



6th All India RPS
OLYMPIAD
 2024-25



QUESTION PAPER

M.M:60

Time: 60 minutes

OFFLINE EXAMINATION (PHASE-II)

CLASS - IX

Name: _____ **Reg. No.** _____ **Mobile No.** _____

General Instructions:

1. Duration of the examination is 60 minutes. Question Paper contains 60 questions with maximum 60 marks.
2. There will be negative marking in Phase – II, i.e. $\frac{1}{4}$ mark will be deducted for each incorrect answer.
3. Use of gadgets is not allowed.
4. Students must abide by the instructions issued during the examination by the invigilator or the centre incharge.
5. Before attempting the question paper ensure that it contains all pages & no question is missing.
6. Immediately fill in the particulars on this page of the test booklet and OMR with BLACK ballpoint pen only. Use of pencil is strictly prohibited.
7. Fill and darken the bubbles completely. Do not put a tick or a cross.
8. Half –filled or over-filled bubbles will not be read by the software & liable to be rejected.

Correct Method



Student's Signature

Wrong Method



Invigilator's Signature

SPACE FOR ROUGH WORK

ENGLISH (10 Marks)

Choose the correct option:-

- Q1. A person without kind feeling and sympathy _____.**
 (a) Caricature (b) Cacophony (c) Cache (d) Callous
- Q2. Which part of the sentence in the given options has an error? Choose option (d) if you don't find any error.**
 (a) Katherine is fine now. (b) She no longer has to worry
 (c) and she need not to take this medicine. (d) No error
- Q3. Julius Caesar but not his followers _____ assassinated.**
 (a) are (b) has been (c) have been (d) was been
- Q4. By next Monday, he _____ staying at my uncle's house for three weeks.**
 (a) will have (b) will have been (c) shall have (d) shall have been
- Q5. I swore allegiance to the crown. (Find the figure of speech).**
 (a) Simile (b) Metaphor (c) Paradox (d) Metonymy
- Q6. Akash said to Jim, "You did not take my book, did you?"**
(Choose the indirect speech).
 (a) Akash asked Jim that he had not taken my book did he.
 (b) Akash asked Jim if he had taken his book.
 (c) Akash asked Jim if he had not taken his book.
 (d) Akash asked Jim if he had taken his book, had he?
- Q7. 'Fall in with' means _____.**
 (a) quarrel (b) agree (c) disagree (d) cheat
- Q8. She came in _____ an English song.**
 (a) sing (b) sang (c) singing (d) sings
- Q9. He went to _____ campus which is _____ USA based university.**
 (a) a, an (b) the, the (c) a, the (d) the, a
- Q10. Had our flights been on time, we _____ reached by now.**
 (a) could have (b) would have (c) might have (d) need to

Mathematics (20 Marks)

Q11. A field is in shape of a trapezium whose parallel sides are 50 m & 15 m. The non-parallel sides are 20 m & 25 m. Find the area of trapezium.

- (a) $\frac{130\sqrt{6}}{7} m^2$ (b) $\frac{1300\sqrt{6}}{7} m^2$ (c) $\frac{13000}{7}\sqrt{6} m^2$ (d) $\frac{13}{7}\sqrt{6} m^2$

Q12. Three cubes of metal whose edges are 3 cm, 5 cm and 8 cm respectively are melted & formed into a single cube. If there be no loss of metal in process then surface area of new cube so formed is –

- (a) $6(664)^{\frac{1}{3}} cm^2$ (b) $6(544)^{\frac{2}{3}} cm^2$ (c) $6(664)^{\frac{2}{3}} cm^2$ (d) $6(774)^{\frac{2}{3}} cm^2$

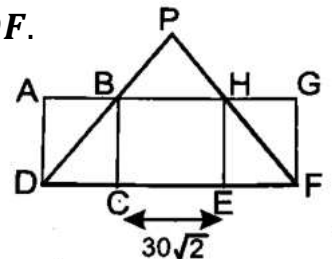
Q13. If area of base of a cone is $770 cm^2$ and curved surface area is $814 cm^2$, then its volume is:–

- (a) $616\sqrt{5} cm^3$ (b) $\frac{616}{\sqrt{5}} cm^3$ (c) $616\sqrt{3} cm^3$ (d) $616\sqrt{2} cm^3$

Q14. The sum of all the relative frequencies in a sample is equal to:–

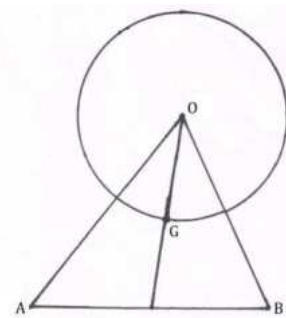
- (a) the sample size (b) one (c) infinity (d) none of these

Q15. In the given figure, ABCD and EFGH are two congruent squares and $\angle DPF = 90^\circ$. If $BD = 20 cm$, then find the perimeter of $\triangle PDF$.



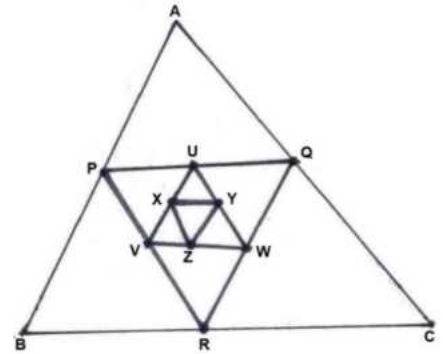
- (a) $100 + 30\sqrt{2}$ (b) $50 + 30\sqrt{2}$ (c) $50 + 50\sqrt{2}$ (d) $100 + 50\sqrt{2}$

Q16. In the given figure, G is a point on the circle is the centroid of $\triangle OAB$. Find the ratio of areas of circle to the area of equilateral $\triangle OAB$.



- (a) $44 : 7\sqrt{3}$ (b) $88 : 7\sqrt{3}$ (c) $88 : 21\sqrt{3}$ (d) $44 : 21\sqrt{3}$

Q17. If P, Q, R are the mid points of sides AB, AC & BC of ΔABC respectively. U, V, W are the mid points of sides PQ, PR and QR of ΔPQR respectively. X, Y, Z are the mid points of sides UV, UW and VW of ΔUVW respectively, then:—



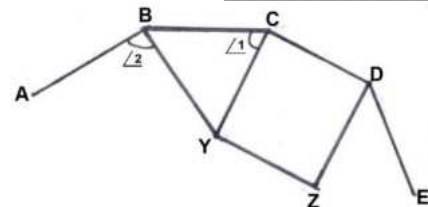
- (a) $\text{ar } \Delta XYZ = \frac{1}{16} \text{ar } (\Delta ABC)$ (b) $\text{ar } (\Delta XYZ) = \frac{1}{64} \text{ar } (\Delta ABC)$
 (c) $\text{ar } \Delta XYZ = \frac{1}{256} \text{ar } (\Delta ABC)$ (d) $\text{ar } (\Delta XYZ) = \frac{1}{512} \text{ar } (\Delta ABC)$

Q18. Each side of a rhombus is 20 cm and its shorter diagonal is $\frac{3}{4}$ longer diagonal. If the cost of colouring is ₹ 10.25/cm² then find the total cost of colouring.

- (a) ₹ 3936 (b) ₹ 4946 (c) ₹ 5956 (d) ₹ 6996

Q19. If ABCDEFGH _____ is a regular polygon with interior angle measurement 148° and CDZY is square, then $\angle 1$ and $\angle 2$ are _____.

- (a) $87^\circ, 58^\circ$ (b) $58^\circ, 87^\circ$
 (c) $78^\circ, 85^\circ$ (d) $85^\circ, 78^\circ$



Q20. If $x^y = y^x$, then the value of $\left(\frac{x}{y}\right)^{\frac{x}{y}} - \left(x^{\frac{x}{y}-1}\right)$ is:

- (a) 0 (b) 1 (c) $x^{\frac{x}{y}}$ (d) $\frac{1}{x^{\frac{x}{y}}}$

Q21. Find the square root of $14 - 6\sqrt{5}$.

- (a) $3 + \sqrt{5}$ (b) $3 - \sqrt{5}$ (c) $6 + \sqrt{5}$ (d) $6 - \sqrt{5}$

Q22. The four corners of a square of side $(\sqrt{2} + 1)$ cm is cut off to form a regular octagon. Find the perimeter of the octagon.

- (a) $8(\sqrt{2} - 1)$ (b) $8(\sqrt{2} + 1)$ (c) 8 (d) 24

Q23. If the difference and the sum of two expressions are $x^2 + 9x - 10$ and $5x^2 - x - 4$ respectively, then what is their HCF?

- (a) $(x - 1)$ (b) $(x - 1)(3x + 7)$ (c) $(x - 1)(2x - 3)$ (d) $2x - 3$

Q24. If $y^2 + y - 1 = 0$, then the value of $\frac{y^5+18}{y+3}$ is:

- (a) 5 (b) 7 (c) 11 (d) 13

Q25. Twice the measure of the supplement of an angle is added to three times the measure of the complement of the same angle is equal to the measure of an interior angle of a regular nine sided polygon. The measure of the supplement of the angle is-

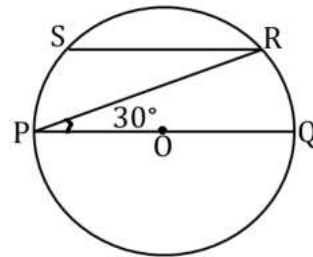
- (a) 82° (b) 108° (c) 98° (d) 72°

Q26. KITE is a rectangle in which $KI \parallel TE$ and $KE \parallel IT$. If W, X, Y and Z be respectively the mid-points of IK, IE, TE and TK, then WXYZ is a _____.

- (a) Parallelogram (b) Rectangle (c) Square (d) Rhombus

Q27. In the given figure, PQ is a diameter of the circle with centre O and $RS \parallel QP$. If $\angle RPQ = 30^\circ$, find the value of $\angle SQR$.

- (a) 15° (b) 30°
(c) 60° (d) 45°



Q28. Find the angle between the lines $13 + y = 0$ and $17 - x = 0$.

- (a) 0° (b) 60° (c) 90° (d) 180°

Q29. Find the image of point $(-2, 2)$ under the line $x - y = 0$.

- (a) $(-3, 3)$ (b) $(3, -3)$ (c) $(-2, 2)$ (d) $(2, -2)$

Q30. A square board of side length 5 cm, standing vertically is tilted to the left so that the bottom-right corner is raised 3 cm from the ground. By what distance is the top-left corner lowered from its original position?

- (a) 1 cm (b) 2 cm (c) 3 cm (d) 2.5 cm

Social Science [10 Marks]

Q31. Which of the following statement/s is/are not correct about Liberals?

- (i) Liberals also opposed the uncontrolled power of dynastic rulers.
(ii) They wanted a nation in which government was based on the majority of a country's population.
(iii) They wanted to safeguard the rights of individuals against government.
(iv) They supported women's suffragette movement.

- (a) Only (i) and (ii) (b) Only (i) and (iii)
(c) Only (ii) and (iii) (d) Only (ii) and (iv)

Q32. Match the Column I with Column II and choose the correct option:

	Column I (Events)		Column II (Dates)
(i)	An Assembly of the Estates General passed proposal for new taxes.	(A)	5 May, 1789
(ii)	The third estate people assembled in the hall of an indoor Tennis Court.	(B)	April, 1792
(iii)	The National Assembly voted to declare war against Prussia and Austria.	(C)	20 June, 1789
(iv)	The Assembly passed a decree abolished the feudal system of obligations and taxes.	(D)	4 August, 1789

(a) (i) – A, (ii) – C, (iii) – D, (iv) – B

(b) (i) – D, (ii) – C, (iii) – B, (iv) – A

(c) (i) – A, (ii) – C, (iii) – B, (iv) – D

(d) (i) – C, (ii) – B, (iii) – D, (iv) – A

Q33. Match the Column I and Column II and choose the correct option.

	Column I (River's Name)		Column II (River's Length)
(i)	Mahanadi River	(A)	1400 km.
(ii)	Krishana River	(B)	860 km.
(iii)	Kaveri River	(C)	1500 km.
(iv)	Godavari River	(D)	760 km.

(a) (i) – A, (ii) – B, (iii) – C, (iv) – D

(b) (i) – B, (ii) – A, (iii) – D, (iv) – C

(c) (i) – B, (ii) – A, (iii) – C, (iv) – D

(d) (i) – A, (ii) – B, (iii) – D, (iv) – C

Q34. Some statements are given below:–

- (i) Tropical Deciduous forests are the most widespread forests of India.
- (ii) They are also called the monsoon forest.
- (iii) This type of forests is found in the North-Western parts of the country.
- (iv) In these forests, common animals are rats, mice, rabbits, fox, wolf, tiger, lion, wild ass, horses and camels.

Which of the above statements are true about Tropical Deciduous forests?

(a) Only (i) and (ii)

(b) Only (i) and (iii)

(c) Only (i) and (iv)

(d) Only (iii) and (iv)

Q35. Mango showers occur in which of the following states of India?

- (a) Bihar and West Bengal (b) Tamil Nadu and Andhra Pradesh
(c) Maharashtra and Andhra Pradesh (d) Karnataka and Kerala

Q36. Which one of the following cannot be regarded as building of human capital in a country?

- (a) Spending resources on education (b) Providing training of industrial workers
(c) Increase salary of workers (d) Providing health facilities

Q37. Match the Column I with Column II and choose the correct option.

	Column I (Name of Scheme)		Column II (Year of Introduction)
(i)	Revamped Public Distribution System (RPDS)	(A)	1997
(ii)	Targeted Public Distribution System (TPDS)	(B)	1992
(iii)	Antyodaya Anna Yojana (AAY)	(C)	2000
(iv)	National Food Security Act (NFSA)	(D)	2013

- (a) (i) – A, (ii) – B, (iii) – C, (iv) – D (b) (i) – B, (ii) – A, (iii) – C, (iv) – D
(c) (i) – B, (ii) – D, (iii) – C, (iv) – A (d) (i) – A, (ii) – D, (iii) – C, (iv) – B

Q38. If you are elected as the President of India, which of the following decisions can you take on your own?

- (a) Select the person you like as Prime Minister.
(b) Dismiss a Prime Minister who has a majority in the Lok Sabha.
(c) Ask for reconsideration of a bill passed by both the houses.
(d) Nominate the leaders of your choice to the Council of Ministers.

Q39. Mountain ranges in the eastern part of India forming its boundary with Myanmar are collectively called as –

- (a) Himachal (b) Purvanchal (c) Uttarakhand (d) None of these

Q40. Which of the following pair is not correctly matched?

	Column I		Column II
(a)	Abdul Kalam Azad		Education Minister in the First Union Cabinet
(b)	Rajendra Prasad		First President of India
(c)	G. Durgabai Deshmukh		Founder President of Adivasi Maha Sabha
(d)	Jaipal Singh		Founder of Jharkhand Party

Physics (7 Marks)

Q41. A body starts from rest from a point distance R_0 from the centre of the earth. The velocity acquired by the body when it reaches the surface of the earth will be- (R represents radius of the earth & M mass of the earth).

(a) $2 GM \left(\frac{1}{R} - \frac{1}{R_0} \right)$

(b) $\sqrt{2 GM \left(\frac{1}{R_0} - \frac{1}{R} \right)}$

(c) $GM \left(\frac{1}{R} - \frac{1}{R_0} \right)$

(d) $2GM \sqrt{\left(\frac{1}{R_0} - \frac{1}{R} \right)}$

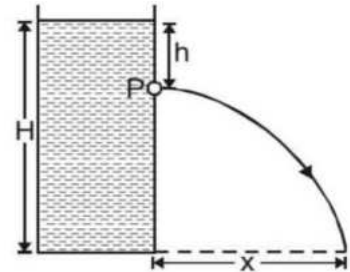
Q42. A tank is filled with water upto a height $H = 20$ m. Water is allowed to come out a hole P in one of the walls at a height 15 m above the bottom of the tank (see fig.). The horizontal distance X is-

(a) 15.34 m

(b) 16.30 m

(c) 17.32 m

(d) 18.28 m



Q43. The speed of sound in a medium depends on _____.

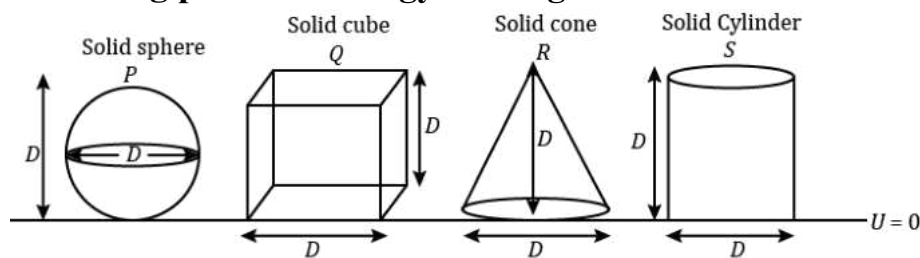
(a) the elastic property but not on the inertia property

(b) the inertia property but not on the elastic property

(c) the elastic property as well as the inertia property

(d) neither the elastic property nor the inertia property

Q44. Assuming potential energy 'U' at ground level to be zero.



All objects are made up of same material.

U_P = Potential energy of solid sphere

U_Q = Potential energy of solid cube

U_R = Potential energy of solid cone

U_S = Potential energy of solid cylinder

(a) $U_S > U_P$

(b) $U_Q < U_S$

(c) $U_P > U_Q$

(d) $U_P > U_S$

Q45. When force $\vec{F}_1, \vec{F}_2, \vec{F}_3 \dots \vec{F}_n$ act on a particle, the particle remains in equilibrium. If \vec{F}_1 is now removed then acceleration of the particle is:

(m – mass of an object)

- (a) $\frac{\vec{F}_1}{m}$ (b) $-\frac{\vec{F}_1}{m}$ (c) $-\frac{\vec{F}_1 + \vec{F}_3 + \dots \vec{F}_n - \vec{F}_1}{m}$ (d) $\frac{\vec{F}_2}{m}$

Q46. Assume that a car is able to stop with a retardation of 8 ms^{-2} and that a driver can react to an emergency in 0.5 sec. The overall stopping distance of the car for a speed of 60 km^{-1} of the car is:

- (a) 17.36 m (b) 25.69 m (c) 8.33 m (d) 30 m

Q47. The speed of sound will be maximum in _____.

- (a) Humid air at 25°C (b) Dry air at 25°C
(c) Humid air at 5°C (d) Dry air at 5°C

Chemistry (7 Marks)

Q48. Sucrose solution which is 40% by mass is heated till it becomes 50% by mass. Water lost from 100 g of the solution is _____.

- (a) 10 g (b) 15 g (c) 20 g (d) 25 g

Q49. What is the mass of precipitate formed when 50 mL of 16.9% solution of silver nitrate is mixed with 50 mL of 5.8% NaCl solution?

(Ag = 107.8, N = 14, O = 16, Na = 23, Cl = 35.5)

- (a) 7 g (b) 14 g (c) 28 g (d) 3.5 g

Q50. How many subatomic particles are present in an α -particle used in Rutherford's scattering experiment?

	No. of Protons	No. of Neutrons	No. of Electrons
(a)	4	0	0
(b)	2	2	2
(c)	2	2	0
(d)	2	2	1

Q51. At 283 K a saturated solution of solid X can be prepared by dissolving 21.0 g of it in 100 g of water. The maximum amount of X which can be dissolved in 100 g of water at 313 K is 62.0 g. An attempt is made to dissolve 50.0 g of X in 100 g of water at 313 K. Which of the following statements are correct?

- (A) All the 50.0 g of X will dissolve at 313 K.
(B) At 313 K 29.0 g of X will remain undissolved.
(C) Solubility of X decrease with increase of temperature.

(D) On cooling the solution of X from 313 K to 283 K more than 21.0 g of X will crystallize out .

- (a) A and B (b) A and D (c) B and C (d) A, C and D

Q52. If the nitride of a metal M has the formula MN, what is the formula of its sulphide, carbonate and chloride?

- (a) M_2S_3 , $M_2(CO_3)_3$, MCl (b) MS_3 , M_2CO_3 , MCl_3
 (c) MS , $M(CO_3)_3$, MCl (d) M_2S_3 , $M_2(CO_3)_3$, MCl_3

Q53. Elements X and Y have octet configuration in their L - shell after forming stable dipositive and dinegative ions respectively. The respective electronic configuration of the succeeding element of X and the preceding element of Y are

- (a) 2 , 7 and 2, 5 (b) 2, 8, 3 and 2, 5 (c) 2, 5 and 2, 8, 3 (d) 2, 8, 1 and 2, 7

Q54. Two elements A and B contain 13 and 8 proton respectively. If the number of neutrons in them happen to be 14 and 8 respectively, the formula unit mass for the compound between A and B unit would be-

- (a) 43 (b) 75 (c) 102 (d) 112

Biology (6 Marks)

Q55. *Cyperus rotundus* take up nutrients, compete for space, food and light thus reducing the growth of crop plants is locally known as _____.

- (a) Gajar Ghas (b) Motha (c) Gokhroo (d) Doob

Q56. Sun hemp or guar are mulched by ploughing them into soil and turn into green manure, which enriches the soil in _____ and _____.

- (a) Calcium, Phosphorus (b) Magnesium, Phosphorus
 (c) Nitrogen, Phosphorus (d) Nitrogen, Calcium

Q57. Cardiac muscles show rhythmic contraction and relaxation throughout life. Which one of the following is correct about heart muscles?

- (a) cylindrical, branched and uninucleate
 (b) cylindrical, unbranched and uninucleate
 (c) cylindrical, branched and multinucleate
 (d) cylindrical, unbranched and multinucleate

Q58. The husk of a coconut is made up of _____.

- (a) parenchymatous tissue (b) sclerenchymatous tissue
(c) collenchymatous tissue (d) chlorenchymatous tissue

Q59. The internal organisation of the chloroplast consists of numerous membrane layers embedded in material called stroma, these are similar to _____ in external structure.

- (a) nucleus (b) golgi body (c) vacuole (d) mitochondria

Q60. Camillo Golgi carried out a revolutionary method of staining individual nerve and cell structures. This method is referred to as _____.

- (a) Black Reaction (b) Dark Reaction (c) Light Reaction (d) Hill's Reaction

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