



VIBRANT ACADEMY

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SAMPLE PAPER (EDGE-IX COURSE-2016-17)

Time : 2 Hours

Maximum Marks : 200

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

INSTRUCTIONS

- (i) The question paper has 14 printed pages excluding Answer Sheet. Please ensure that the copy of the question paper you have received contains all pages.
- (ii) The question paper contains 50 questions. Each question carry 4 marks and all of them are compulsory.
There is negative marking. One mark will be deducted for each wrong answer. No mark will be deducted for unattempted question.
- (iii) Each question contains four alternatives out of which only **ONE** is correct.
- (iv) Indicate the correct answer for each question by filling appropriate bubble in your answer sheet.
- (v) For rough work, use the space provided at the bottom of each page. No extra sheet will be provided for rough work.
- (vi) Use of Calculator, Log Table, Slide Rule and Mobile is not allowed.
- (vii) The answer(s) of the questions must be marked by shading the circles against the question by dark pencil only. For example if only 'B' choice is correct then,

the correct method for filling the bubble is

A	B	C	D
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

the wrong method for filling the bubble are

(a)	A	B	C	D
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

(b)	A	B	C	D
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

(c)	A	B	C	D
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

The answer of the questions in wrong or any other manner will be treated as wrong.

Name of the candidate

Regn. Number

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I have read all the instructions and shall abide by them.

.....

Signature of the Candidate

I have verified all the information filled in by the candidate.

.....

Signature of the invigilator

PART I : MATHEMATICS
Single Correct Choice Type

This part contains 20 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

1. The value of $\left(\frac{1}{2}\right)\left(1-\frac{1}{3}\right)\dots\left(1-\frac{1}{n-1}\right)\left(1-\frac{1}{n}\right)$ is :
- (A) $\frac{1}{n}$ (B) $\frac{1}{2n}$ (C) $\frac{2}{n}$ (D) $\frac{3}{n}$
2. If $\sqrt{[0.04 \times 0.4 \times x]} = 0.4 \times 0.04 \times \sqrt{y}$ then the value of x/y is :
- (A) 0.0016 (B) 0.16 (C) 0.016 (D) none of these
3. The unit digit in $(7^{27} - 3^{14})$ is :
- (A) 0 (B) 7 (C) 4 (D) 6
4. The minimum value of $(3y - 4x)$ if $-1 \leq x \leq 2$ and $1 \leq y \leq 3$ is :
- (A) 0 (B) + 5 (C) - 5 (D) - 8
5. If $972 - a + b - 343 = 628$, then the value of $(a - b)$ is :
- (A) 1 (B) - 1 (C) 2 (D) 3
6. Four bells begin to toll together and toll respectively at intervals of 5, 6, 8 and 12 seconds. How many times will they toll together in an hour excluding the one at the start :
- (A) 10 (B) 19 (C) 13 (D) 9
7. if $2.5x = 0.5y$ then the value of $\frac{x+y}{x-y}$ is
- (A) - 1.3 (B) - 1.5 (C) 1.5 (D) 1.3
8. The surface area of a sphere is 616 sq. cm, its radius is :
- (A) 5 cm (B) 6 cm (C) 7 cm (D) 8 cm
9. $\sqrt{2\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}}$ is equal to
- (A) 0 (B) 2 (C) 1 (D) $2^{31/32}$
10. By selling an article for Rs. 110, a man losses 12%. For how much should he sell it to gain 8%.
- (A) Rs. 120 (B) Rs. 125 (C) Rs. 135 (D) Rs. 140
11. Out of the ratios 7 : 20, 13 : 25, 17 : 30 and 11 : 15, the smallest one is :
- (A) 11 : 15 (B) 7 : 20 (C) 11 : 16 (D) 17 : 30
12. If 10 persons can do a job in 20 days. Then 20 persons with the twice efficiency can do the same job in :
- (A) 10 (B) 20 (C) 5 (D) 15

13. The value of $(a^{1/8} + a^{-1/8})(a^{1/8} - a^{-1/8})(a^{1/4} + a^{-1/4})(a^{1/2} + a^{-1/2})$ is
 (A) $(a + a^{-1})$ (B) $(a - a^{-1})$ (C) $(a^2 + a^{-2})$ (D) $(a^2 - a^{-2})$
14. If 'a' is an integer such that $a + \frac{1}{a} = \frac{17}{4}$, then the value of $\left(a - \frac{1}{a}\right)$ is :
 (A) 4 (B) $\frac{13}{4}$ (C) $\frac{17}{4}$ (D) $\frac{15}{4}$
15. What must be subtracted from $(x^3 + 4x^2 - 6x - 14)$ to obtain a polynomial exactly divisible by $(x^2 - x - 2)$?
 (A) $x + 4$ (B) $2x + 4$ (C) $x - 4$ (D) $x + 8$
16. The HCF of $2x^3 + 2x$, $x^2 + 1$, $x^4 - 1$ is :
 (A) $(x^2 + 1)$ (B) $(x - 1)$ (C) 1 (D) $(x + 1)$
17. The distance between two stations is 340 km. Two trains start simultaneously from these stations on parallel tracks to cross each other. The speed of one of them is greater than that of other by 5 km/hr. If the distance between the two trains after 2 hours of their start is 30 km., the speed of each train is :
 (A) 75 kmph, 80 Kmph (B) 60 Kmph, 65 kmph (C) 80 kmph, 85 Kmph (D) None of these
18. A square PQRS is inscribed in a circle of radius r. The area of the square is
 (A) $2r^2$ (B) $\sqrt{2}r$ (C) $\frac{r}{\sqrt{2}}$ (D) $\frac{r}{2}$
19. Which of the following statements are true regarding the polygons ?
 (I) Interior angle of a regular pentagon is three times the exterior angles of a regular decagon.
 (II) In a convex hexagon the sum of all interior angles is equal twice the sum of its exterior angles formed by producing the sides in the same order.
 (III) The number of diagonals of a polygon of n sides = $\frac{n(n-1)}{2} - n$.
 (A) I is true (B) I and III are true (C) II and III are true (D) All of these
20. If a, b, c, d and e are five consecutive odd integers, then their average is :
 (A) $a + 4$ (B) $5(a + b + c + d + e)$ (C) $\frac{abcde}{5}$ (D) none of these

PART II : CHEMISTRY

Single Correct Choice Type

This part contains 15 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

21. Ozone layer acts as the protective blanket and absorbs
 (A) infrared rays (B) visible rays (C) Ultraviolet rays (D) none of these
22. O_2 is collected by :
 (A) Downward displacement of air (B) Upward displacement of H_2O
 (C) Downward displacement of H_2O (D) None of these


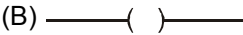


23. 0.03% of air consist of :
 (A) Ar (B) N₂ (C) O₂ (D) CO₂
24. Barometer is a thin glass tube containing :
 (A) Mercury (B) Lead (C) Tin (D) Tungsten
25. Atmospheric pressure _____ as the attitude _____
 (A) Increases, increases (B) Decreases, decreases
 (C) Decreases, increases (D) Remain same
26. Which of the following has the lowest percentage of carbon ?
 (A) Peat (B) Anthracite (C) Bituminous (D) Lignite
27. Coke contains carbon
 (A) 96% (B) 90% (C) 98% (D) 70%
28. In diamond, the C-atoms are arranged in :
 (A) Octahedral (B) Tetrahedral (C) Planer (D) Trigonal
29. _____ is used as dry lubricant :
 (A) Diamond (B) Coke
 (C) Charcoal (D) Graphite
30. The formation of mixture
 (A) Absorb energy (B) Release energy
 (C) Does not involve any energy change (D) Either absorb or release energy
31. Which of the following is not an element :
 (A) Diamond (B) Graphite (C) Silicon (D) Silica
32. In the reactivity series of metals, the metal at the top is :
 (A) K (B) Ba (C) Al (D) Na
33. Water breaks into its constituent :
 (A) By magnetic effect (B) By light
 (C) By heating (D) By passing electric current
34. The gas which turns lime water milky is :
 (A) SO₂ (B) CO (C) CO₂ (D) both a and c
35. Iron is galvanized when it is dipped in
 (A) Molten Zinc (B) Molten Copper (C) Molten Carbon (D) Molten Gold

PART III : PHYSICS

Single Correct Choice Type

This part contains 15 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct.

36. When a ray of light enters from air to glass, it bends
 (A) towards normal (B) away from normal
 (C) neither towards nor away from normal (D) either towards or away from normal

37. Which of the following materials cannot be used to make a lens ?
 (A) Plastics (B) Water (C) Clay (D) Glass
38. The object is placed at F of a convex lens to get an image at
 (A) 2F (B) infinity (C) between f and 2f (D) none of these
39. A simple microscope consists of
 (A) convex lens of large focal length (B) convex lens of small focal length
 (C) concave lens of large focal length (D) concave lens of small focal length
40. Mangal is the Indian name of the
 (A) Earth (B) Mars (C) Uranus (D) Pluto
41. Halley's comet appears after every
 (A) 66 years (B) 70 years (C) 72 years (D) 76 years
42. An electromagnet is a
 (A) permanent magnet only
 (B) temporary magnet only
 (C) permanent magnet of a temporary magnet depending upon the type of magnetic material
 (D) none of these
43. Ammeter is used to measure
 (A) resistance (B) electric current (C) electric power (D) resistance
44. In electrical circuits, a closed key is shown by the symbol
 (A)  (B)  (C)  (D) 
45. A cell converts
 (A) Electrical energy into chemical energy (B) Chemical energy into electrical energy
 (C) Mechanical energy into electrical energy (D) Electrical energy into mechanical energy
46. The numerical value of charge on one electron is
 (A) $1.6 \times 10^{-18}c$ (B) $1.6 \times 10^{-19}c$ (C) $3.2 \times 10^{-19}c$ (D) $1.6 \times 10^{-10}c$
47. The SI unit of force is
 (A) Newton (B) joule (C) dyne (D) kgwt
48. The weight of a body is 120 N on the earth. If it is taken to the moon, its weight will be about.
 (A) 120 N (B) 60 N (C) 20 N (D) 720 N
49. If no force acts on a body, it will
 (A) get dishaped (B) move with increasing speed
 (C) either remain at rest or move in a straight line (D) break
50. A body floats in a liquid if the buoyant force is
 (A) zero (B) greater than its weight
 (C) less than its weight (D) equal to its weight

