



Phase – II

Question Paper

Class - X

M.M:60

Time: 60 Minutes

OFFLINE EXAMINATION (PHASE-II)

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 the particulars on this page of the test booklet and **OMR** with **BLACK** ballpoint pen only. Use of pencil is strictly prohibited.
7. Darken the bubbles completely. Do not put a tick or a cross . Fill the bubbles completely.
8. Half –filled or over-filled bubbles will not be read by the software & liable to be rejected.

Correct Method



Wrong Method



Student's Signature

Invigilator's Signature

SPACE FOR ROUGH WORK

English (10 Marks)

Q1. Fill in the blanks with the correct option.

By chance, my cousin met English who was speaking Hindi.

- (a) no article, a (b) a, the (c) the, no article (d) the, the

Q2. No sooner did I leave the office than it begins to rain. (Improve the underlined part of the sentence). Choose option d if the sentence is correct.

- (a) it began to rain. (b) it been rain
(c) it had began to rain (d) the given sentence is correct

Q3. Select the indirect speech of the given sentence.

Abhishek said to the chairman, " Pardon me, Sir."

- (a) Abhishek requested the chairman and called him sir.
(b) Abhishek respectfully sought the chairman's pardon.
(c) Abhishek told the chairman for pardon respectfully.
(d) Abhishek pardoned the chairman calling his sir.

Q4. Select the indirect speech of the given sentence.

Anant said to his brother, "Where were you yesterday?"

- (a) Anant told his brother that where he had been the previous day.
(b) Anant asked his brother if where he was the previous day
(c) Anant asked his brother where had he been the previous day.
(d) Anant asked his brother where he had been the previous day.

Q5. Fill in the blank with the correct modal.

He come to know everything if he read this letter.

- (a) will (b) would (c) should (d) need to

Q6. Fill in the blank with the correct verb.

He is not used to idle.

- (a) sit (b) sat (c) sitting (d) seat

Q7. Fill in the blank with the correct verb.

Before I reached there he the clothes.

- (a) has already hanged (b) had already hanged
(c) has already hung (d) had already hung.

Q8. Fill in the blank with the correct option.

He is really an honest person. He never from his promise.

- (a) backs out (b) backs off (c) backs over (d) backs in

Q9. 'To be in vogue' means –

- (a) Severe hand (b) Rigid (c) To be in fashion (d) To be in prison

Q10. 'Hobson's choice' means –

- (a) No choice at all (b) Full details
(c) Not proper to the occasion (d) To observe the rules

Mathematics (20 Marks)

Q11. What is the sum of divisors of 600.

- (a) 2821 (b) 2820 (c) 1860 (d) 1840

Q12. Given that $xyz + xy + xz + yz + x + y + z = 384$.

Find the value of $x + y + z$, if they are all positive integers.

- (a) 15 (b) 25 (c) 30 (d) 20

Q13. Given that $1 + 2r + 3r^2 + 4r^3 + \dots + \infty = \frac{49}{4}$. Find r

- (a) $\frac{5}{7}$ (b) $\frac{-5}{7}$ (c) $\frac{2}{7}$ (d) $\frac{-2}{7}$

Q14. The length of the direct common tangent of two unequal circles is 14 cm and the transverse tangent is 10 cm. If the radius of the smaller circle is 3 cm. Find the radius of the bigger circle.

- (a) 6 cm (b) 8 cm (c) 4 cm (d) 5 cm

Q15. A $(1, \sqrt{5})$, B $(5, \sqrt{5})$ and C $(1, -\sqrt{5})$ form a triangle. Find the co-ordinates of the circumcentre.

- (a) (3,0) (b) (5,0) (c) (0,3) (d) (0,5)

Q16. There are 40 consecutive integers. Two integers are selected at random. Find the probability that their sum is odd.

- (a) $\frac{15}{39}$ (b) $\frac{10}{39}$ (c) $\frac{20}{39}$ (d) $\frac{14}{39}$

Q17. If α, β, γ are the roots of the equation $x^3 + 4x + 1 = 0$, then $(\alpha + \beta)^{-1} + (\beta + \gamma)^{-1} + (\gamma + \alpha)^{-1}$ is equal to :

- (a) 2 (b) 3 (c) 4 (d) 5

Q18. If $x^2 + mx + n = 0$ and $x^2 + px + q = 0$ have a common root, then the common root is :

- (a) $\frac{q-n}{m-p}$ (b) $\frac{q-n}{m+p}$ (c) $\frac{q+n}{m+p}$ (d) $\frac{p+q}{m+n}$

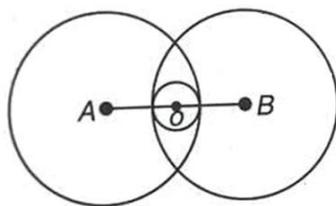
Q19. In ΔABC , $AB = AC$. P and Q are points on AC and AB respectively such that $CB = BP = PQ = QA$. Then $\angle AQP = ?$

- (a) $\frac{2\pi}{7}$ (b) 3π (c) $\frac{5\pi}{7}$ (d) $\frac{4\pi}{7}$

Q20. The interior angles of a polygon are in A.P. The smallest angle is 120° and the common difference is 5° . The number of sides of the polygon is ?

- (a) 8 (b) 9 (c) 12 (d) 19

- Q21. Two circles with radii 'a' and 'b' respectively touch each other externally. Let 'c' be the radius of a circle that touches these two circles as well as a common tangent to the circles, then
- (a) $\frac{1}{\sqrt{a}} - \frac{1}{\sqrt{b}} = \frac{1}{\sqrt{c}}$ (b) $\frac{1}{\sqrt{a}} - \frac{1}{\sqrt{b}} = \frac{-1}{\sqrt{c}}$ (c) $\frac{1}{\sqrt{a}} + \frac{1}{\sqrt{b}} = \frac{1}{\sqrt{c}}$ (d) $\frac{1}{\sqrt{b}} + \frac{1}{\sqrt{c}} = \frac{1}{\sqrt{a}}$
- Q22. The angle of elevation of the top of a tree at a point E due east of the tree is 60° and that at a point F due west of the tree is 30° . If the distance between the points E and F is 160 ft, then what is the height of the tree ?
- (a) $40\sqrt{3}$ ft. (b) 60 ft. (c) 40 ft. (d) $60\sqrt{3}$ ft.
- Q23. A 36° sector of a circle has area 3.85 cm^2 . What is length of the arc of the sector ?
- (a) 1.1 cm (b) 3.5 cm (c) 5 cm (d) 2.2 cm
- Q24. A right Pyramid 10 cm high has a square base of which diagonal is 10 cm. What is the whole surface area of the pyramid ? (In cm^2 approximately).
- (a) 100 (b) 200 (c) 300 (d) 400
- Q25. A child consumed an ice-cream of inverted right-circular conical shape from the top and left 12.5% of the cone for her mother. If the height of the ice-cream cone was 8 cm, what is the height of remaining ice-cream cone ?
- (a) 2.5 cm (b) 3 cm (c) 3.5 cm (d) 4 cm
- Q26. If $\sum_{x=1}^{24} \frac{1}{\sqrt{x+1} + \sqrt{x}} = a + \sqrt{b}$, then value of a is ?
- (a) 1 (b) 2 (c) 3 (d) 4
- Q27. Given that k is root of $x^4 + x^2 = 1$, Find the value of $(k^6 + 2k^4)^4$?
- (a) 16 (b) 81 (c) 1 (d) 256
- Q28. If $a \cos \theta + b \sin \theta = m$ and $a \sin \theta - b \cos \theta = n$, then $a^2 + b^2$?
- (a) 4 (b) $m + n$ (c) $m^2 + n^2$ (d) $m^2 + n^2 + mn$
- Q29. Find the remainder when 3^{73} is divided by 7.
- (a) 1 (b) 2 (c) 3 (d) 4
- Q30. There are two circles intersecting each other. Another smaller circle with centre O, is lying between the common region of the two larger circles. Centres of the circles (i. e. A, O, B) are lying on a straight line. $AB = 16 \text{ cm}$ and the radii of the large circles are 10 cm each. What is the area of the smaller circle ?



- (a) $4\pi \text{ cm}^2$ (b) $2\pi \text{ cm}^2$ (c) $6\pi \text{ cm}^2$ (d) $8\pi \text{ cm}^2$

Social Science (10 Marks)

Q31. Match the following incidents with its occurred years.

Column I (Incidents)

Column II (Years)

- | | |
|---|---------------|
| 1. Napoleon invaded Italy | (A) 1821 |
| 2. Greek struggle for independence begins | (B) 1797 |
| 3. Unification of Germany | (C) 1905 |
| 4. Slav nationalism gathers force in Habsburg and Ottoman Empires | (D) 1866 – 71 |

- | | |
|--------------------------------|--------------------------------|
| (a) 1 – A, 2 – B, 3 – D, 4 – C | (b) 1 – B, 2 – A, 3 – D, 4 – C |
| (c) 1 – B, 2 – A, 3 – C, 4 – D | (d) 1 – A, 2 – B, 3 – C, 4 – D |

Q32. The Federation of the Indian Chamber of Commerce and Industries (FICCI) was formed in –

- (a) 1927 (b) 1928 (c) 1929 (d) 1930

Q33. Which of the following pairs of statements are incorrect ?

- (1) India is rich in production of copper
(2) Bauxite is formed by decomposition of wide variety of rocks rich in aluminium silicates.
(3) Haryana is the leading producer of Bauxite
(4) Mica is the most indispensable minerals used in electrical and electronic industries

- (a) (1) and (2) (b) (1) and (3) (c) (2) and (4) (d) (1), (2) and (3)

Q34. When did the first Jute Mill set up near Kolkata at Rishra ?

- (a) 1855 (b) 1857 (c) 1858 (d) 1859

Q35. The Arid soil lacks humus and moisture which of the following is/are an appropriate reason for the same ?

- (1) High rainfall (2) High temperature (3) Dry Climate (4) Faster Evaporation
(a) Only 1 and 2 (b) Only 2 and 3 (c) Only 1, 2 and 4 (d) Only 2, 3 and 4

Q36. What is the main source of income of a bank ?

- (a) Bank charges that the depositors pay for keeping their money safe is the main source of the banks income.
(b) The difference between what is charged from the barrowers and paid to the depositors is the main source of banks income.
(c) Banks earn huge amounts of money by investing the money of the depositers in various company shares.
(d) The government of India gives huge amounts of money to the banks to help their smooth functioning.

Q37. Which of the following is not applicable for a worker, who works in the Organised Sector ?

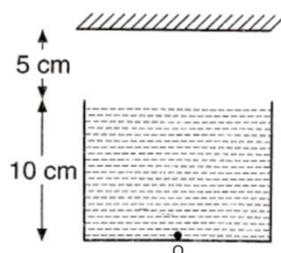
- (a) She gets a regular salary at the end of the month
(b) She is not paid for leave
(c) She gets medical allowance
(d) She got an appointment letter stating the terms and conditions of work when she joins work.

- Q38. Different arguments are usually put forth in favour of and against power sharing. Identify those which are in favour of power sharing and select the answer using the codes given below? Power sharing:-
- A. reduces conflict among different communities
 - B. decreases the possibility of arbitrariness
 - C. delays decision making process
 - D. accommodates diversities
 - E. increases instability and divisiveness
 - F. promotes people's participation in government
 - G. undermines the unity of a country
- (a) A, B, D, F (b) A, C, E, F (c) A, B, D, G (d) B, C, D, G
- Q39. Consider the following statements on the meaning of Communal Politics. Communal politics is based on the belief that:-
- A. One religion is superior to that of others.
 - B. People belonging to different religions can live together happily as equal citizens.
 - C. Followers of a particular religion constitute one community.
 - D. State power cannot be used to establish the domination of one religious group over others.
- Which of the statements given above is/are correct?
- (a) A, B, C and D (b) A, B and D (c) A and C (d) B and D
- Q40. Consider the following statements on Political Parties :-
- A. Political parties do not enjoy much trust among the people.
 - B. Parties are often rocked by scandals involving top party leaders.
 - C. Parties are not necessary to run Governments.
 - D. There are three components of a political party – the leaders, active members and the followers.
- Which of the statements given above is/are correct ?
- (a) A, B and C (b) A, B and D (c) B and C (d) A and C

Science (20 Marks) Phy. + Chem. + Bio.

Physics (7)

- Q41. Consider the situation shown in figure. Water ($\mu_w = 4/3$) is filled in a beaker upto a height of 10 cm. A plane mirror is fixed at a height of 5 cm from the surface of water. Distance of image from the mirror after reflection from it of an object O at the bottom of the beaker is :

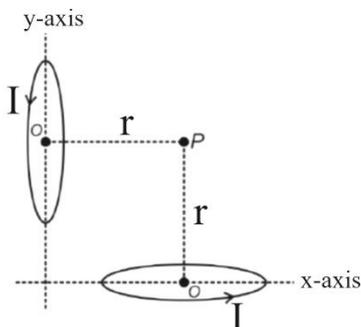


- (a) 15 cm (b) 12.5 cm (c) 7.5 cm (d) 10 cm

Q42. A beam of light is converging towards a point I on a screen. A plane parallel plate of glass whose thickness in the direction of beam = t , refractive index = μ , is introduced in the path of the beam. The convergence point is shifted by :

- (a) $t\left(1 - \frac{1}{\mu}\right)$ (b) $t\left(2 + \frac{1}{\mu}\right)$ (c) $t\left(1 - \frac{1}{\mu^2}\right)$ (d) $t\left(1 + \frac{2}{\sqrt{\mu}}\right)$

Q43. Two current loops (similar) are placed with their planes one along x-axis and the other along y-axis. Then, the ratio of resultant magnetic field at point 'P' due to both loops to that of due to either one of the loop will be :

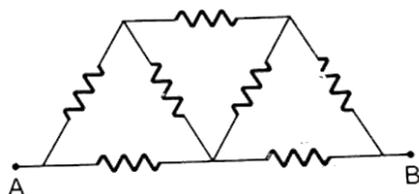


- (a) $\sqrt{2} : 1$ (b) $1 : \sqrt{2}$ (c) $3 : 2$ (d) $\sqrt{3} : \sqrt{2}$

Q44. A proton, a deuteron and an α particle having same kinetic energy are moving in circular trajectories in a constant magnetic field. If r_p, r_d and r_α denote respectively the radii of trajectories of these particles, then

- (a) $r_\alpha = r_p < r_d$ (b) $r_\alpha > r_p > r_d$ (c) $r_\alpha = r_d > r_p$ (d) $r_p = r_d = r_\alpha$

Q45. In the network shown in the following figure, each resistance is 1 ohm. The effective resistance between A and B is :



- (a) $(4/3)\Omega$ (b) $(3/2)\Omega$ (c) 7Ω (d) $(8/7)\Omega$

Q46. Long-sighted people who have lost their spectacles can still read a book by looking through a small (3–4mm) hole in a sheet of paper :

- (a) because in doing so the distance of the object is decreased
 (b) because in doing so the distance of the object is increased
 (c) because in doing so the focal length of the eye lens is effectively decreased
 (d) because in doing so the focal length of the eye lens is effectively increased

Q47. Two conductors are made of the same material and have the same length. Conductor A is a solid wire of diameter 1 mm. Conductor B is a hollow tube of outer diameter 2 mm and inner diameter 1 mm. Find the ratio of resistance R_A to R_B .

- (a) $1 : 3$ (b) $3 : 1$ (c) $2 : 1$ (d) $1 : 2$

Chemistry (7)

Q48. Consider the following statements :

In the chemical reaction



- (1) Manganese is oxidised (2) Manganese is reduced
(3) Chlorine is oxidised (4) Chlorine is reduced

Which of these statements are correct

- (a) 1 and 3 (b) 1 and 4 (c) 2 and 3 (d) 2 and 4

Q49. Which of the following statement is false?

- (a) CaOCl_2 gives OH^- , Cl^- and OCl^- in aqueous solution
(b) Diamond and graphite are allotropes of carbon
(c) Bleaching action of Cl_2 in moist condition is not permanent
(d) Calomel is Hg_2Cl_2

Q50. The resulting solution obtained at the end of electrolysis of concentrated aqueous solution of NaCl

- (a) Turns red litmus into blue (b) Turns blue litmus into red
(c) Remains colourless with phenolphthalein (d) The colour of red or blue litmus does not change

Q51. Match column I with column II and select the correct option from the given codes.

Column I

- (1) Cs
(2) Ga
(3) B
(4) Si

Column II

- (p) High temperature thermometer
(q) Water-repellent sprays
(r) Photoelectric cells
(s) Bullet-proof vests

- (a) 1-r, 2-p, 3-s, 4-q (b) 1-r, 2-s, 3-q, 4-p (c) 1-q, 2-r, 3-s, 4-p (d) 1-p, 2-s, 3-q, 4-r

Q52. What are the products formed in sequence when excess of CO_2 is passed in slaked lime?

- (a) CaO , CaCO_3 (b) $\text{Ca}(\text{HCO}_3)_2$, CaCO_3
(c) CaCO_3 , $\text{Ca}(\text{HCO}_3)_2$ (d) CaO , $\text{Ca}(\text{HCO}_3)_2$

Q53. IUPAC name of $\text{CH}_3 - \overset{\text{H}}{\underset{\text{C}_2\text{H}_5}{\text{C}}} - \overset{\text{C}_4\text{H}_9}{\underset{\text{CH}_3}{\text{C}}} - \text{CH}_3$ is

- (a) 2-Butyl-3-ethyl-2-methylbutane (b) 3, 4, 4-Trimethyloctane
(c) 3,3,4-Trimethyloctane (d) 2-Ethyl-3,3-dimethylheptane

- Q54. A hydrocarbon has a molecular formula as C_6H_{12} . It does not react with hydrogen to give C_6H_{14} nor does it react with chlorine to give $C_6H_{12}Cl_2$. The hydrocarbon C_6H_{12} is
- (1) A saturated hydrocarbon (2) An unsaturated hydrocarbon
(3) An open chain hydrocarbon (4) A cycloalkane
- (a) (1) and (2) (b) (3) and (4) (c) (4) and (2) (d) (1) and (4)

Biology (6)

- Q55. Reflex arcs have evolved in animals because
- (i) the thinking process of brain is not fast enough
(ii) the thinking process of brain is very fast
(iii) they have very little or none of the complex neuron network needed for thinking.
(iv) reflex arcs continue to be more efficient for quick responses.
- (a) i, ii, iii (b) i, iii, iv (c) ii, iii, iv (d) i, ii, iii, iv
- Q56. There are separate areas of association where sensory information is interpreted by putting it together with information from other receptors as well as information that is already stored in the brain, these areas are present in
- (a) Forebrain (b) Hind brain (c) Mid brain (d) Spinal cord
- Q57. Which substance in the initial filtrate are selectively reabsorbed?
- (a) Protein, fat, amino acid, salt (b) Glucose, amino acid, salt, water
(c) Glucose, protein, salt, water (d) None of these
- Q58. In tissue culture cells/tissue taken from growing tip of a plant and then cells are placed in artificial medium, where they divide rapidly to form a small group of cell known as
- (a) Tissue (b) Organ (c) explant (d) callus
- Q59. The average value for the amount of organic matter that is present at each step and reaches the next level of consumers is
- (a) 100% (b) 50% (c) 10% (d) 1%
- Q60. Which section of DNA provides information for one protein?
- (a) Nucleus (b) Chromosome (c) Trait (d) Gene

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31 ST TO 40 TH PRIZE	SPORTS KIT	SPORTS KIT	SPORTS KIT	SPORTS KIT

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