heat of fusion of ice. **[Understanding]**
31.	*[Electricity and Magnetism]* If three resistors R_1, R_2 and R_3 are connected in series and by $R_1 > R_2 > R_3$, then what is the relation between the currents I_1, I_2 and I_3 respectively flowing through them? (a) $I_1 = I_2 = I_3$ (b) $I_1 < I_2 < I_3$ (c) $I_1 > I_2 > I_3$ (d) $\frac{1}{I_1} < \frac{1}{I_2} < \frac{1}{I_3}$ **[Analysis]**

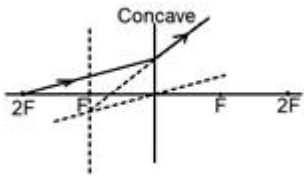
S.No.	Questions
32.	*[Sound]*  What is the ratio of wavelengths between P, Q and R? (a) 3:2:1 (b) 1:2:3 (c) 6:3:2 (d) 2:3:6 **[Analysis & Application]**
33.	*[Heat]* During the change of state of a substance from solid to liquid, heat is absorbed by a body, but its temperature does not rise. Which of the following statements explains the phenomenon? (a) Only K.E of the molecules increases, but P.E remains the same. (b) Only P.E of the molecules increases, but K.E remains the same. (c) Both K.E and P.E of the molecules increase. (d) There is no increase in the P.E and K.E of the molecules. **[Analysis]**
34.	*[Electricity and Magnetism]* **Assertion (A):** When current is passed through a wire, a magnetic field is generated around the wire. **Reasoning (R):** Whenever there is a change of magnetic flux linked up with the coil, the induced current is generated in the coil. (a) Both A and R are correct, and R is the correct explanation of A. (b) Both A and R are correct, but R is not the correct explanation of A. (c) A is correct but R is wrong. (d) Both A and R are wrong. **[Analysis]**

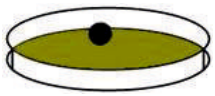
S.No.	Questions
35.	*[Modern Physics]* Which of the following combinations correctly shows the charges on the particles.?

	+ 1.6 X 10^{-19} C	-1.6 X 10^{-19} C	+ 3.2 X 10^{-19} C
(a)	proton	neutron	alpha particle
(b)	alpha particle	electron	neutron
(c)	proton	electron	alpha particle
(d)	electron	Proton	alpha particle

[Understanding & Analysis]

Answer Key

S.No.	Expected Answers
1.	(c) blue
2.	(a) A and R are true and R is the reason of A.
3.	(b) 
4.	(d) There are two pulley systems with V.R. = 2 and two pulley system with V.R. = 3
5.	(c) The magnitude of the moment of force is maximum in P and Q.
6.	(a) 9cm
7.	(c) Force is acting at an angle of 60° with the displacement.
8.	(c) Z'> Z
9.	(d) Assertion is false, but the Reason is true.
10.	(c) frequency
11.	(c) The length QR becomes less.
12.	(b) Only statement B is correct.
13.	(d) Both statements A and B are incorrect.
14.	(b) Both Assertion and Reason are true, but Reason is not the correct explanation of the Assertion.
15.	(a) A and C are connected to the positive terminal of the battery.
16.	(d) Both C & D
17.	(d) L– Q, M – R, N – P
18.	(a) 1:1:1
19.	(b) A< C < D < B
20.	(d) A is false, but R is true.

S.No.	Expected Answers
21.	(b) Current starts flowing through AC wire concealed in the adjacent wall.
22.	(a) Substance A will experience a smaller temperature change than substance B.
23.	(a) I, II and III
24.	(c) 
25.	(c) A is true, but R is false.
26.	(d) A is false, but R is true.
27.	(d) inversely proportional to its length but directly proportional to the square root of the tension of the wire.
28.	(a) Bend towards the normal.
29.	(a) Both A and R are true, and R is the correct explanation of A.
30.	(d) High specific latent heat of fusion of ice.
31.	(a) $I_1 = 1_2 = I_3$
32.	(d) 2:3:6
33.	(b) Only the P.E of the molecules increases, but the K.E remains the same.
34.	(b) Both A and R are correct, but R is not the correct explanation of A
35.	(c) proton | electron | alpha particle

SECTION A (40 Marks)

*(Attempt **all** questions from this Section.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the question, write the correct answers only.)

(i) A moment of couple has a tendency to rotate the body in an **anticlockwise** direction. The moment of couple is taken as:

(a) positive

(b) negative

(c) maximum

(d) zero [Recall]

(ii) The kinetic energy of a given body depends on the:

(a) position

(b) centre of gravity

(c) momentum

(d) displacement [Understanding]

(iii) During power production in a coal-based thermoelectric power plant, the correct sequence of energy conversions taking place is:

(a) heat → mechanical → chemical

(b) heat → mechanical → electrical

(c) chemical → heat → light

(d) heat → chemical → electrical [Recall]

(iv) Anita used a single movable pulley to lift a bucket of water from a well. She lubricates the pulley.

Which of the following statements is true regarding the performance of the pulley used?

(a) Mechanical Advantage decreases and efficiency increases.

(b) Velocity Ratio increases and efficiency decreases.

(c) Mechanical Advantage remains unchanged and efficiency increases.

(d) Velocity Ratio remains unchanged and efficiency increases. [Application]

(v) Inside the prism, during the dispersion of white light, compared to blue, red light:

(a) slows down less and refracts more.

(b) slows down more and refracts less.

(c) slows down more and refracts more. [Recall & Application]

(d) slows down less and refracts less.

(vi) When objects are viewed through the rising heat of a campfire they appear to shimmer. The optical phenomenon responsible for this effect is:

(a) refraction

(b) reflection

(c) scattering

(d) total internal reflection [Recall]

(vii) A convex lens with a focal length of 12 cm has an object at a distance of 20 cm in front of the lens. A blurred image is obtained on the screen placed at a distance of 23 cm in front of the lens. In order to obtain a clear image, the screen has to be moved:

(a) towards the lens.

(b) away from the lens.

(c) to a position very far from the lens.

(d) either towards or away from the lens. [Application]

(viii) **Assertion(A):** Soldiers avoid firing at a target in foggy weather conditions.

Reason(R): In foggy weather, light gets scattered by tiny water droplets, reducing visibility.

(a) (A) is true but (R) is false.

(b) (A) is false but (R) is true.

(c) Both (A) and (R) are true and (R) is the correct explanation of (A).

(d) Both (A) and (R) are true, but (R) is not the correct explanation of (A). **[Understanding & Recall]**

(ix) Two sound waves X and Y have the same amplitude and the same wave pattern but their frequencies are 60 Hz and 120 Hz respectively, then:

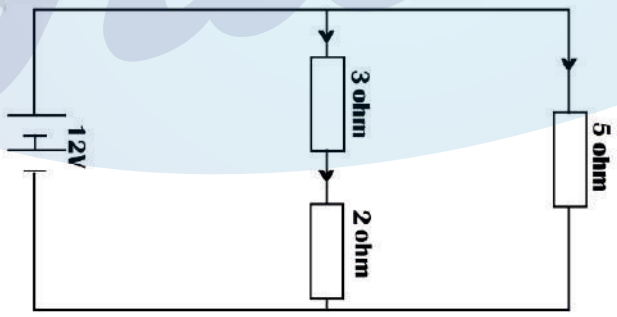
(a) X will be shriller and Y will be grave.

(b) X will be grave and Y will be shriller.

(c) X will differ in quality than Y.

(d) X is louder than Y. **[Understanding]**

(x) In the circuit given below, identify the correct relation between the currents flowing through the 2 Ω, 3 Ω, and 5 Ω resistors:



(a) current through 2Ω > current through 3Ω

(b) current through 5Ω < current through 3Ω

(c) current through 2Ω = current through 5Ω

(d) current through 5Ω > current through 3Ω **[Understanding & Recall]**

(xi) According to the old convention, the colour of the earth wire is:

(a) black

(b) green

(c) yellow

(d) red

[Recall]

(xii) For an ideal step up transformer:

(a) $\frac{Voltage_{\ primary}}{Voltage_{\ secondary}} > 1$

(b) $\frac{Current_{\ primary}}{Current_{\ secondary}} < 1$

(c) $\frac{number\ of\ turns_{primary}}{number\ of\ turns_{\ secondary}} = 1$

(d) $\frac{power_{\ primary}}{power_{\ secondary}} = 1$

[Application]

(xiii) Heat capacity of a body is the:

(a) energy needed to melt a body without change in its temperature.

(b) energy needed to raise the temperature of a body by 1°C.

(c) increase in volume of the body when its temperature increases by 1°C.

(d) total amount of internal energy that is constant.

[Recall]

(xiv) The amount of heat energy required to melt a given mass of a substance at its melting point, without any rise in its temperature is called the:

(a) specific heat capacity.

(b) specific latent heat of fusion.

(c) latent heat of fusion.

(d) specific latent heat of freezing. [Recall]

(xv) A nucleus of an atom consists of 146 neutrons and 95 protons. It decays after emitting an alpha particle. How many protons and neutrons are left in the nucleus after an alpha emission?

(a) protons = 93, neutrons = 142

(b) protons = 95, neutrons = 144

(c) protons = 93, neutrons = 144

(d) protons = 95, neutrons = 142 [Understanding]

DRAFT MARKING SCHEME – PHYSICS (SCIENCE PAPER 1)

Question 1 [1x15]

(i) (a) positive

(ii) (c) momentum

(iii) (b) heat → mechanical → electrical

(iv) (d) Velocity Ratio remains unchanged and efficiency increases.

(v) (d) slows down less and refracts less

(vi) (a) refraction

(vii) (b) away from the lens

(viii) (c) Both (A) and (R) are true and (R) is the correct explanation of (A).

(ix) (b) X will be grave and Y will be shriller

(x) (c) current through 2 Ω = current through 5 Ω

(xi) (b) green

(xii) (d) $\frac{power\ _{primary}}{power\ _{secondary}} = 1$

(xiii) (b) energy needed to raise the temperature of a body by 1°C

(xiv) (c) latent heat of fusion

(xv) (c) protons = 93, neutrons = 144

SECTION A

*(Attempt **all** questions from this Section.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the question, write the correct answers only.)

(i) A moment of couple has a tendency to rotate the body in an anticlockwise direction. Then the moment of couple is taken as:

(a) positive

(b) negative

(c) maximum

(d) zero **[Recall]**

(ii) The kinetic energy of a given body depends on the:

(a) position

(b) centre of gravity of the body.

(c) momentum

(d) displacement **[Understanding]**

(iii) For burning of coal in a thermoelectric station, the energy conversion taking place is:

(a) chemical to heat to mechanical

(b) chemical to heat to mechanical to electrical

(c) chemical to heat to light

(d) heat to chemical to mechanical **[Recall]**

(iv) The adjacent diagram shows the movable block of a block and tackle system with effort in a convenient direction. From the diagram we can conclude that the number of pulleys used in the fixed block are _____.

(a) 1

(b) 3

(c) 2

(d) 4

[Analysis & Application]

(v) White light is dispersed by a prism. Inside the prism, compared to the blue light, the red light

(a) slows down less and refracts more

(b) slows down more and refracts less

(c) slows down more and refracts more

(d) slows down less and refracts less

[Recall & Application]

(vi) An endoscope uses optic fiber to transmit high resolution images of internal organs without loss of information. The principle of light that is used by the optic fiber is based on:

(a) refraction

(b) reflection

(c) scattering

(d) total internal reflection.

[Recall]

(vii) A convex lens has focal length 12 cm with an object at a distance of 20 cm in front of the lens. He obtains a blurred image on the screen placed at a distance of 23 cm in front of the lens. In order to obtain the clear image, he has to move the screen

(a) towards the lens.

(b) away from the lens.

(c) to a position very far away from the lens.

(d) either towards or away from the lens.

[Application]

(viii) **Assertion(A):** Infrared radiations travel long distance through a dense fog and mist.

Reason(R): Infrared radiations undergo minimal scattering in earth's atmosphere.

(a) both A and R are true and R is the correct explanation of A.

(b) both A and R are True and R is not the correct explanation of A.

(c) assertion is false but reason is true. **[Understanding & Recall]**

(d) assertion is true but reason is false.

(ix) Two sound waves X and Y have the same amplitude and the same wave pattern but their frequencies are 60 Hz and 120 Hz respectively, then

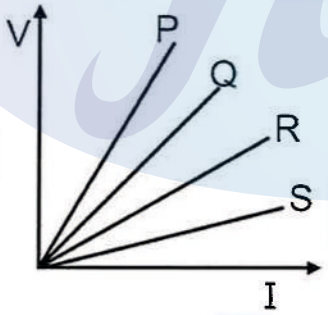
(a) X will be shriller and Y will be grave

(b) X will be grave and Y will be shriller

(c) X will differ in quality than Y

(d) X is louder than Y. **[Understanding]**

(x) The graph of voltage vs current for four different materials is shown below.



Which of these four materials would be used for making filament of a bulb?

(a) Q

(b) S

(c) P **[Understanding & Recall]**

(d) R

(xi) According to the old convention, the colour of the earth wire is:

(a) black

(b) green

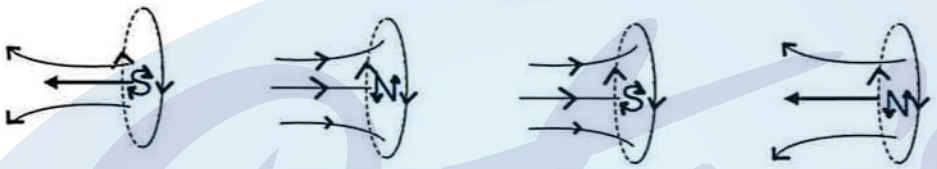
(c) yellow

(d) red

[Recall]

(xii) Current is flowing through a coil as shown in the figure. Which one of the given figures will correctly depict the magnetic polarity and the direction of the lines of force along the axis of the coil.

(a) (b) (c) (d)



[Application]

(xiii) Heat capacity of a body is the:

(a) energy needed to melt a body without change in its temperature.

(b) energy needed to raise the temperature of a body by 1°C

(c) increase in volume of the body when its temperature increases by 1°C

(d) total amount of internal energy that is constant.

[Recall]

(xiv) The amount of heat energy required to melt a given mass of a substance at its melting point without any rise in its temperature is called as the:

(a) specific heat capacity

(b) specific latent heat of fusion

(c) latent heat of fusion

(d) specific latent heat of freezing [Recall]

(xv) A nucleus of an atom consists of 146 neutrons and 95 protons. It decays after emitting an alpha particle. How many protons and neutrons are left in the nucleus after an alpha emission?

(a) protons = 93 , neutrons = 142

(b) protons = 95 , neutrons = 144

(c) protons = 93 , neutrons = 144

(d) protons = 95 , neutrons = 142 **[Understanding]**

DRAFT MARKING SCHEME – PHYSICS (SCIENCE PAPER 1)

Question 1 [1x15]

(i) (a) positive

(ii) (c) momentum

(iii) (b) chemical to heat to mechanical to electrical

(iv) (c) 2

(v) (d) slows down less and refracts less

(vi) (d) total internal reflection

(vii) (b) away from the lens

(viii) (a) both A and R are true and R is the correct explanation of A.

(ix) (b) X will be grave and Y will be shriller

(x) (c) P

(xi) (b) green

(xii) (c)

(xiii) (b) energy needed to raise the temperature of a body by 1°C

(xiv) (c) latent heat of fusion

(xv) (c) protons = 93 , neutrons = 144

ICSE 2024 EXAMINATION

SPECIMEN QUESTION PAPER

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

***Section A** is compulsory. Attempt **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A

*(Attempt **all** questions from this Section.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the question, write the correct answers only.)

(i) A moment of couple has a tendency to rotate the body in an anticlockwise direction. Then the moment of couple is taken as:

(a) positive

(b) negative

(c) maximum

(d) zero

(ii) The kinetic energy of a given body depends on the:

(a) position

(b) centre of gravity of the body.

(c) momentum

(d) displacement

(iii) For burning of coal in a thermoelectric station, the energy conversion taking place is:

(a) chemical to heat to mechanical

(b) chemical to heat to mechanical to electrical

(c) chemical to heat to light

(d) heat to chemical to mechanical

(iv) A nucleus of an atom consists of 146 neutrons and 95 protons. It decays after emitting an alpha particle. How many protons and neutrons are left in the nucleus after an alpha emission?

(a) protons = 93, neutrons = 144

(b) protons = 95, neutrons = 142

(c) protons = 89, neutrons = 144

(d) protons = 89, neutrons = 142

(v) Assertion: Infrared radiations travel long distances through dense fog and mist.

Reason: Infrared radiations undergoes minimal scattering in earth's atmosphere

(a) both assertion and reason are true.

(b) both assertion and reason are false.

(c) assertion is false but reason is true.

(d) assertion is true reason is false.

(vi) For a convex lens, the minimum distance between an object and its real image in terms of focal length (f) of a given lens must be:

(a) 1.5 f

(b) 2.5 f

(c) 2 f

(d) 4 f

(vii) Two sound waves X and Y have same amplitude and same wave pattern, but their frequencies are 60 Hz and 120 Hz respectively, then:

(a) X will be shriller and Y will be grave

(b) X will be grave and Y will be shriller

(c) X will differ in quality than Y

(d) X is louder than Y.

(viii) Vibrations produced in a body under the influence of the periodic force is;

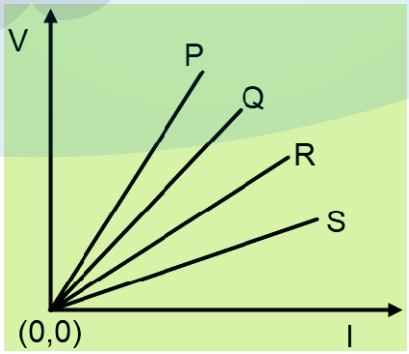
(a) forced vibrations

(b) resonant vibrations

(c) damped vibrations

(d) sympathetic vibrations

(ix) The graph of voltage vs current for four different materials is shown below.



Which of these four materials would be used for making the coil of a toaster?

(a) Q

(b) S

(c) P

(d) R

(x) According to the old convention the colour of the earth wire is:

(a) black

(b) green

(c) yellow

(d) red

(xi) Lenz's law is based on the law of conservation of:

(a) force

(b) charge

(c) mass

(d) energy

(xii) Heat capacity of a body is:

(a) the energy needed to melt the body without the change in its temperature

(b) the energy needed to raise the temperature of the body by 1°C

(c) the increase in the volume of the body when its temperature increases by 1°C

(d) the total amount of internal energy that is constant.

(xiii) The amount of heat energy required to melt a given mass of a substance at its melting point without rise in its temperature is called:

(a) specific heat capacity

(b) specific latent heat of fusion

(c) latent heat of fusion

(d) specific latent heat of freezing

(xiv) When a ray of light enters from a denser medium to a rarer medium then:

(a) the light ray bends towards the normal

(b) the speed of light increases

(c) the angle of incidence is greater than the angle of refraction

(d) its wavelength decreases.

(xv) An endoscope uses optical fiber to transmit high resolution images of internal organs without loss of information. The phenomenon of light that governs the functioning of the optical fiber is:

(a) refraction

(b) reflection

(c) scattering

(d) total internal reflection.

Answers : Specimen - 2024

Answers

(I) a (ii) c (iii) b (iv) a (v) a (vi) d (vii) b (viii) a

(ix) c (x) b (xi) d (xii) b (xiii) c (xiv) b (xv) d

ICSE 2023 EXAMINATION

SPECIMEN QUESTION PAPER

PHYSICS

(SCIENCE PAPER – 1)

Maximum Marks: 80

Time allowed: Two hours

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***Section A** is compulsory. Attempt **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A

*(Attempt **all** questions from this Section.)*

Question 1

Choose the correct answers to the questions from the given options: [15]

(i) S.I. unit of moment is:

(a) kgf.m

(b) Nm

(c) gf.m

(d) Ncm

(ii) Which of the following is the correct expression for gain in kinetic energy, if initial velocity is not zero?

(a) $k = \frac{1}{2}mv^2$

(b) $k = \frac{mv^2}{4}$

(c) $k = \frac{mv^2}{2t}$

(d) $k = \frac{1}{2}m(v^2 - u^2)$

(iii) The energy conversion, when an oscillating pendulum moves from mean to extreme position is:

(a) Kinetic to potential

(b) Potential to kinetic

(c) Potential to kinetic to potential

(d) Kinetic to potential to kinetic

(iv) Which of the following nuclear radiations can be stopped by a sheet of paper?

(a) Alpha

(b) Beta

(c) Gamma

(d) None of these

(v) When seven spectral colours passes through a glass block from air, then which one of the following statements is correct.

(a) In the glass block, speed of blue light > speed of yellow light.

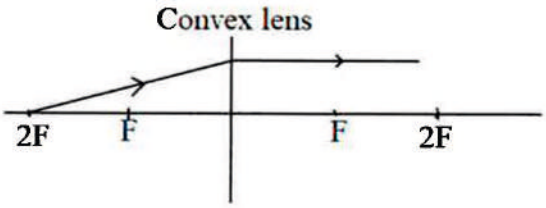
(b) In the glass block, speed of green light > speed of orange light.

(c) In the glass block, speed of violet light > speed of red light.

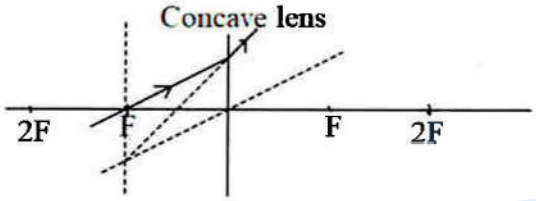
(d) In the glass block, speed of orange light > speed of indigo light.

(vi) In which of the following diagrams is the refraction **not** correct:

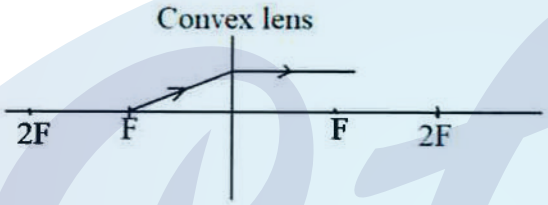
(a)



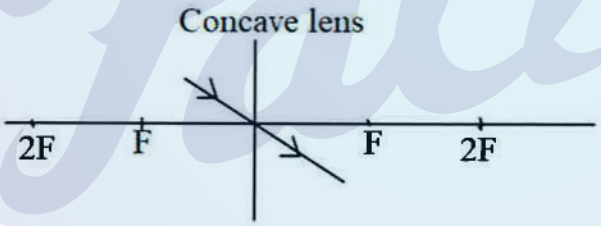
(b)



(c)



(d)



(vii) The characteristics of sound which enables to differentiate between two sounds of different intensity is:

(a) Quality

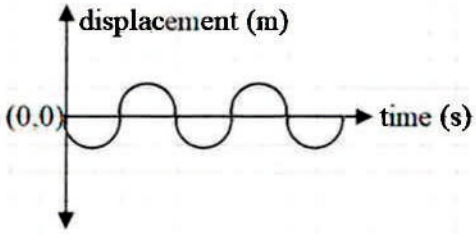
(b) Amplitude

(c) Pitch

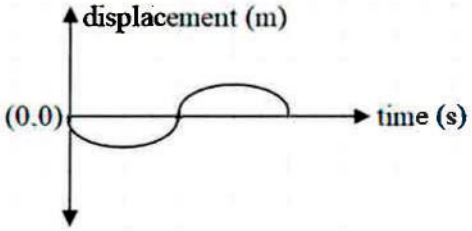
(d) Loudness

(viii) The ratio of the wavelength of A : wavelength of B is:

A.



B.



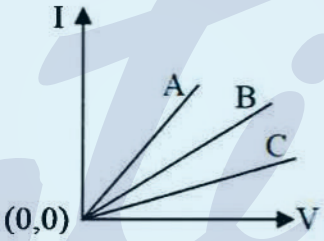
(a) 5:2

(b) 1:2

(c) 2:1

(d) 2:3

(ix) The graph shows I against V relation for three conductors A, B and C. Choose the correct relation for the resistors of A, B and C.



(a) $R_A > R_B > R_C$

(b) $R_B > R_C < R_A$

(c) $R_C > R_B < R_A$

(d) $R_C > R_B > R_A$

(x) Which of the following is the correct colour code of the three wires live, neutral and earth?

(a)	Live: Green	Neutral: Red	Earth: Yellow
(b)	Live: Brown	Neutral: Red	Earth: blue
(c)	Live: Brown	Neutral: blue	Earth: Yellow
(d)	Live: Blue	Neutral: Brown	Earth: Green

(xi) When a conductor carrying current is placed in a magnetic field, perpendicular to it then the direction of the force experienced can be found out using:

(a) Lenz's law

(b) Fleming's left hand rule

(c) Flemings right hand rule

(d) Right hand thumb rule

(xii) Choose the correct statement.

Latent heat absorbed:

(a) is independent of the mass of the substance.

(b) is directly proportional to the increase in the temperature of the substance.

(c) is directly proportional to the specific heat capacity of the substance.

(d) is directly proportional to the specific latent heat of the substance.

(xiii) Which of the following liquids is most suitable for radiators in cars?

(a) Liquid P with specific heat capacity 4000 $Jkg^{-1}K^{-1}$.

(b) Liquid Q with specific heat capacity 2000 $Jkg^{-1}K^{-1}$.

(c) Liquid R with specific heat capacity 1500 $Jkg^{-1}K^{-1}$.

(d) Liquid S with specific heat capacity 2100 $Jkg^{-1}K^{-1}$.

(xiv) While entering from medium A to medium B if light slows down then:

(a) $\angle i < \angle r$

(b) $\angle i = \angle r$

(c) $\angle i > \angle r$

(d) $\angle i \leq \angle r$

(xv) The phenomenon of light that causes the diamond to glitter is:

(a) Refraction

(b) Total internal reflection.

(c) Reflection.

(d) Absorption.

Answers : Specimen - 2023

Answers

(I) b (ii) d (iii) a (iv) a (v) d (vi) c (vii) d (viii) d

(ix) d (x) c (xi) b (xii) d (xiii) a (xiv) c (xv) b

SPECIMEN QUESTION PAPER

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 40

Time allowed: One and a half hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 10 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

*Attempt **all** questions from **Section A** and **any three** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

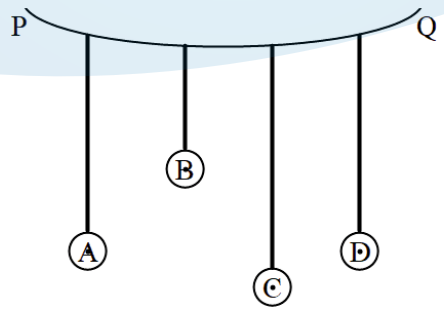
SECTION A

*(Attempt **all** questions.)*

Question 1

Choose the correct answers to the questions from the given options. (Do not copy the question, Write the correct answer only.)

(i) Pendulums A, B, C and D are tied to a flexible string PQ and are at rest. Pendulum C is disturbed. Which of the following statements is true? [1]



(a) Only pendulum C will start vibrating.

(b) Pendulums A, B, and D will also start vibrating but A and D will vibrate with the maximum amplitude.

(c) Pendulums A, B, and D will also start vibrating.

(d) Vibrations of pendulum C are forced vibrations.

(ii) Which of the following is **not a** characteristic of parallel combination of resistors? [1]

(a) If one resistor is fused, the circuit does not become open.

(b) The total resistance R is given by the formula $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \ldots\ldots$

(c) The total resistance becomes less than the least resistor, present in the combination.

(d) The current through each resistor always remains the same.

(iii) Which one of the following statements is correct? [1]

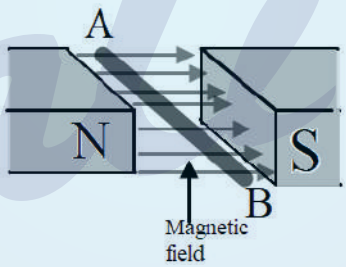
(a) Live wire has zero potential.

(b) Fuse is connected in a neutral wire.

(c) Potential of live and earth wire is always the same.

(d) Earth wire is used to prevent electric shock.

(iv) The diagram below shows a free conductor AB is kept in a magnetic field and is carrying current from A to B. (To avoid confusion complete path of the circuit is not shown) The direction of the force experienced by the conductor will be: [1]



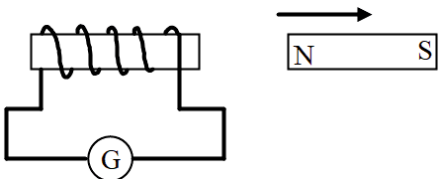
(a) Up

(b) Down

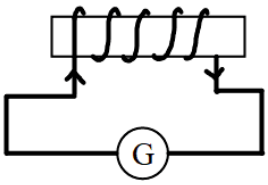
(c) Towards N

(d) Towards S

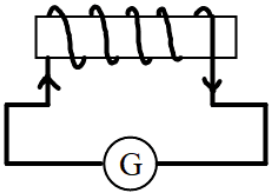
(v) The diagram below shows a magnet moved near a coil along its axis. Which of the diagram shows correct flow of current during this motion? [1]



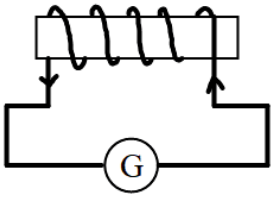
(a)



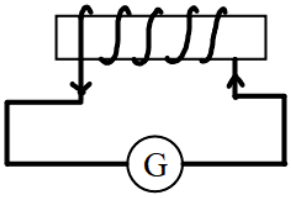
(b)



(c)



(d)



(vi) The meaning of the statement 'Specific heat capacity of water is 4200 $Jkg^{-1}K^{-1}$' is: [1]

(a) Water needs 4200 J heat to raise its temperature by 1 kelvin.

(b) To raise the temperature of water 4200 J of heat is absorbed.

(c) 1 kg water absorbs 4200J heat to increase its temperature by 1 kelvin.

(d) 1 kg Water needs 1 kelvin temperature to absorb 4200 J heat.

(vii) 200 g of ice at 0^0C needs _____ heat to melt. [Specific latent heat of ice = 336000 J kg^{-1}] [1]

(a) 6720 J

(b) 67200 J

(c) 672000 J

(d) 67.2 J

(viii) The radiation with maximum penetrating power is: [1]

(a) γ

(b) β

(c) X-radiation

(d) α

(i) Resonance is: [1]

(a) A forced vibration in which amplitude remains constant.

(b) A forced vibration in which frequency of forced vibration is greater than the free vibrations of the body.

(c) A forced vibration, in which frequency of forced vibration is equal to the free vibrations of the body.

(d) A forced vibration, in which frequency of forced vibration is less than the free vibrations of the body.

(x) The nuclear radiation which gets deflected towards negatively charged plate in an electric field is: [1]

(a) Gamma

(b) Ultraviolet

(c) Beta

(d) Alpha

Answers : Specimen - 2022 Semester 2

Answers

(I) c (ii) d (iii) d (iv) a (v) a (vi) c (vii) b (viii) a

(ix) c (x) d

SPECIMEN QUESTION PAPER
PHYSICS
SCIENCE Paper – 1

Maximum Marks: ***40***

Time allowed: One hour (inclusive of reading time)

ALL QUESTIONS ARE COMPULSORY

The intended marks for questions or parts of questions are given in brackets [ ].

Select the correct option for each of the following questions.

Question 1

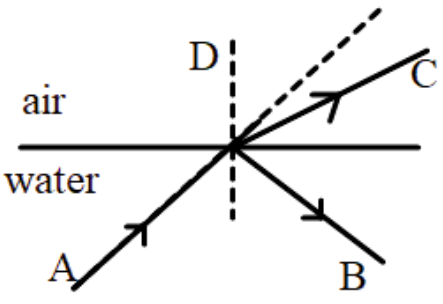
(a) Choose the correct statement with respect to Refraction of light [1]

1. The frequency always changes when light enters from one optical medium to another.
2. Absorption of light when it strikes the surface of a medium is refraction.
3. Speed of light changes when it enters from one optical medium to another of different optical density.
4. Speed of light does not change when it enters from one optical medium to another of different optical density.

(b) When a light ray enters from a denser medium to a rarer medium [1]

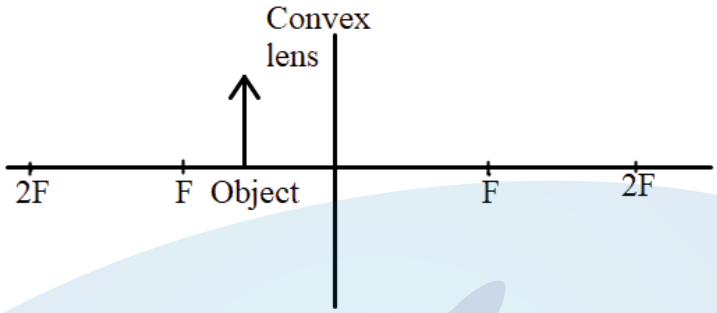
1. The light ray bends towards the normal.
2. Angle of incidence is less than angle of refraction.
3. Speed of light decreases.
4. Speed of light remains unchanged.

(c) In the diagram shown below: [1]



1. B is incident ray and C is refracted ray.
2. A is incident ray and B is refracted ray.
3. C is incident ray and B is refracted ray.
4. A is incident ray and C is refracted ray.

(d) From the diagram shown below, identify the characteristics of the image that will be formed. [1]



1. Real.
2. Diminished.
3. Formed within the focal length.
4. Virtual.

(e) The wavelength of light in a medium A is 600 nm. The wave enters medium B of refractive index 1.5 with respect to medium A [2]

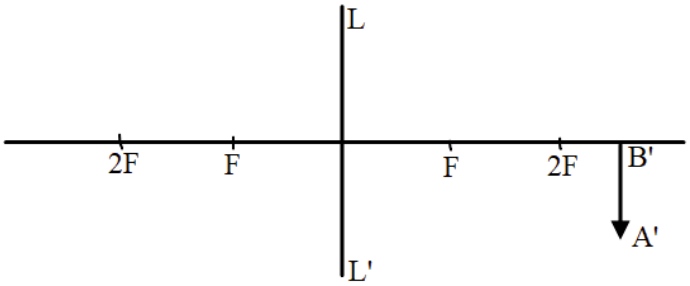
(i) Select the correct option from the following.

1. the wavelength of light becomes 1.5 times the initial wavelength.
2. the wavelength of light decreases.
3. the wavelength becomes half of initial wavelength.
4. the wave bends away from the normal.

(ii) The wavelength in medium B will be

1. 400 nm
2. 900 nm
3. 300 nm
4. Information is insufficient to calculate.

(f) The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow. [4]



(i) The position of the object on the left-hand side should be

1. between 12 cm to 30 cm from the lens.
2. beyond 24 cm from the lens.
3. between 12 cm to 24 cm from the lens.
4. within 12 cm from the lens.

(ii) Power of this lens is

1. - 8.33 D
2. + 8.4 D
3. + 8.33 D
4. – 8.4 D

(iii) The object distance with sign convention is

1. - 18 cm
2. - 15 cm
3. - 9 cm
4. + 18 cm

(iv) If the lens LL' is replaced by another lens of same type but focal length 15 cm then for the same object distance

1. the size of the image decreases.
2. the size of the image increases.
3. the size of the image remains the same.
4. information is insufficient to conclude.

Question 2

(a) The usable form of mechanical energy is [1]

1. Elastic potential energy
2. Kinetic energy
3. Gravitational potential energy
4. None of the given options.

(b) One horsepower is equal to [1]

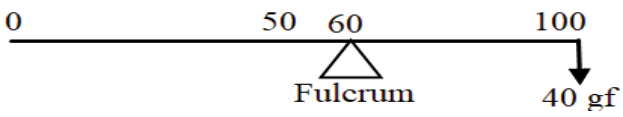
1. 100 W
2. 735 W
3. 764 W
4. 746 W

(c) If A and B of the same mass can climb the third floor of the same building in 3 minutes and 5 minutes respectively, then the ratio of their powers of A is to B in an ideal situation is [1]

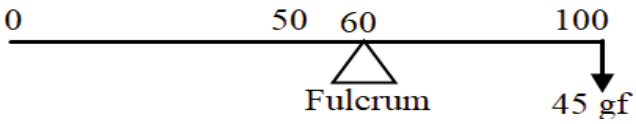
1. 1:1
2. 3:5
3. The information is insufficient to form a conclusion.
4. 5:3

(d) If the centre of gravity of a metre scale of mass 80 g lies at the 45 cm mark, then which one of the following diagrams will show the balanced position of the scale. [1]

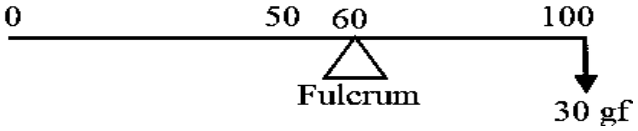
1.



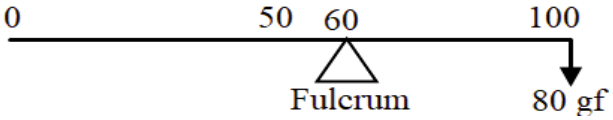
2.



3.



4.



(e) A body has kinetic energy 2500 J. If the mass of the body is 500 g. [2]

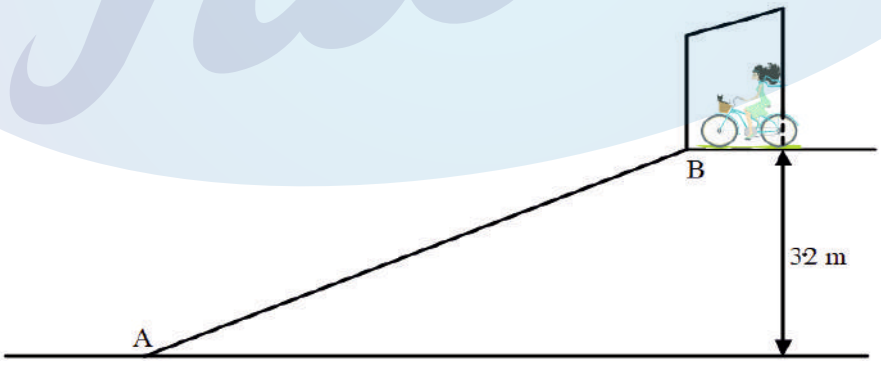
(i) The velocity of the body is

1. √10 m/s
2. 10 ms-1
3. 20 ms-1
4. 100 m/s

(ii) The momentum of the body will be

1. 10 kgms-1
2. 500√10 kgms-1
3. 50 kg ms-1
4. 5 kgms-1

(f) A girl at rest at gate of her society which is 3.2 m above the road comes down the slope AB on a cycle without paddling. [g = 10 N/kg] [4]



(i) The mechanical energy possessed by the girl at B is

1. Vibrational kinetic energy.
2. Translational kinetic energy
3. Elastic potential energy.
4. Gravitational potential energy.

(ii) The velocity with which girl reaches point A is

1. 32 m/s
2. 10 m/s
3. 8 m/s
4. Insufficient information to calculate velocity.

(iii) If the mass of the girl is 40 kg then the kinetic energy of the girl at A is [Assuming no loss of energy.]

1. 1280 J
2. 1600 J
3. 400 J
4. 3200J

(iv) The potential energy of the girl (of mass 40 kg) when she reaches the midpoint of the slope of AB

1. 800 J
2. 200 J
3. 1600 J
4. 640 J

Question 3

(a) Mechanical advantage (M.A.), load(L), and effort(E) are related as [1]

1. M.A. = L X E
2. M.A. = E/L
3. M.A. X E = L
4. M.A. X L = E

(b) Which one of the following statements is correct? [1]

1. A machine is used to have more output energy as compared to input energy.
2. Mechanical advantage of a machine can never be greater than 1.
3. If a machine gives convenience of direction, then its mechanical advantage should be greater than 1.
4. For a given design of a machine, even if the mechanical advantage increases, the velocity ratio remains the same.

(c) If a block and tackle system with convenient direction has 3 movable pulleys, then its velocity ratio [1]

1. is either 6 or 7
2. should be 6
3. should be 7
4. is 3

(d) Work done by a body moving on a circular track is zero at every instant becaus [1]

1. displacement is zero.
2. displacement is perpendicular to the centripetal force.
3. there is no force acting.
4. reason is not mentioned in the other options.

(e) Identify the conditions required to hear a clear and distinct echo by humans, in air [2]

1. The reflecting surface should be rough.
2. The size of the reflecting surface should be smaller than the wavelength of sound.
3. Sound should not be reflected back within 0.1 s.
4. The incident sound should have frequency more than 25000 Hz.
5. The size of the reflecting surface should be larger than the wavelength of sound.

(f) A person standing in front of a vertical cliff fires a gun and hears its echo in 3s. The speed of sound in air is 340 m/s. [4]

(i) The distance at which the person is standing in front of the cliff is

1. 1020 m
2. 510 m
3. 340 m
4. 680 m

(ii) If the person wants to hear the echo 0.5 s earlier, then how much distance should he move, toward or away from the cliff?

1. 595 m away from the cliff
2. 255 m towards the cliff
3. 85 m towards the cliff
4. 255 m away from the cliff.

(iii) Another person stands behind this person, in the same line with him and the cliff, at a distance of 170 m and fires a gun in the air. What are the consecutive intervals of time at which the first person hears two sounds?

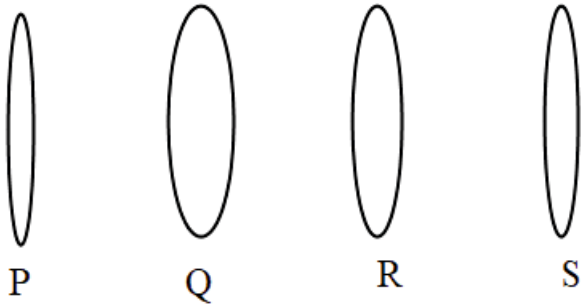
1. 0.5 s and 3 s
2. 1 s and 3 s
3. 1 s and 4 s
4. 0.5 s and 3.5 s

(iv) If the speed of sound changes to 350 m/s then how much distance should the person move towards or away from the cliff, in order to hear the echo in the same time? (i.e. in 3 s)?

1. 25 m away
2. 7.5 m away
3. 20 m away
4. 15 m away

Question 4

(a) Assuming all lenses shown below are of the same material, state which lens has the maximum power. [1]

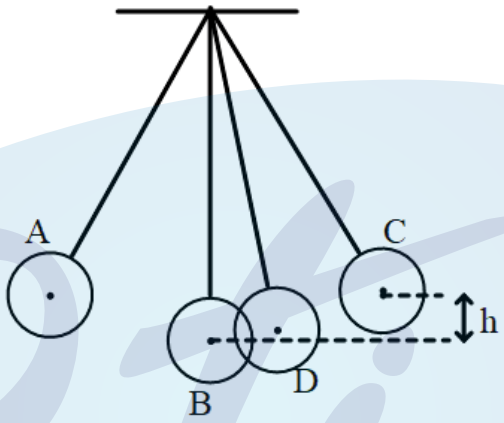


1. R
2. P
3. Q
4. S

(b) In an electric cell while in use, the change in energy is from: [1]

1. Chemical to mechanical
2. Chemical to electrical
3. Electrical to mechanical
4. Electrical to chemical

(c) The diagram below shows a pendulum having a bob of mass 80 g. A and C are extreme positions and B is the mean position. The bob has velocity 5 m/s at position B. [g = 10N/kg] [2]



(i) Which one of the following statements is correct?

1. At point A the bob has only kinetic energy.
2. At point B the bob will have only potential energy.
3. At point B the bob will have maximum kinetic energy.
4. At point D the bob will have more potential and less kinetic energy.

(ii) The height h is

1. 1.25 cm
2. 125 m
3. 1.25 m
4. 0.125 m

(d) (i) Select correct options for Total internal reflection in a medium. [2]

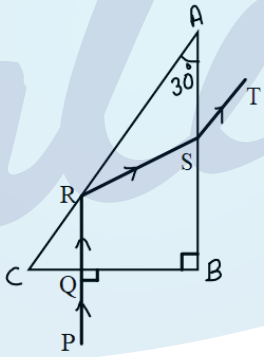
1. Can take place in an optically denser medium as compared to an optically rarer medium.
2. Takes place for any angle of incidence greater than 42 degree.
3. This reflection does not obey the laws of reflection.
4. Can take place if the angle of incidence in a denser medium is less than the critical angle.

(ii) Diamonds glitter in the dark because

1. They emit light.
2. They have a very small critical angle due to very high refractive index.
3. Due to the fluorescence.
4. Chemical reaction in the diamond produces light energy.

(e) The diagram shows the path of light through a right-angled prism of critical angle 42°. [4]

Observe the diagram and answer the questions that follow.



(i) The phenomenon at the surface AC is

1. Refraction
2. Partial reflection
3. Total internal reflection
4. Scattering.

(ii) The angle of incidence at the surface AC is

1. 30°
2. 45°
3. 60°
4. 90°

(iii) The angle of incidence at the surface AB is

1. 30°
2. 45°
3. 60°
4. 90°

(iv) Which of the following statement is **wrong**?

1. Speed of light ray PQ is equal to the speed of light ray ST.
2. Speed of light ray QR is equal to the speed of light ray RS.
3. Speed of light ray PQ is greater than the speed of light ray RS.
4. Speed of light ray RQ is greater than the speed of light ray ST.

Answers : Specimen - 2022 Semester 1

Answers

Q1
a 3 b 2 c 4 d 4 e(I)2 e(ii) 1 f(I) 2 f(ii) 3 f(iii) 1 f(iv) 2

Q2
a 2 b 4 c 4 d 3 e 4 f(I)4 f(ii) 3 f(iii) 1 f(iv) 4

Q3
a 3 b 4 c 1 d 2 e 3 & 5 f(I) 2 f(ii) 3 f(iii) 4 f(iv) 4

Q4
a 3 b 2 c(I) 3 c(ii) 3 d(I) 1 d(ii) 2

PHYSICS

(SCIENCE PAPER – 1)

SECTION A (40 Marks)

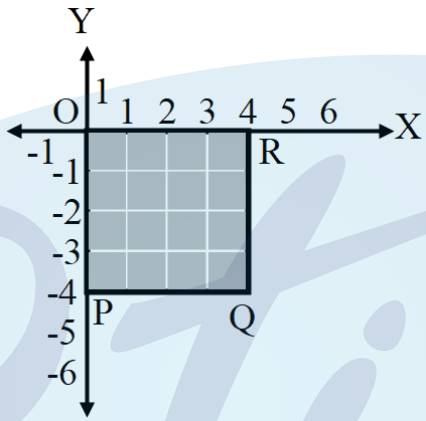
*(Attempt **all** questions from this **Section**.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the questions, write the correct answers only.)

(i) **Centre of gravity** of the given square **PQRO** lies at:



(a) (2, –2)

(b) (3, –2)

(c) (–2, 2)

(d) (–2, 1)

(ii) An object is thrown vertically up. It reaches the highest point and then comes down. The work done by the **force of gravity** on the object is:

(a) positive for both the way up and way down

(b) negative for both the way up and way down

(c) negative for the way up and positive for the way down

(d) positive for the way up and negative for the way down

(iii) 10 eV is _____.

(a) 1.6×10^{-18} J

(b) 1.6×10^{-19} J

(c) 6.25×10^{19} J

(d) 6.25×10^{18} J

(iv) A crowbar of length 1.0 m has its fulcrum at a distance of 0.2 m from the load. The **mechanical advantage** of the crowbar is:

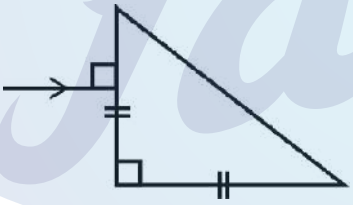
(a) 5

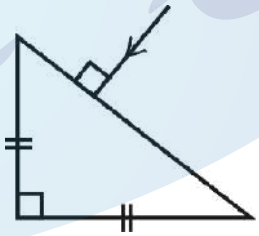
(b) 4

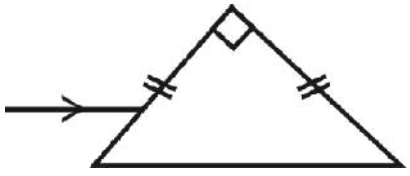
(c) 3

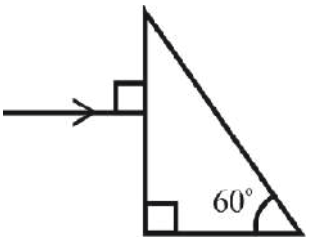
(d) 2

(v) Which of the following figures will depict deviation of a ray of light through 90° when it emerges out of the prism.

(a) 

(c) 

(b) 

(d) 

(vi) Which of the following values can represent the magnification of a **simple microscope**?

(a) +1

(b) –1

(c) +2

(d) –2

(vii) An object placed at a distance 30 cm in front of a lens produces clear inverted image at a distance 60 cm from the lens. If the object is placed at 60 cm from the lens, then it producesa clear inverted image ata distance of _____ from the lens.

(a) 20 cm

(b) 30 cm

(c) 60 cm

(d) 90 cm

(viii) **Assertion (A):** Quartz prism is used to study ultraviolet spectrum.

Reason (R): Quartz does not absorb ultraviolet radiations.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A).

(b) Both (A) and (R) are true and (R) is not the correct explanation of (A).

(c) (A) is true but (R) is false.

(d) (A) is false and (R) is true.

(ix) The amplitude of a sound wave is **reduced** from 2 mm to 1 mm. The **intensity** of the sound will:

(a) become four times the initial

(b) remain the same

(c) become half of the initial

(d) become one fourth of the initial

(x) According to the **NEW** international convention, what is the colour coding for the live, neutral and earth wires in household circuits?

(a) Live – red, Neutral – black, Earth – green

(b) Live – green, Neutral – yellow, Earth – black

(c) Live – brown, Neutral – blue, Earth – yellow

(d) Live – red, Neutral – blue, Earth – yellow

(xi) An alloy ***constantan*** has resistivity $5 \times 10^{-7}\ \Omega$ m at 25°C. If the temperature of this alloy is increased to 50°C then its **resistivity** will be:

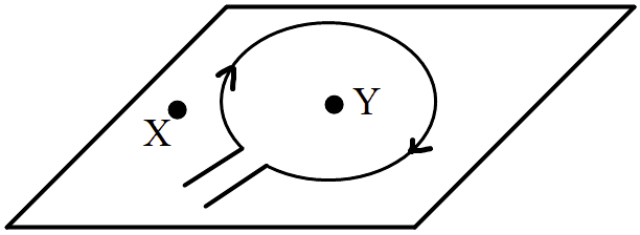
(a) $2.5 \times 10^{-7}\ \Omega$ m

(b) $5 \times 10^{-7}\ \Omega$ m

(c) $10 \times 10^{-6}\ \Omega$ m

(d) $20 \times 10^{-6}\ \Omega$ m

(xii) A current carrying circular loop is lying in a horizontal plane as shown in the diagram. Which of the following is the correct statement with respect to the direction of magnetic lines of force.



(a) upward at X and downward at Y

(b) downward at X and upward at Y

(c) upward at both X and Y

(d) downward at both X and Y

(xiii) For a body of mass ***m*** the relationship between the heat capacity ***(C')*** and specific heat capacity ***(c)*** is:

(a) $C' = mc$

(b) $C' = c/m$

(c) $C' = mc^2$

(d) $C' = m/c$

(xiv) A piece of a cake and a watermelon of the same mass are taken out of the freezer at the same time. Which of the following statement is correct?

(a) Cake and watermelon will attain the room temperature at the same time.

(b) Watermelon will attain the room temperature faster.

(c) Cake will attain the room temperature faster.

(d) Which one comes to the room temperature first, depends on the atmospheric pressure at that time.

(xv) During β emission the parent and daughter nuclei will be:

(a) isomers

(b) isotopes

(c) isotones

(d) isobars

Answers : Past Year 2025 Improvement

Answers

(I) a (ii) c (iii) a (iv) b (v) a (vi) c (vii) b (viii) a

(ix) d (x) c (xi) b (xii) a (xiii) a (xiv) c (xv) b

2025

PHYSICS
(SCIENCE PAPER 1)

SECTION A (40 Marks)

*(Attempt **all** questions from this **Section**.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the questions, write the correct answers only.)

(i) A body is acted upon by two equal and opposite forces, that are **NOT** along the same straight line. The body will:

(a) remain stationary

(b) have only rotational motion

(c) have only rectilinear motion

(d) have both rectilinear and rotational motion

(ii) Which among the following is a **vector** quantity?

(a) work

(b) power

(c) energy

(d) moment of couple

(iii) What is the correct energy transformation during burning of a candle?

(a) heat → kinetic + potential

(b) heat → chemical + light

(c) chemical → heat + light

(d) mechanical → chemical + heat

(iv) When a ray of light passes from one optical medium to another, which of the following physical quantities does **NOT** change?

(a) Amplitude of the wave

(b) Frequency of the wave

(c) Wavelength of the wave

(d) Speed of the wave

(v) Which one of the following combinations is the correct **ascending order** of electromagnetic waves in terms of **wavelength**?

(a) gamma-rays, visible light, microwaves

(b) microwaves, visible light, gamma-rays

(c) gamma-rays, microwaves, visible light

(d) microwaves, gamma-rays, visible light

(vi) For a lever, a graph is plotted with load on Y-axis and effort on X-axis. Which of the following represents the **slope** of the graph?

(a) Mechanical advantage

(b) Velocity ratio

(c) 1 / Velocity ratio

(d) 1 / Mechanical advantage

(vii) For a real image formed by a convex lens, the ratio of **I : O = 2 : 5,** then the object is: *(I is the height of the image and O is the height of the object)*

(a) between O and F

(b) beyond 2F

(c) at F

(d) between F and 2F

(viii) A ray of light is incident normally on a face of an equilateral prism. The ray gets totally reflected at the second refracting surface. **The total deviation** produced in the path of the ray is:

(a) 30°

(b) 60°

(c) 90°

(d) 120°

(ix) In a closed circuit containing a bulb and a cell, the electromotive force ($\boldsymbol{\varepsilon}$) and the terminal voltage (V) is related as.

*(Given **I** is current and **r** is internal resistance.)*

(a) $V = \varepsilon + Ir$

(b) $V = \varepsilon - Ir$

(c) $V = \varepsilon \div Ir$

(d) $V = \varepsilon \times Ir$

(x) A metal piece of mass 5 g has thermal capacity 2.5 JK^{-1}. If the mass of the metal is tripled, then its **specific heat capacity** will be:

(a) 7.5 JK^{-1}

(b) 2.5 JK^{-1}

(c) 1.5 $Jg^{-1}K^{-1}$

(d) 0.5 $Jg^{-1}K^{-1}$

(xi) **Assertion (A):** As the level of water in a tall measuring cylinder kept under running tap rises, the pitch of sound gradually increases.

Reason (R): Frequency of sound is inversly proportional to the length of the water column.

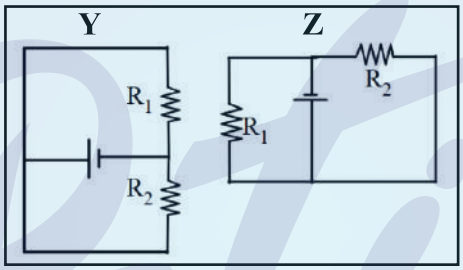
(a) Both (A) and (R) are true and (R) is correct explanation of (A).

(b) Both (A) and (R) are true and (R) is not the correct explanation of (A).

(c) (A) is true but (R) is false.

(d) (A) is false but (R) is true.

(xii) In the given circuits **Y** and **Z**, the resistors, $\mathbf{R_1}$ and $\mathbf{R_2}$, are connected in:



(a) series in both the circuits

(b) parallel in both the circuits

(c) parallel in **Y** and series in **Z**

(d) series in **Y** and parallel in **Z**

(xiii) A radioactive element **P** emits one α-particle and transforms to a new element **Q**. What will be the position of the element **Q** in the **periodic table**?

(a) One group to the left of **P**

(b) One group to the right of **P**

(c) Two groups to the right of **P**

(d) Two groups to the left of **P**

(xiv) Each of the substances given below is supplied with same amount of heat. Which one will attain the **highest** temperature?

Substance	Lead	Aluminium	Copper	Iron
Specific heat capacity (cal/g^{o}C)	0.031	0.21	0.095	0.115

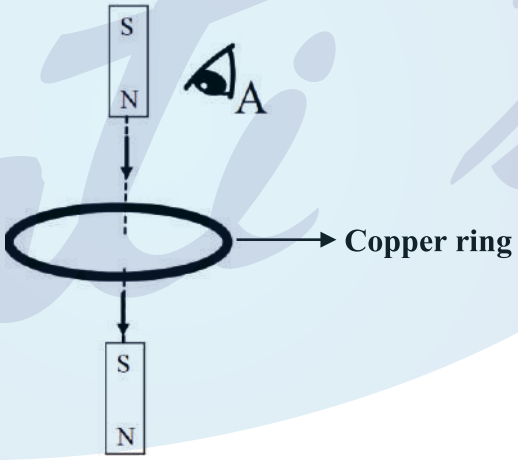
(a) Aluminium

(b) Copper

(c) Iron

(d) Lead

(xv) The following figure shows a small bar magnet falling freely through a copper ring. For the observer at **A**, the **direction of the induced current** will be:



(a) clockwise when magnet is above and below the ring

(b) anticlockwise when magnet is above and below the ring

(c) anticlockwise when magnet is above the ring and clockwise when the magnet is below the ring

(d) clockwise when magnet is above the ring and anticlockwise when the magnet is below the ring

Answers : Past Year 2025

Answers

(I) d (ii) d (iii) b **(iv)** d **(v)** a **(vi)** a **(vii)** d **(viii)** b

(ix) d (x) d **(xi)** b (xii) c (xiii) d **(xiv)** d **(xv)** b

2024 Improvement

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during first **15** minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

***Section A** is compulsory. Attempt **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (40 Marks)

*(Attempt **all** questions from this **Section**.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the questions, write the correct answers only.)

(i) A solar cell converts solar energy into:

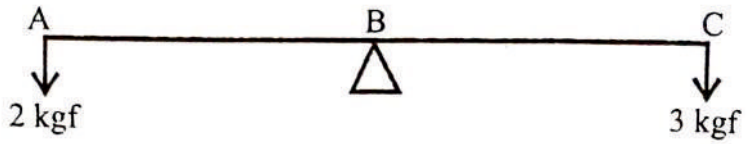
(a) heat energy

(b) mechanical energy

(c) chemical energy

(d) electrical energy

(ii) In the diagram given below, the rod AC pivoted at B is in equilibrium.



Choose appropriate relation.

(a) $AB = \frac{2}{3} BC$

(b) $AB = \frac{3}{2} BC$

(c) $AB = \frac{3}{5} BC$

(d) $AB = \frac{2}{5} BC$

(iii) A Bass drum produces wave '**X**', when struck with a force of 20 N and wave '**Y**', when struck with a force of 40 N, at the same point on the drum. Which of the following statement is **correct** with respect to the characteristics of sound?

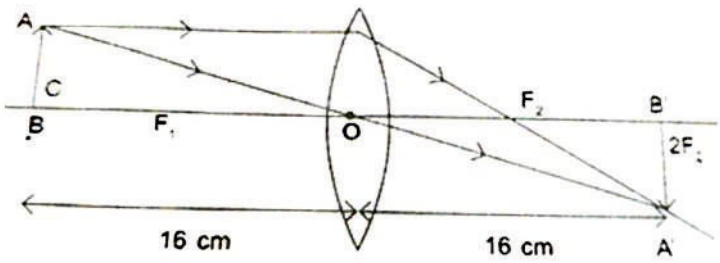
(a) X is shriller than Y.

(b) Y is louder than X.

(c) X is louder than Y.

(d) Y is shriller than X.

(iv) In the diagram given below AB is the object and A'B' is the image. If the size of the image is same as the size of the object, then the focal length of the given lens will be:



(a) 4 cm

(b) 16 cm

(c) 32 cm

(d) 8 cm

(v) Light of wavelength λ enters from air into glass of refractive index μ. Inside glass the wavelength of light is:

(a) $\mu\lambda$

(b) λ/μ

(c) μ/λ

(d) λ

(vi) Assertion (A): A thicker convex lens has smaller focal length than a thinner convex lens of same material.

Reason (R): A thicker lens bends light lesser than a thinner lens.

(a) A and R are true.

(b) A is true and R is false.

(c) A is false and R is true.

(d) A and R are false.

(vii) The radiations used in remote controls of T.V. sets are:

(a) Ultraviolet

(b) Radio waves

(c) Microwaves

(d) Infra-red

(viii) Four strings are stretched equally as given below. Which one will produce the sound of highest pitch on plucking:

(a) Thick string of length 10 m.

(b) Thin string of length 1 m.

(c) Thin string of length 10 m.

(d) Thick string of length 1 m.

(ix) Which of the following statement is **not true** for free vibrations:

(a) its amplitude is constant.

(b) Its frequency is constant.

(c) it takes place in a friction less medium.

(d) it has an external force of constant magnitude acting on it.

(x) Three substances A, B, C have equal thermal capacities. Given $M_A > M_B > M_C$ (where M_A, M_B & M_C are masses of A, B & C respectively). Which of the following gives the correct relation of their specific heat capacities. C_A, C_B & C_C are specific heat capacities of A, B & C respectively:

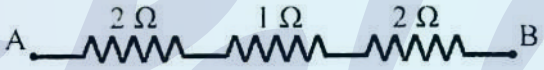
(a) $C_A = C_B = C_C$

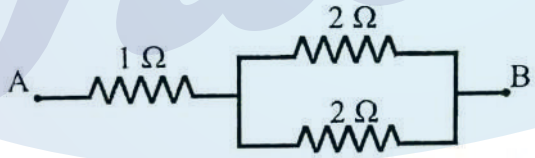
(b) $C_A > C_B > C_C$

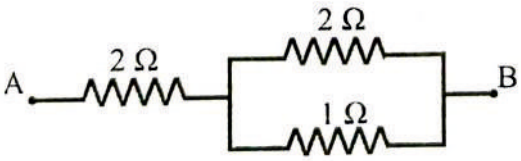
(c) $C_A < C_B < C_C$

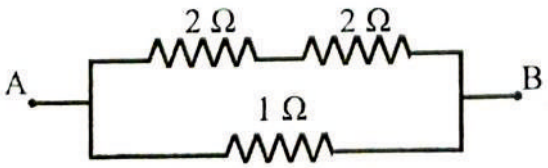
(d) None of the above.

(xi) Which combination gives 2 Ω resistance across AB:

(a) 

(b) 

(c) 

(d) 

(xii) A transformer **cannot** raise or lower the voltage of a D.C. supply because:

(a) There is no need to change the D.C. voltage.

(b) D.C. circuit has more losses.

(c) There is no variation of magnetic flux over time.

(d) Only A.C. is required to be altered.

(xiii) The direction of force experienced by a conductor carrying current, when placed in a magnetic field, is given by:

(a) Clock rule

(b) Lenz's law

(c) Flemings left hand rule

(d) Flemings right hand rule

(xiv) If a radioactive element is placed in an evacuated chamber, then the rate of radioactive decay will:

(a) Decrease

(b) Increase

(c) Remains unchanged

(d) Depends on the surrounding temperature

(xv) The nuclear radiations which are **deflected** by a magnetic field are:

(a) only α, γ

(b) only α, β

(c) only β, γ

(d) α, β & γ

Answers : Past Year 2024 Improvement

Answers

(I) d (ii) b (iii) b (iv) d (v) b (vi) b (vii) d (viii) b

(ix) d (x) c (xi) b (xii) c (xiii) c (xiv) c (xv) b

2024

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 80

Time allowed: Two hours

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*You will **not** be allowed to write during first **15** minutes.*

This time is to be spent in reading the question paper.

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***Section A** is compulsory. Attempt **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (40 Marks)

*(Attempt **all** questions from this **Section**.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the questions, write the correct answers only.)

(i) When a bell fixed on a cycle rings, then the energy conversion that takes place is:

(a) gravitational potential energy to sound energy

(b) kinetic energy to sound energy

(c) sound energy to electrical energy

(d) sound energy to mechanical energy

(ii) A door lock is opened by turning the lever (handle) of length 0.2 m. If the moment of force produced is 1 Nm, then the minimum force required is:

(a) 5 N

(b) 10 N

(c) 20 N

(d) 0.2 N

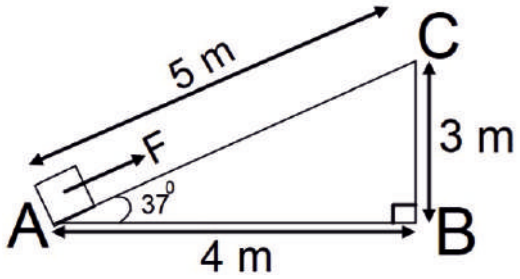
(iii) A force **'F'** moves a load from **A** to **C** as shown in the figure below. For the calculation of the work done, which of these lengths would you use as the displacement?

(a) 3m

(b) 4m

(c) 5m

(d) 7m



(iv) A radioactive nucleus containing 128 **nucleons** emits a β – particle. After β – emission the number of **nucleons** present in the nucleus will be:

(a) 128

(b) 129

(c) 124

(d) 127

(v) **Assertion (A):** Ultraviolet radiations are scattered more as compared to the microwave radiations.

Reason (R): Wavelength of ultraviolet radiation is more than the wavelength of microwave radiation.

(a) Both A and R are true.

(b) A is true but R is false.

(c) A is false but R is true.

(d) Both A and R are false.

(vi) When the stem of vibrating tuning fork is pressed on a table, the tabletop starts vibrating. These vibrations are **definitely** an example of:

(a) resonance

(b) natural vibrations

(c) forced vibrations

(d) damped vibrations

(vii) Which of the following is a class III lever?

(a) Pair of scissors

(b) Wheelbarrow

(c) Crowbar

(d) Human forearm

(viii) The specific resistance of a conductor depends on its:

(a) length

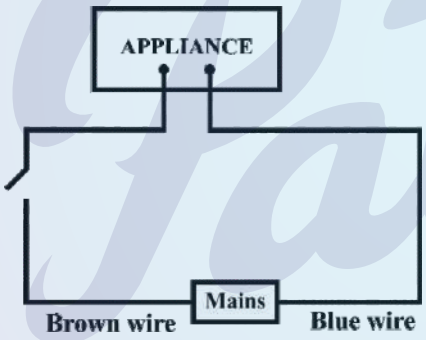
(b) material

(c) area of cross section

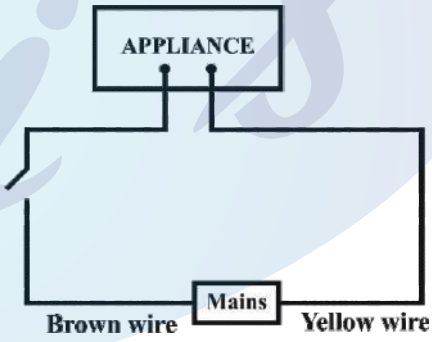
(d) radius

(ix) Identify the option that displays the **correct wiring** with **correct colour code**:

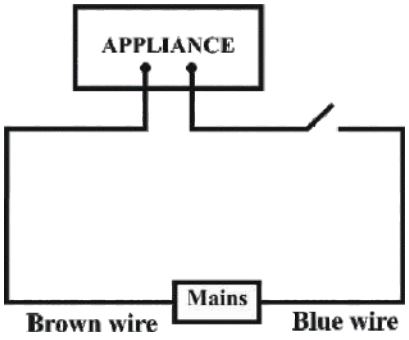
(a)



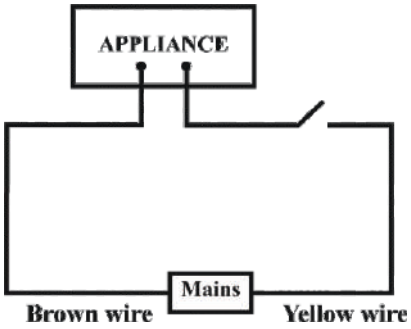
(b)



(c)



(d)



(x) The potential difference between terminals of a cell in a closed electric circuit is:

(a) terminal voltage

(b) electro motive force

(c) voltage drop

(d) none of these

(xi) During melting of ice at 0°C the:

(a) energy is released and temperature remains constant.

(b) energy is absorbed and temperature remains constant.

(c) energy is released and temperature decreases.

(d) energy is absorbed and temperature increases.

(xii) Linear magnification(m) produced by a concave lens is:

(a) $m < 1$

(b) $m > 1$

(c) $m = 1$

(d) $m = 2$

(xiii) A radioactive element is placed in an evacuated chamber. Then the rate of **radioactive decay** will:

(a) Decrease

(b) Increase

(c) Remain unchanged

(d) Depend on the surrounding temperature

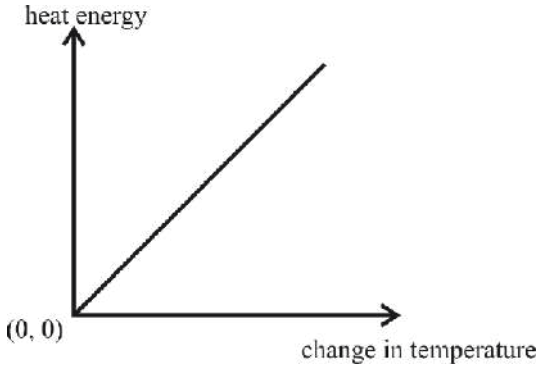
(xiv) The graph given below shows heat energy supplied against change in temperature when no energy is lost to the surrounding. The slope of this graph will give:

(a) Specific heat capacity

(b) Latent heat of fusion

(c) Latent heat of vaporization

(d) Heat capacity



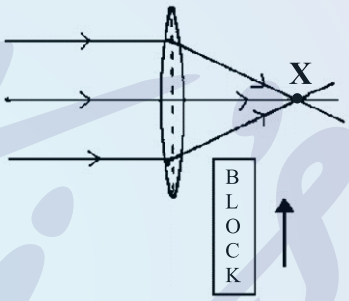
(xv) A block of glass is pushed into the path of the light as shown below. Then the converging point **X** will:

(a) Move away from the slab

(b) Move towards the slab

(c) Not shift

(d) Move towards the left side of the lens



Answers : Past Year 2024

Answers

(I) b (ii) a (iii) c (iv) a (v) b (vi) c (vii) d (viii) b

(ix) a (x) a (xi) b (xii) c (xiii) c (xiv) d (xv) a

ICSE 2023 – COMPARTMENT / IMPROVEMENT EXAMINATION

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 80

Time allowed: Two hours

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***Section A** is compulsory. Attempt **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A

*(Attempt **all** questions from this Section.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the questions, write the correct answers only.)

(i) Two forces, equal in magnitude and opposite in directions are applied to both ends of a body that is pivoted at its center. The forces turn the body in:

(a) opposite direction

(b) same direction

(c) perpendicular direction.

(d) None of these

(ii) The energy conversion in a microphone is:

(a) Chemical energy to electrical energy

(b) Sound energy to electrical energy

(c) Heat energy to mechanical energy

(d) Electrical energy to sound energy

(iii) The work done by a force on a body will be positive if the:

(a) body does not get displaced.

(b) body is displaced along the direction of the applied force.

(c) body is displaced perpendicular to the direction of the applied force.

(d) body is displaced opposite to the direction of the applied force.

(iv) The radiations used in detecting fake currency in banks are _____.

(a) infra red

(b) gamma

(c) ultraviolet

(d) microwaves

(v) During β-emission an electron is ejected from the atom of a radioactive substance. The ejected electron is from:

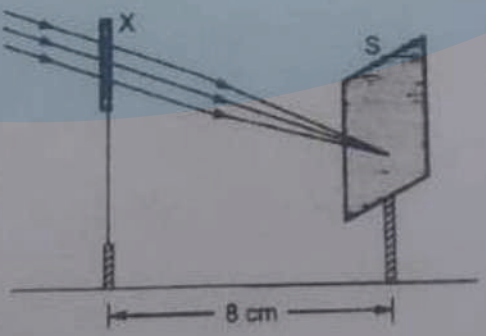
(a) outermost orbit of an atom

(b) innermost orbit of an atom

(c) nucleus of an atom

(d) None of these

(vi) A student used a device (X) to focus the image of a well illuminated distant building on a screen (S) as shown in the diagram. The device (X) is:



(a) a concave lens of focal length 8 cm.

(b) a convex mirror of focal length 8 cm.

(c) a convex lens of focal length 4 cm.

(d) a convex lens of focal length 8 cm.

(vii) If the loudness of a sound wave A is greater than sound wave B then:

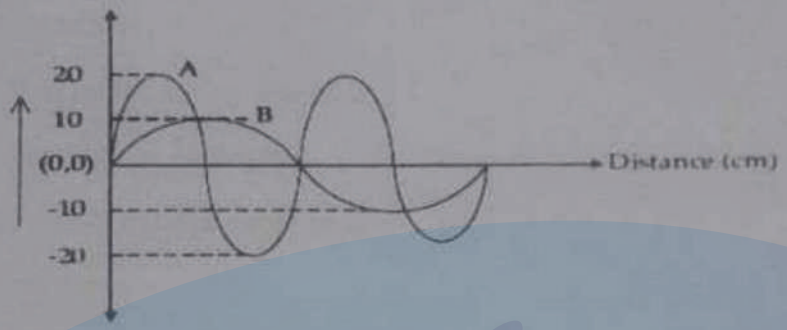
(a) The frequency of A is more than the frequency of B.

(b) The amplitude of wave B is more than the amplitude of wave A.

(c) The time period of wave A is less than the time period of wave B.

(d) The amplitude of wave A is more than the amplitude of wave B.

(viii) The figure below shows the displacement distance graph of two vibrating bodies A and B.



The ratio of amplitudes of A and B is:

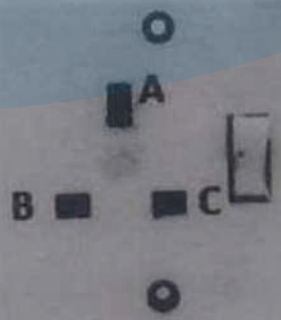
(a) 1:2

(b) 3:2

(c) 2:1

(d) 1:1

(ix) In the diagram of a socket below, A, B and C represent _____ wires respectively.



(a) live, neutral and earth

(b) earth, neutral and live

(c) neutral, earth and live

(d) earth, live and neutral

(x) A geyser is rated 1200 W, 250 V. The energy consumed by it in 12 hour is _____.

(a) 14.4 kWh

(b) 144 kWh

(c) 14400 kWh

(d) 144 Wh

(xi) Strength of a solenoid **does not** depend on:

(a) the number of turns in the coil.

(b) the colour of the wire.

(c) the current through the coil.

(d) the material of the core.

(xii) The SI unit of thermal capacity is:

(a) calorie $^{\circ}C^{-1}$

(b) $J\,K^{-1}$

(c) $J\,K$

(d) $J\,kg^{-1}\,K^{-1}$

(xiii) Substances A, B, C and D have specific heat capacities 400 $Jkg^{-1}k^{-1}$, 800 $Jkg^{-1}k^{-1}$, 1000 $Jkg^{-1}k^{-1}$ and 1200 $Jkg^{-1}k^{-1}$ respectively. If an equal amount of heat is supplied to equal masses of A, B, C & D at room temperature, which substance will attain the highest temperature?

(a) Substance A

(b) Substance B

(c) Substance C

(d) Substance D

(xiv) A ray of light passing from one transparent medium to another slows down. Then:

(a) The angle of incidence is equal to the angle of refraction.

(b) The angle of incidence is less than the angle of refraction.

(c) The angle of incidence is greater than the angle of refraction.

(d) The angle of incidence is less than or equal to the angle of refracti

(xv) What is the possible value of angle of incidence inside glass, when a ray of light incident on glass - air interface undergoes total internal reflection? Critical angle of glass air interface is 42°.

(a) 48°

(b) 40°

(c) 0°

(d) cannot be determined from the given information.

Answers : Past Year 2023 Improvement

Answers

(I) b (ii) b (iii) b (iv) c (v) c (vi) d (vii) d (viii) c

(ix) b (x) a (xi) b (xii) b (xiii) a (xiv) c (xv) a

2023

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during first **15** minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

***Section A** is compulsory. Attempt **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (40 Marks)

*(Attempt **all** questions from this **Section**.)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the questions, write the correct answers only.)

(i) Clockwise moment produced by a force about a fulcrum is considered to be:

(a) Positive

(b) Negative

(c) Zero

(d) None of these

(ii) When the speed of a moving object is *doubled*, then its *kinetic energy*:

(a) remains the same

(b) decreases

(c) is doubled

(d) becomes four times

(iii) The energy conversion in a washing machine is from _____.

(a) magnetic to electrical

(b) electrical to mechanical

(c) electrical to magnetic

(d) magnetic to electrical

(iv) Which of the following radiations suffer maximum deflection in a magnetic field?

(a) Alpha radiations

(b) Beta radiations

(c) Gamma radiations

(d) X-radiations

(v) Speed of blue light in water is:

(a) more than green light

(b) more than orange light

(c) more than violet light

(d) more than red light

(vi) A concave lens produces only _____ image.

(a) real, enlarged

(b) virtual, enlarged

(c) virtual, diminished

(d) real, diminished

(vii) When a body vibrates under a periodic force, the vibrations of the body are always:

(a) natural vibrations

(b) damped vibrations

(c) forced vibrations

(d) resonant vibrations

(viii) Two notes are produced from two different musical instruments, such that they have same loudness and same pitch. The produced notes differ in their:

(a) Waveform

(b) Frequency

(c) Wavelength

(d) Speed

(ix) When a current I flows through a wire of resistance R for time t then the electrical energy produced is given by:

(a) I^2Rt

(b) IR^2t

(c) IRt

(d) IRt^2

(x) Choose the correct relation for e.m.f. (ε) and terminal voltage V:

(a) $\varepsilon = V$ (always)

(b) $V > \varepsilon$ [always]

(c) $V < \varepsilon$ [when the cell is in use]

(d) None of these

(xi) If the strength of the current flowing through a wire is increased, the strength of the magnetic field produced by it:

(a) decreases

(b) increases

(c) remains the same

(d) first increases then decreases

(xii) **Specific** latent heat of a substance:

(a) is directly proportional to the mass

(b) is directly proportional to the change in the temperature

(c) depends on the material

(d) is inversely proportional to the mass

(xiii) Specific heat capacity of a substance X is 1900 $Jkg^{-1}\ ^oC^{-1}$ means:

(a) Substance X absorbs 1900 J for 1°C rise in temperature

(b) 1 kg of substance X absorbs 1900 J heat for 1°C rise in temperature

(c) 1 kg of substance X absorbs 1900 J heat to increase the temperature

(d) 1 kg of substance X absorbs 1900 J heat to cool down by 1°C

(xiv) When a ray of light travels normal to the given surface, then the angle of refraction is:

(a) 180°

(b) 90°

(c) 0°

(d) 45°

(xv) Small air bubbles rising up a fish tank appear silvery when viewed from some particular angle is due to the:

(a) reflection

(b) refraction

(c) dispersion

(d) total internal reflection

Answers : Past Year 2023

Answers

(I) b (ii) d (iii) b (iv) b (v) c (vi) c (vii) c (viii) a

(ix) a (x) c (xi) b (xii) c (xiii) b (xiv) c (xv) d

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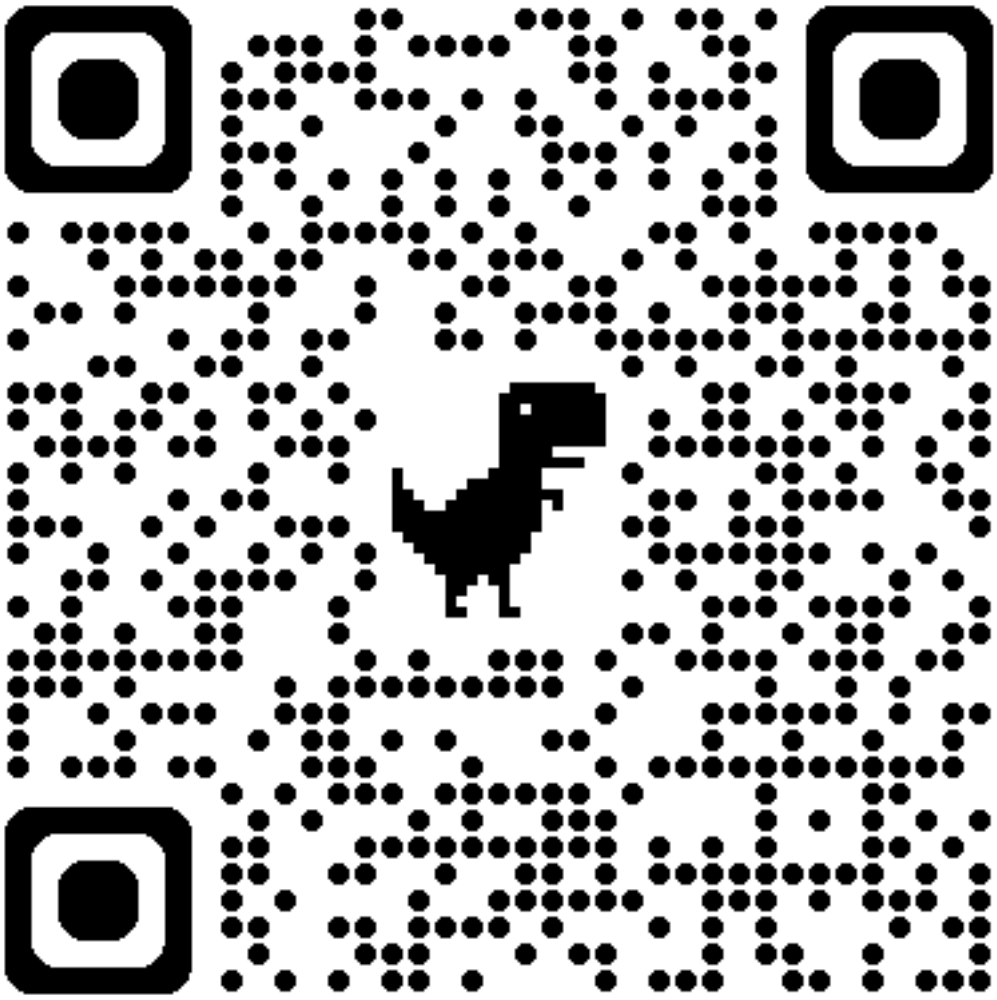

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