

VISA

Vision Infinity Scholarship Award

Students of Vision Infinity who secure All India Rank in IIT-JEE within top100, will be Awarded scholarship for four years during B.Tech in IIT

4 Year

All India Rank in IIT-JEE	Scholarship	Total (in four years)
AIR 1	Rs. 10,000/month	Rs. 4,80,000/-
AIR 2	Rs. 7,500/month	Rs. 3,60,000/-
AIR 3	Rs. 6,000/month	Rs. 2,88,000/-
AIR 4 -10	Rs. 5,000/month	Rs. 2,40,000/-
AIR 11- 20	Rs. 3,000/month	Rs. 1,44,000/-
AIR 21-30	Rs. 1,500/month	Rs. 72,000/-
AIR 31-50	Rs. 1,000/month	Rs. 48,000/-
AIR 51-100	Rs. 500/month	Rs. 24,000/-

* Terms & Conditions apply

Model Test Paper-II

Four Year Programme

Name of the Student :

Reg. No. :

Duration : 1.30 hours

Max. Marks : 225

Please read the instructions carefully. You are allotted 3 minutes specifically for this purpose.

INSTRUCTIONS :

1. This Question Paper contains 75 Questions.
2. Each question has 4 choices for its answer (A), (B), (C) and (D).
3. Only ONE of them is the right answer.
4. There is **no negative marking**.
5. For each question you will be awarded +3 marks.
6. In all other cases you will be awarded 0 marks.
7. Use HB pencil to fill the bubble corresponding to correct answer.
8. *You should submit the question paper & answer sheet after the completion of the test to the invigilator.*
9. *You should keep the question paper & answer sheet clean. Rough work must be done in the space provided.*

MATHEMATICS

1. Select the correct option :

(A) $-\frac{3}{4} < \frac{-5}{6}$

(B) $\frac{-4}{3} > \frac{-8}{7}$

(C) $\frac{7}{-9} < \frac{-5}{8}$

(D) $\frac{-1}{3} < \frac{4}{-5}$

2. $\left(\frac{a}{b} \times \frac{c}{d}\right) \times \frac{e}{f} = \frac{a}{b} \times \left(\frac{c}{d} \times \frac{e}{f}\right)$ satisfies the :

(A) commutative law

(B) Associative law

(C) closure property

(D) Distribution law

3. For rationals one is the :

(A) multiplicative identity

(B) Additive identity

(C) inverse of zero

(D) Additive inverse

4. Which of the following is not the reciprocal of any number :

(A) zero

(B) 4

(C) $\frac{-1}{2}$

(D) -3

5. The multiplicative inverse of $\frac{0}{2}$ is :

(A) 2

(B) 0

(C) does not exist

(D) -2

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Space for rough work

6. The additive inverse of $-\frac{1}{2}$ is :
- (A) $\frac{1}{2}$ (B) -2
(C) 2 (D) $-\frac{1}{2}$
7. The reciprocal of a negative rational number is :
- (A) negative (B) positive
(C) does not exist (D) Zero
8. If A be the area of a regular polygon, then the Perimeter of a regular polygon is :
- (A) $2A$ (B) $\frac{2\pi}{A}$
(C) $\frac{2A}{\pi}$ (D) $\frac{A}{2}$
9. Simplify : $\frac{2}{3} + \frac{-4}{5} + \frac{7}{15} + \frac{-11}{20}$:
- (A) $-\frac{1}{5}$ (B) $-\frac{13}{60}$
(C) $-\frac{4}{15}$ (D) $-\frac{7}{30}$

10. The value of $\left(-\frac{5}{9} \div \frac{2}{3}\right)$ is :

(A) $-\frac{5}{2}$

(B) $-\frac{5}{6}$

(C) $-\frac{10}{27}$

(D) $-\frac{6}{5}$

11. $\sqrt{6.4009} =$

(A) 3.23

(B) 2.33

(C) 2.53

(D) 3.33

12. The square root of $1\frac{56}{169}$ is equal to :

(A) $1\frac{5}{13}$

(B) $1\frac{15}{13}$

(C) $1\frac{12}{13}$

(D) $1\frac{2}{13}$

13. When $x^3 - 1$ is divided by $x - 1$, then the quotient is equal to :

(A) $x^2 - 1$

(B) $x^2 + x + 1$

(C) $x^2 - x + 1$

(D) $x^2 - x - 1$

14. When $5x^3 - 4x^2 + 3x + 18$ is divided by $3 - 2x + x^2$, then quotient is :

(A) $5x + 6$

(B) $5 + 6x$

(C) $3 - 2x$

(D) $2x + 3$





15. The compound interest on Rs. 16,0000 for 2 years at 10% per annum, when compounded semmiannually is :
- (A) 34481 (B) 1951
(C) 34814 (D) 43481
16. If one score oranges cost Rs. 45 then the number of orange can be bought for Rs, 72 is :
- (A) 23 (B) 32
(C) 42 (D) 24
17. A parallelogram in which diagonals are bisect each other at right angles and are equal. Then the parallelogram is called:
- (A) a square (B) a rhombus
(C) a rectangle (D) trapezium.
18. The ratio of two sides of a parallelogram is 4:3 . If its perimeter is 56 cm Then the lengths of its sides are :
- (A) 12 cm, 16 cm (B) 14 cm, 18 cm
(C) 12 cm, 9 cm (D) 24 cm, 18 cm
19. If the volume of a cube is 343cm^3 then its total surface area is equal to :
- (A) 212cm^2 (B) 712cm^2
(C) 294cm^2 (D) 100cm^2
20. The mid value of a class interval is called its :
- (A) Class-size (B) Class-mark
(C) grouped data (D) Frequency

21. The difference between the upper limit and lower limit of a class interval is called the
(A) Class-size (B) Class-mark
(C) range (D) Frequency
22. The compound interest on Rs. 1,25,000 for 9 months at 8 % per annum compounded quarterly is :
(A) Rs 7156 (B) Rs 7651
(C) Rs 7851 (D) Rs 5671
23. On selling a fan for Rs 810, sunil gains 8 % . For how much did he purchase it :
(A) Rs 570 (B) Rs 507
(C) Rs 750 (D) Rs 580
24. $a^2 + b^2 =$
(A) $(a - b)^2 + 2ab$ (B) $(a + b)^2 - 4ab$
(C) $a^2 - b^2 + 2ab$ (D) $a^2 + 2ab + b^2$
25. If $9x - 6x^2 + x^3 - 2$ is divided by $(x - 2)$, then the remainder is :
(A) 0 (B) $x^2 - 4x + 1$
(C) 1 (D) $x^2 - 4x$

26. If $2x^2 + 3x + 1$ is divided by $(x + 1)$, then the quotient is :
- (A) $2x$ (B) $2x + 1$
(C) 0 (D) $2x - 1$
27. If $\frac{x}{4} + \frac{x}{6} = x - 7$, then x is equal to :
- (A) 10 (B) 4
(C) 8 (D) 12
28. If $\frac{6x + 7}{3x + 2} = \frac{4x + 5}{2x + 3}$ then x is equal to :
- (A) $\frac{11}{9}$ (B) $\frac{-11}{9}$
(C) $\frac{9}{11}$ (D) $\frac{-9}{11}$
29. $\sqrt{42.25} =$
- (A) 6.5 (B) 0.65
(C) 5.5 (D) 0.55
30. $\sqrt{0.4225} =$
- (A) 0.55 (B) 0.65
(C) 6.5 (D) 5.5

SCIENCE

31. If two bar magnets are placed with their axis coinciding, then :
(A) The two bar magnets must attract each other
(B) The two bar magnets may repel each other
(C) The two bar magnets will not exert any force on each other
(D) The bar magnets move up and down.
32. Renewable source of energy is :
(A) Coal (B) Petroleum
(C) both Coal and Petroleum (D) neither Coal nor petroleum.
33. Which of the following is a bad conductor of electricity ?
(A) Plastic (B) Wood
(C) Cotton cloth (D) All of these.
34. Pole star appears stationary because :
(A) it lies above the centre of earth (B) it lies above the surface of earth
(C) it lies at the axis of rotation of earth (D) it revolves along the equator.
35. Which of the following is not the difference between stars and planets ?
(A) A star has its own light while a planet has no light of its own
(B) Stars twinkle at night while planets do not twinkle at all
(C) Stars are countless in number while there are only listed number of planets
(D) Stars are very small in size while planets are very big in size compared to stars.
36. If a body is charged by rubbing it, its weight
(A) Remains precisely constant
(B) Increases slightly
(C) Decreases slightly
(D) May increase slightly or may decrease slightly

37. Which of the following is the correct symbol of resistance ?
- (A)  (B) 
- (C)  (D) 
38. A concave lens forms a :
- (A) Virtual and magnified image (B) Virtual and diminished image
(C) real and magnified image (D) real and diminished image.
39. The process of decomposition of electrolyte solution into ions on passing current through it is called :
- (A) Hydrolysis (B) Electrolysis
(C) Polarisation (D) Oxidation.
40. Light of different colours propagates through vacuum :
- (A) with velocity of air
(B) with different velocities
(C) with velocity of sound
(D) have equal velocities which is same for all colours.
41. In a dry cell the cathode is made of :
- (A) Copper (B) Carbon
(C) Zinc (D) Iron..
42. Renewable source of energy is :
- (A) Flowing water (B) Wind
(C) Sunlight (D) All of these.

43. Which of the following is a good conductor of electricity ?
(A) Plastic (B) Wood
(C) Copper (D) Cotton cloth
44. Which kind of cells is used in artificial satellite ?
(A) Voltaic cell (B) Daniell cell
(C) Dry cell (D) Solar cell
45. The correct sequence of colours in a spectrum is :
(A) Indigo, Blue, Violet, Green, Yellow, Orange, Red.
(B) Violet, Blue, Indigo, Green, Yellow, Orange, Red.
(C) Orange, Red, Yellow, Green, Blue, Indigo, Violet.
(D) Violet, Indigo, Blue, Green, Yellow, Orange, Red.
46. According to classical theory, the proposed circular path of an electron in Rutherford atomic model will be :
(A) Circular (B) Straight line
(C) Parabolic (D) Spiral.
47. Number of electrons in the outermost orbit of the element of atomic number 20 is :
(A) 7 (B) 5
(C) 3 (D) 2.
48. Mass number of atom represents the number of its :
(A) Protons only (B) Protons and neutrons
(C) Protons and electrons (D) Neutrons and electrons.

49. ^{18}O isotope of oxygen will have :
(A) 18 protons (B) 9 protons and 9 neutrons
(C) 8 neutrons and 10 protons (D) 10 neutrons and 8 protons
50. Which the following radicals have different charge :
(A) Sulphate (B) Carbonate
(C) Phosphate (D) Dichromate.
51. Which is not basic postulate of Dalton's atomic theory :
(A) Atoms are neither created nor destroyed in a chemical reaction
(B) In a given compound, the relative number and kinds of atoms are constant
(C) Atoms of all element are alike, including their masses
(D) Each element is composed of extremely small particles called atoms
52. Neutron possesses :
(A) Positive charge (B) No net charge
(C) Negative charge (D) All are correct.
53. The charge on the atom containing 17 protons, 18 neutrons and 18 electrons is :
(A) -1 (B) 2
(C) Zero (D) + 1.
54. The nucleus of an atom is electrically :
(A) Neutral
(B) Positive
(C) Negative
(D) Some times positive and Some times negative.

55. The number of electrons in a neutral atom of an element is equal to its :
(A) Atomic weight (B) Atomic number
(C) Equivalent weight (D) Electron affinity
56. Valence electrons in fluorine atom is :
(A) 7 (B) 5
(C) 1 (D) 2.
57. Which of the following is Chloroform :
(A) CH_3Cl (B) CH_2Cl_2
(C) CHCl_3 (D) CH_3Br .
58. Which of the following is Amorphous form of carbon :
(A) Fullerence (B) Diamond
(C) Graphite (D) None of these.
59. Structure of diamond is :
(A) Linear (B) Tetrahedral
(C) Planar (D) Pyramidal.
60. Soda lime is a mixture of :
(A) $\text{NaOH} + \text{CaO}$ (B) $\text{NaOH} + \text{BaO}$
(C) $\text{Na}_2\text{CO}_3 + \text{K}_2\text{CO}_3$ (D) $\text{NaNO}_3 + \text{MgCO}_3$
61. Chromosomes are concerned with
(A) respiration (B) assimilation
(C) transmission hereditary-characters (D) nutrition.
62. The lowest level of organisation in an organism is :
(A) Cellular level (B) Population
(C) Atomic (D) Molecular.

63. One Angstrom is equal to :
(A) 10^{-6} metres (B) 10^{-8} metres
(C) 10^{-10} metres (D) 10^{-12} metres.
64. 80% of the living material of a cell is made of :
(A) Minerals (B) Proteins
(C) Water (D) Fats.
65. Which of the following is not the characteristics of bacteria-
(A) Plastids (B) Fermentation
(C) Nitrogen fixation (D) Parasitic
66. Yeast is used for the production of
(A) Ethyl alcohol (B) Acetic acid
(C) Cheese (D) Curd
67. Chickenpox is caused by :
(A) Varicella virus (B) Adeno virus
(C) SV 40 virus (D) Bacteriophage T_2
68. Ganga water does not get spoiled due to the presence of :
(A) Minerals (B) Antibiotics
(C) Algae (D) Phages
69. The shape of "Vibrio cholerae" is-
(A) Comma shaped (B) Bacilli shaped
(C) Cocci shaped (D) Spirillum shaped
70. Most common nitrogen fixing cyanobacterium of paddy fields is :
(A) *Cylindrospermum* (B) *Aulosira*
(C) *Oscillatoria* (D) *Nostoc*

71. Choose the correct pair:
- (A) Sericulture – Fish
 - (B) Silviculture – silkworm
 - (C) Apiculture – honeybee
 - (D) Pisciculture – forestry
72. The plants cell differ from Animals cell in having :
- (A) Chloroplast
 - (B) Vacuole
 - (C) Cell wall
 - (D) All
73. The organelles called “power houses” or “energy store-houses” of a cell are
- (A) Mitochondria
 - (B) Golgi apparatus
 - (C) Ribosomes
 - (D) Lysosomes.
74. Most of the water, in mature plants cells occurs chiefly in which of the following ?
- (A) Nucleus
 - (B) Cell wall
 - (C) Vacuoles
 - (D) Cytoplasm
75. Which of the following is called the brain of the cell?
- (A) Nucleus
 - (B) Mitochondria
 - (C) Ribosomes
 - (D) Plasma membrane.

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**ANSWER
4 YEAR
SET-B**

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. C | 2. B | 3. A | 4. A | 5. C |
| 6. A | 7. A | 8. C | 9. B | 10. B |
| 11. A | 12. D | 13. B | 14. A | 15. A |
| 16. B | 17. A | 18. A | 19. C | 20. B |
| 21. A | 22. B | 23. C | 24. A | 25. A |
| 26. B | 27. D | 28. B | 29. A | 30. B |
| 31. B | 32. D | 33. D | 34. C | 35. D |
| 36. D | 37. A | 38. B | 39. B | 40. D |
| 41. C | 42. D | 43. C | 44. D | 45. D |
| 46. A | 47. D | 48. B | 49. D | 50. C |
| 51. A | 52. B | 53. A | 54. B | 55. B |
| 56. A | 57. C | 58. D | 59. B | 60. A |
| 61. C | 62. C | 63. C | 64. C | 65. A |
| 66. A | 67. A | 68. D | 69. A | 70. D |
| 71. C | 72. A | 73. A | 74. C | 75. A |