



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 70 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 across . Fill the bubbles completely.
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

ENGLISH (10 Marks)

Q1. “I do not know where to go, soldiers. Please, guide me,” said the old man.

(Change into Indirect Speech)

A) The old man said that he did not know where to go, soldiers and requested them to guide him.

B) The old man told the soldiers that he did not know where to go and requested them to guide him.

C) The old man requested that he did not know where to go and to guide him.

D) None of them.

Q2. Have you invited them?

(Change into Passive Voice)

A) Had they been invited by you?

B) Have you been invited by them?

C) Had you been invited by them?

D) Have they been invited by you?

Q3. **Choose the one option that best expresses the meaning of the given idiom/phrase:**

‘To be in high spirits’

A) To be very cheerful

B) To be in a drunken state

C) Deeply engrossed in thoughts

D) To be very sad

Fill the blank choosing the best option:

(Q4. to Q9.)

Q4. If you _____ see him, give him my regards.

A) should

B) may

C) shall

D) can

Q5. The mosquito is a menace _____ the health of mankind.

A) for

B) to

C) of

D) on

Q6. It must be kept in mind that there is no secret of success _____ hard work.

A) though

B) since

C) but

D) however

Q7. The shopkeeper decided to close the shop as there were _____ customers.

A) the few

B) a few

C) few

D) many

Q8. Don't waste my time _____ about your problem.

A) to complain

B) complain

C) complaint

D) complaining

Q9. When the guests arrive, he _____
for his exam.

A) was studying

B) have been studying

C) will be studying

D) had been studying

Q10. Identify the underlined clause by
choosing the best option:

I went to the place where I could find
him.

A) Noun clause

B) Adjective clause

C) Adverb clause

D) Principal clause

MATHEMATICS (20 Marks)

Q11. efgh is a four-digit number. One hundredth of efgh is the mean of ef and gh. Find the value of $e + f + g + h$.

A) 15

B) 16

C) 17

D) 18

Q12. If $x^2 + 1 = 2x$, find the value of $x^9 + x^7 + x^{-7} + x^{-9}$

A) 1

B) 4

C) 6

D) None of these

Q13. In a triangle ABC, the median AD

divides $\angle BAC$ in the ratio 1 : 2. Extend AD to E such that EB is perpendicular AB. Given that $BE = 3$, $BA = 4$, find the integer nearest to BC^2 .

A) 29

B) 30

C) 31

D) 32

Q14. Let ABCD be a convex cyclic quadrilateral. Suppose P is a point in the plane of the quadrilateral such that sum of its distances from the vertices of ABCD is the least. If $\{PA, PB, PC, PD\} = \{3, 4, 6, 8\}$, what is the maximum possible area of ABCD?

A) 40

B) 45

C) 50

D) 55

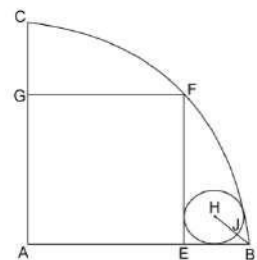
Q15. If rectangle AGFE is inside quarter circle with center A, and H is center of smaller tangential circle. Given $AG = 4$, $GF = 3$ then Find the ratio of HJ :JB.

A) 3 : 2

B) 2 : 1

C) 5 : 2

D) None



Q16. If $\frac{a}{b+c} = \frac{b}{c+a} = \frac{c}{a+b} = k$, then the possible value of k is/are:

A) only 1

- B) only $\frac{1}{2}$
 C) -1 or $\frac{1}{2}$
 D) None of these

Q17. If x_1, x_2, \dots, x_n and $\frac{1}{h_1}, \frac{1}{h_2}, \dots, \frac{1}{h_n}$ are

two A.P's such that $x_3 = h_2 = 8$ and $x_8 = h_7 = 20$, then $x_5 \cdot h_{10}$ equals:

- A) 2560
 B) 2650
 C) 3200
 D) 1600

Q18. If the sum of the square of the roots of the equation:

$$x^2 - (\sin a - 2)x - (1 + \sin a) = 0$$

is least, then a is equal to:

- A) $\frac{\pi}{6}$
 B) $\frac{\pi}{4}$
 C) $\frac{\pi}{3}$
 D) $\frac{\pi}{2}$

Q19. Let A be the sum of the first 20 terms and B be the sum of the first 40 terms of the series:

$$1^2 + 2 \cdot 2^2 + 3^2 + 2 \cdot 4^2 + 5^2 + 2 \cdot 6^2 + \dots$$

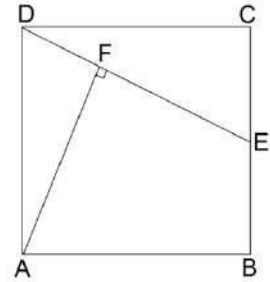
If $B - 2A = 100\lambda$, then λ is equal to:

- A) 248
 B) 464
 C) 496
 D) 232

Q20. In the given figure ABCD is a square.

E is the midpoint of CB. AF is drawn perpendicular to DE. If the side of the square is 39 cm, then the length of FB is:

- A) 25 cm
 B) 29 cm
 C) 30 cm
 D) 39 cm



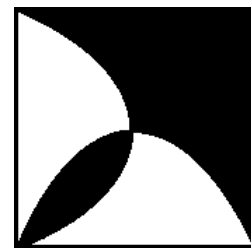
Q21. Find the probability that $ax^2 + bx + 1$ has real roots, where $a, b \in \{1, 2, 3, 4, 5, 6, 7\}$

- A) $\frac{21}{49}$
 B) $\frac{22}{49}$
 C) $\frac{23}{49}$
 D) $\frac{27}{49}$

Q22. Two semi-circles are drawn on adjacent sides of a square with side length 1.

Solve for the shaded area, which is the area outside of the semi-circles and where the semi-circles overlap.

- A) $\frac{1}{2}$
 B) $\frac{1}{3}$
 C) $\frac{1}{4}$



D) None of these

Q23. If the area enclosed by the graph of $x^2y^2 - 9x^2 - 25y^2 + 225 = 0$ is A , then the value of A is _____.

- A) 30

B) 40

C) 50

D) 60

Q24. The straight lines $x + y = 0$, $3x + y - 4 = 0$ and $x + 3y - 4 = 0$ form a triangle which is:

A) isosceles

B) equilateral

C) right-angled

D) none of these

Q25. There are four numbers in a set. The mean of the three smallest numbers is 9, whereas the mean of the three largest ones is 11. What is the range of the data set?

A) 3

B) 6

C) 9

D) 5

Q26. At a point on level ground, the angle of elevation of a vertical tower is found to be such that its tangent is $\frac{5}{12}$. On walking 192 metres towards the tower, the tangent of the angle of elevation is $\frac{3}{4}$. Find the height of the tower.

A) 180

B) 200

C) 225

D) 250

Q27. The base of a pyramid is a rectangle 40m long and 20m wide. The slant

height of the pyramid from the midpoint of shorter side of the base to the apex is 29m. What is the volume of pyramid?

A) 1800

B) 2100

C) 5400

D) 5600

Q28. Find the smallest positive integer $n \geq 10$ such that $n + 6$ is a prime and $9n + 7$ is a perfect square:

A) 52

B) 53

C) 54

D) None of these

Q29. The diameter of a sphere is decreased by 30%. By what per cent does its curved surface area decrease?

A) 44

B) 50

C) 51

D) 52

Q30. If a, b and c are in AP, then the straight line $ax + by + c = 0$ will always pass through a fixed point whose coordinates are_____.

A) $(-1, 2)$ B) $(1, -2)$ C) $(-1, -2)$ D) $(1, 2)$

SOCIAL SCIENCE (10 Marks)

Q31. What was wrong about Zollverein, a Custom Union?

- A) It was formed at the initiative of Prussia in 1834.
 B) It abolished tariff barriers and reduced the number of currencies from over thirty to two.
 C) It was not joined by most of the German States.
 D) None of the above.

Q32. Which one of the following statements is wrong?

- A) February 1922, M.K. Gandhi ji decided to withdraw the non cooperation Movement.
 B) Simon Commission arrived in India in 1927.
 C) Gandhi – Irwin Pact was signed on 5 March, 1931.
 D) Poona Pact was signed between M.K. Gandhiji and Dr. B.R. Ambedkar in September 1932.

Q33. Match the following:

Column – ‘A’	Column – ‘B’
(a) First Textile Mill	(1) Chennai in 1904
(b) First Jute Mill	(2) Mumbai in 1854
(c) First Cement Plant	(3) Madhya Pradesh
(d) Indore Software Technology	(4) Kolkata in 1855

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

Q34. Which one is not properly matched?

Thermal Power Plants	States
A) Talcher	(1) Odisha
B) Parli	(2) Madhya Pradesh
C) Ramagundum	(3) Telangana
D) Korba	(4) Chattisgarh

Q35. Which soil is typical of the Deccan Trap region?

- A) Alluvial soil
 B) Black soil
 C) Laterite soil
 D) Yellow and Red soils

Q36. Which of the following statements stand (s) true about the primary sector?

- (I) Almost half of the workers in the country are working in the primary sector.
 (II) Primary sector is the largest contributor in total GDP.
 (III) Primary sector is dependent on tertiary sector.
 A) only I
 B) I and III
 C) I and II
 D) I, II and III

Q37. Modern Currency is without any use of its own. Which of the following statements supports the given assertion?

- A) Mohan cannot melt a rupee or note and use it to make jewellery.
- B) Mohan cannot issue valid currency of her own.
- C) Mohan can buy goods by using currency.
- D) Mohan can use rupee to buy jewellery.

Q38. Identify the political party based on the given hints:

- (I) Founded in 1980.
- (II) Advocates for a Uniform Civil Code.
- (III) Rose to power in 1998 as the leader of the N.D.A.

- A) NCP
- B) BJP
- C) CPI
- D) CPI (M)

Q39. In which continent are the Scandinavian countries located?

- A) Africa
- B) Asia
- C) Europe
- D) America

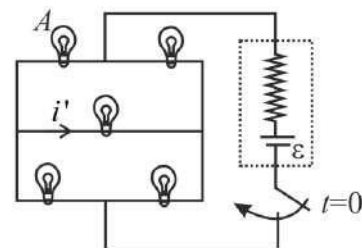
Q40. Which one of the following is not a prudential reason of power sharing?

- A) Conflicts between social groups are reduced.
- B) The stability of the political order is ensured.
- C) Consultations on how to govern are a right of the people.
- D) The tyranny of the majority is oppressive and detrimental to both the majority and the minority.

PHYSICS (07 Marks)

Q41. Five identical bulbs rated as 100 W, 250 volts are connected as shown in figure with a battery of emf $\varepsilon = 260$ V and internal resistance 25Ω . Find power loss in the bulb A in watts.

- A) 20 Watt
- B) 15 Watt
- C) 25 Watt
- D) 35 Watt



Q42. Chungizan, a Class 10 student is doing experiment in the Physics Lab. She connected an ammeter and a voltmeter in series to a battery having emf ε . When a certain resistance (equal to $2R$) is connected in parallel with the voltmeter, the readings of the voltmeter decrease η times, whereas the reading of the ammeter increases the same number of times. Find the voltmeter readings after the connection

of the resistance.

A) $\frac{\epsilon(\eta + 2)}{\eta}$

B) $\epsilon(\eta - 1)$

C) $\frac{\epsilon\eta}{\eta + 2}$

D) $\frac{\epsilon}{\eta + 1}$

Q43. A proton beam is going from north to south and an electron beam is going from south to north. Neglecting the earth's magnetic field, the electron beam will be deflected:

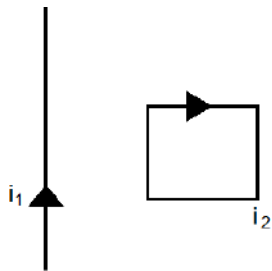
A) towards the proton beam

B) away from the proton beam

C) upwards

D) downwards

Q44. Consider the situation shown in figure. The straight wire is fixed but the loop can move under magnetic force. The loop will:



A) remain stationary

B) rotate about the wire

C) move away from the wire

D) move towards the wire

Q45. A point object O is placed on the principal axis of a convex lens of focal length $f = 20$ cm at a distance of 40 cm to the left of it. The diameter of the

lens is 10 cm. An eye is placed 60 cm to right of the lens and a distance h below the principal axis. The maximum value of h to see the image is:

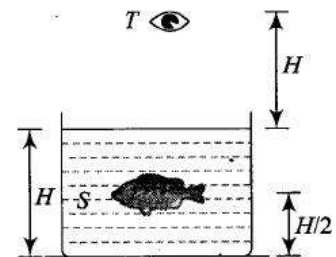
A) 0

B) 2.5 cm

C) 5 cm

D) 10 cm

Q46. Consider the situation in figure. The bottom of the pot is a reflecting plane mirror, S is a small fish and T is a human eye. Refractive index of water is μ . At what distance(s) from itself will the fish see the image(s) of the eye?



A) $H\left(\mu + \frac{1}{2}\right)$ above itself, $H\left(\mu + \frac{3}{2}\right)$ below itself

B) $H\left(\mu + \frac{1}{2}\right)$ below itself, $H\left(\mu + \frac{3}{2}\right)$ above itself

C) $H\left(\frac{3}{2}\mu + \frac{1}{2}\right)$ above itself, $H\left(\frac{3}{2}\mu + \frac{3}{2}\right)$ below itself

D) $H\left(\frac{3}{2}\mu + \frac{1}{2}\right)$ below itself, $H\left(\frac{3}{2}\mu + \frac{3}{2}\right)$ above itself

Q47. A young boy can adjust the power of his eye-lens between 50 D and 60 D. His far point is infinity. What is the distance of his retina from the eye-lens and what is his near point?

- A) 1cm, 5cm
- B) 10cm, 2cm
- C) 2cm, 10cm
- D) 5cm, 1cm

CHEMISTRY (07 Marks)

Q48. When Copper metal is treated with dil. Nitric acid, the gas evolved is:

- A) NO_2
- B) NO
- C) N_2O
- D) H_2

Q49. The oxidation state of +1 for phosphorous is found in:

- A) Phosphorous acid
- B) Orthophosphoric acid
- C) Hypophosphorous acid
- D) Hypophosphoric acid

Q50. On strong heating $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$, the product obtained is:

- A) MgCl_2
- B) MgO
- C) $\text{MgCl}_2 \cdot 2\text{H}_2\text{O}$
- D) $\text{MgCl}_2 \cdot 4\text{H}_2\text{O}$

Q51. Which of the following element was

absent in the Mendeleev's periodic table?

- A) Si
- B) B
- C) Tc
- D) F

Q52. The IUPAC name of

$\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{C}_2\text{H}_5)_2$ is:

- A) 4-Ethyl-3-methylhexane
- B) 3-Ethyl-4-methylhexane
- C) 4-Methyl-3-ethylhexane
- D) 2, 4-Diethylpentane

Q53. Liquefied Petroleum Gas is :

- A) commercial butane, iso-butane and propane mixture
- B) butane, ethane mixture
- C) commercial propane
- D) methane, propane mixture

Q54. Identify the correct statements.

- (i) Noble gases, which have a completely filled valence shell, show little chemical activity.
- (ii) Sodium and chloride ions, being oppositely charged, attract each other and are held by strong electrostatic force of attraction to exist as sodium chloride (NaCl).
- (iii) Sodium chloride does not exist as molecules but aggregates of oppositely charged ions.

(iv) The compounds formed by the transfer of electrons from a metal to a non-metal are known as ionic compounds or electrovalent compounds.

- A) (i), (ii) and (iii)
- B) (ii), (iii) and (iv)
- C) (i) and (iv)
- D) All the statements are correct

BIOLOGY (06 Marks)

Q55. If you chew on a piece of bread long enough, it begins to taste sweet because:

- A) maltose is formed by maltase.
- B) fatty acids are formed by lipase.
- C) disaccharides are formed by breaking down of starch by amylase.
- D) glucose is formed from disaccharides.

Q56. In a pregnant woman with prolonged labour pains, childbirth can be hastened by administering a hormone that can:

- A) activate the smooth muscles
- B) increase the metabolic rate
- C) release glucose into the blood
- D) stimulate the ovary

Q57. Which one of the following statements

is correct?

- A) Hormones produced by the ovary affects uterine contractions.
- B) Hormones produced by intestine stimulates heartbeat.
- C) Hormones produced by kidney regulates general blood pressure.
- D) Hormones produced by thyroid regulates general metabolism.

Q58. Which of the following is a deviation from Mendelian principle?

- A) Inheritance of AB blood groups in man
- B) Inheritance of flower colour in *Mirabilis jalapa*
- C) Inheritance of cotyledon colour in *Pisum sativum*
- D) Inheritance of AB blood group in man and flower colour in *Mirabilis jalapa*

Q59. Most sensitive body part for radiation hazard is:

- A) Brain
- B) Bone Marrow
- C) Liver
- D) Gonads

Q60. Arabari project was started in 1972 in:

- A) Bihar
- B) Maharashtra
- C) West Bengal
- D) Delhi

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