FIITJEE ADMISSION TEST- 2019

for **students of**

Class 10

Paper 2

Time: 3 Hours (1:45 pm – 4:45 pm) | **Code 1010** | ***Maximum Marks: 240***

Instructions:

Caution: Class, Paper, Code as given above MUST be correctly marked on the answer OMR sheet before attempting the paper. Wrong Class, Paper or Code will give wrong results.

1. **You are advised to devote 30 Minutes on Section-I, 50 Minutes on Section-II, 50 Minutes on Section-III and 50 Minutes on Section-IV.**

2. **This Question paper consists of 4 sections. Marking scheme is given in table below:**

Section	Subject		Question no.	Marking Scheme for each question	
				correct answer	wrong answer
SECTION – I	PHYSICS	(PART-A)	1 to 6	+1	0
	CHEMISTRY	(PART-B)	7 to 12	+1	0
	MATHEMATICS	(PART-C)	13 to 18	+1	0
	BIOLOGY	(PART-D)	19 to 24	+1	0
SECTION – II	PHYSICS	(PART-A)	25 to 32	+3	–1
	CHEMISTRY	(PART-B)	33 to 40	+3	–1
	MATHEMATICS	(PART-C)	41 to 48	+3	–1
SECTION – III	PHYSICS	(PART-A)	49 to 54	+3	–1
	CHEMISTRY	(PART-B)	55 to 60	+3	–1
	MATHEMATICS	(PART-C)	61 to 66	+3	–1
	BIOLOGY	(PART-D)	67 to 72	+3	–1
SECTION – IV	PHYSICS	(PART-A)	73 to 77	+3	0
	CHEMISTRY	(PART-B)	78 to 82	+3	0
	MATHEMATICS	(PART-C)	83 to 87	+3	0
	PHYSICS	(PART-D)	88 to 90	+3	0
	CHEMISTRY	(PART-E)	91 to 93	+3	0
	MATHEMATICS	(PART-F)	94 to 96	+3	0

3. Answers have to be marked on the OMR sheet. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.

4. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.

5. **Before attempting paper write your OMR Answer Sheet No., Registration Number, Name** and **Test Centre** in the space provided at the bottom of this sheet.

6. **See method of marking of bubbles at the back of cover page for question no. 88 to 96.**

Note: ***Please check this Question Paper contains all 96 questions in serial order. If not so, exchange for the correct Question Paper.***

OMR Answer Sheet No. : _____

Registration Number : _____

Name of the Candidate : _____

Test Centre : _____

For questions **88 to 96**

Numerical based questions single digit answer 0 to 9

Example 1:

If answer is 6.

Correct method:

⓪ ① ② ③ ④ ⑤ ❻ ⑦ ⑧ ⑨

Example 2:

If answer is 2.

Correct method:

⓪ ① ❷ ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Recommended Time: 30 Minutes for Section – I

Section – I

PHYSICS – (PART – A)

*This part contains **6 Multiple Choice Questions** number **1 to 6.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. A body is moving with an initial velocity of 5 m/sec accelerates at $1\,m/s^2$. Its velocity after 5 sec will be
   (A) 20 m/s (B) 10 m/s
   (C) 5 m/s (D) zero

2. A body starts from rest with a uniform acceleration of $4\,m/s^2$ and is moving in a horizontal direction. Distance travelled by it in 5 sec is :–
   (A) 50 m (B) 20 m
   (C) 8 m (D) 10 m

3. If an unbalanced force acts on a body then the body
   (A) must remain in same state (B) must move with uniform velocity
   (C) must be accelerated (D) must move along a circle

4. The ratio of magnitudes of average speed to average velocity is :–
   (A) always less than one (B) always equal to one
   (C) always more than one (D) equal to or more than one

5. If m_e is the mass of a body on the surface of the earth and m_m is the mass of the same body on the surface of moon then
   (A) $m_e = 6\,m_m$ (B) $m_e < m_m$
   (C) $m_e > m_m$ (D) $m_e = m_m$

6. How does the force of gravitation between two objects change when the distance between them is reduced to half?
   (A) it becomes half (B) it becomes two times
   (C) it becomes four times (D) it becomes eight times

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **6 Multiple Choice Questions** number **7 to 12.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

7. During evaporation, particles of a liquid changes to vapours only
   (A) From the surface
   (B) From the bulk
   (C) From both surface and bulk
   (D) Neither from surface nor from bulk

8. Which of the following is NOT a noble gas?
   (A) Helium
   (B) Neon
   (C) Argon
   (D) Hydrogen

9. When water freezes to ice, heat is
   (A) Evolved
   (B) Absorbed
   (C) No change
   (D) Evolved or absorbed depending upon the conditions

10. Particles of _____ are visible to the human eye
   (A) Suspension
   (B) Colloid
   (C) Homogeneous solution
   (D) None of these

11. In milk :
   (A) Water is dispersed in fat
   (B) Fat is dispersed in water
   (C) Water is dispersed in protein
   (D) Homogeneous mixture of several substance

12. Which type of diffusion is the slowest?
   (A) Solid into solid
   (B) Gas into liquid
   (C) Liquid into liquid
   (D) Gas into gas

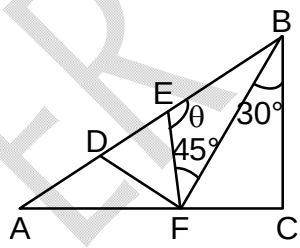
Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **6 Multiple Choice Questions** number **13 to 18.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

13. The value of the expression $\sqrt{34+24\sqrt{2}}\times\left(4-3\sqrt{2}\right)$ is
(A) – 4 (B) – 2
(C) 3 (D) 4

14. In right angled triangle ABC, $\angle ACB = 90°$. If $\angle EFB = 45°$, $\angle CBF = 30°$ and also AD = DF and DE = EF, then θ equal to
(A) 60° (B) 75°
(C) 100° (D) 25°



15. If one of the interior angle of a regular polygon is found to be $\frac{9}{8}$ times of one of the interior angle of a regular hexagon, then the number of sides of the polygon is
(A) 8 (B) 14
(C) 12 (D) 10

16. When a polynomial $p(x) = x^2 - 3x + 5$ is divided by $(x - 1)$, then the remainder is R_1 and when other polynomial $q(x) = x^3 - 3x^2 + 3x + 5$ is divided by $(x - 2)$, then the remainder is R_2. Find the value of $\frac{10R_1R_2}{7(R_1+R_2)}$.
(A) 3 (B) 5
(C) 10 (D) none of these

17. Find the remainder when 8^{64} is divided by 63?
(A) 1 (B) – 1
(C) 0 (D) none of these

18. If $a^2 + b^2 + c^2 = 2(a + 2b – 2c) – 9$ then find the value of a + b + c
(A) 2 (B) 3
(C) 1 (D) none of these

Space for Rough Work

BIOLOGY – (PART – D)

*This part contains **6 Multiple Choice Questions** number **19 to 24.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

19. An example of sedimentary biogeochemical cycle is……
(A) Carbon cycle (B) Water cycle
(C) Oxygen cycle (D) Phosphorus cycle

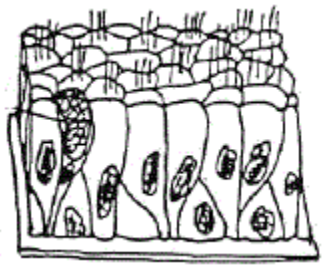
20. Inbreeding can increase the productivity among cattle by
(A) Eliminating less desirable gene (B) Causing hybrid vigor
(C) By removing the superior genes (D) By forming a germplasm collection

21. Which of the following have their own genetic material?
(I) Eukaryotic cell
(II) Prokaryotic cell
(III) Plastids
(A) (I) and (II) only (B) (II) and (III) only
(C) (I) and (III) only (D) (I), (II) and (III)

22. The tissue responsible for secondary growth in dicotyledonous plants is
(A) Meristematic (B) Parenchyma
(C) Sclerenchyma (D) Chlorenchyma

23. The ability to distinguish between two close points in a light microscope is known as
(A) Magnification (B) Resolution
(C) Contrast (D) All of the above

24. The given type of epithelial tissue is usually found in



(A) Buccal cavity (B) Thyroid gland
(C) Respiratory tract (D) Inner lining of stomach

Space for Rough Work

Recommended Time: 50 Minutes for Section – II

Section – II

PHYSICS – (PART – A)

*This part contains **8 Multiple Choice Questions** number **25 to 32.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

25. Two masses m and M are kept at a distance r. The ratio of the force exerted on m due to M and that on M due to m is equal to

(A) $\frac{m}{M}$ (B) $\frac{M}{m}$

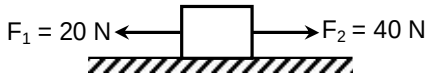
(C) $\frac{m \times r}{M}$ (D) 1 : 1

26. What will be the magnitude of change in momentum imparted by the floor to a ball of mass 1 kg if it falls from the height of 100 cm on the floor and rebound vertically upward with same speed? $\left(g = 10\ m/s^2\right)$

(A) $2\sqrt{5}$ kgm / s (B) $\sqrt{5}$ kgm / s

(C) $4\sqrt{5}$ kgm / s (D) zero

27. Two forces $F_1 = 20\ N$ and $F_2 = 40\ N$ are acting on an object placed on a horizontal smooth surface as shown in the figure. What is the magnitude of net force acting on the object?



(A) 60 N (B) 30 N

(C) 20 N (D) 40 N

Space for Rough Work

28. An object is projected vertically upwards with a velocity of 20 m/s. Maximum height attained by the object from the point of projection is :– $\left(\text{Take } g = 10\ m/s^2\right)$

(A) 10 m (B) 20 m
(C) 40 m (D) 5 m

29. A bus moving along straight line increases its speed from 36 km/h to 72 km/h in 5 sec, acceleration of the bus is :–

(A) $7.2\ m/s^2$ (B) $1\ m/s^2$
(C) $2\ m/s^2$ (D) $4\ m/s^2$

30. If a car covers $2/5^{th}$ of the total distance with v_1 speed and remaining $3/5^{th}$ distance with speed v_2 then the average speed is

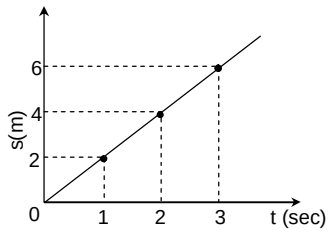
(A) $\frac{1}{2}\sqrt{v_1 v_2}$ (B) $\frac{v_1 + v_2}{2}$
(C) $\frac{2v_1 v_2}{v_1 + v_2}$ (D) $\frac{5v_1 v_2}{3v_1 + 2v_2}$

31. A body is dropped from some height and it falls through a distance d in a certain time on the earth, then if the same body is dropped on another planet having mass and radius twice as that of the earth, the distance through which it falls in the same time is (considering acceleration due to gravity to be constant over small altitude)

(A) $\frac{d}{2}$ (B) 2 d
(C) 4 d (D) d

32. Displacement time graph of an object of mass 2 kg is shown in figure. The force required to move the object for first 3 sec is :–

(A) zero (B) $\frac{2}{3}$N
(C) 2 N (D) 6 N



Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **8 Multiple Choice Questions** number **33 to 40.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

33. Crystalline solids are **NOT**…….
(A) Anisotropic (B) Isotropic
(C) Hard (D) Dense

34. When 25 g of Na_2SO_4 is dissolved in 10^3 kg of solution, its concentration will be
(A) 2.5 ppm (B) 25 ppm
(C) 250 ppm (D) 100 ppm

35. Desalination of sea water can be done by
(A) Osmosis (B) Reverse osmosis
(C) Filtration (D) Diffusion

36. Which property of colloid is **NOT** dependent on the charge of colloidal particles?
(A) Coagulation (B) Electrophoresis
(C) Tyndall effect (D) All of the above

37. The cohesive force involved in ice is
(A) Electrostatic (B) Hydrogen bonding
(C) Van der Waal's force (D) None of these

38. Amorphous solids may be considered as
(A) Super cooled liquids (B) Super cooled solids
(C) True solids (D) None of these

39. Which of the following non-metal is a good conductor of electricity?
(A) Oxygen (B) Graphite
(C) Wood (D) Diamond

40. Water boils at lower temperature on high altitudes because
(A) Atmospheric pressure is low there (B) Atmospheric pressure is high there
(C) Water has less density there (D) Water in pure form is found there

Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **8 Multiple Choice Questions** number **41 to 48.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

41. If one root of the polynomial $p(x) = 3x^2 - 8x - (2k + 1)$ is seven times the other, then value of k is

(A) $\frac{5}{3}$ (B) $-\frac{5}{3}$

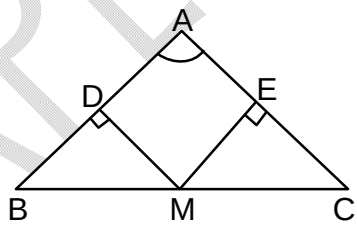
(C) $\frac{2}{3}$ (D) $-\frac{2}{3}$

42. The points (2, 2), (6, 3) and (4, 11) are the vertices of

(A) an equilateral triangle (B) an isosceles triangle

(C) a right angled triangle (D) a scalene triangle

43. In ΔABC, $\angle A = 66°$, M is the mid-point of BC, and D and E are the feet of the perpendicular drawn from M to AB and AC respectively. If MD = ME, then find the value of $\angle CME$.



(A) 31° (B) 33°

(C) 45° (D) 54°

44. If $ax^2 + bx + c = 0$ has equal roots then value of "c" equal to

(A) $\frac{-b^2}{2a}$ (B) $\frac{b^2}{4a}$

(C) $\frac{b^2}{2a}$ (D) $\frac{-b^2}{4a}$

Space for Rough Work

45. Value of $\left(1-\frac{1}{2^2}\right)\left(1-\frac{1}{3^2}\right)\left(1-\frac{1}{4^2}\right).....\left(1-\frac{1}{85^2}\right)$

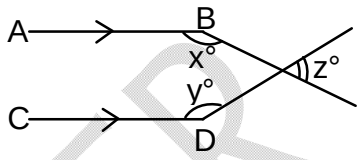
(A) $\frac{33}{85}$ (B) $\frac{45}{85}$

(C) $\frac{55}{85}$ (D) none of these

46. If AB || CD then value of x° + y° + z°

(A) 720° (B) 90°

(C) 0° (D) 360°



47. Find the vertex of a rhombus ABCD whose other vertex are A(3, 5), B(7, 7) and C(5, 3) find co-ordinate of D vertex

(A) (1, 2) (B) (– 1, – 1)

(C) (1, 1) (D) none of these

48. If $P = 5^{33} + 5^{33} + 5^{33} + 5^{33} + 5^{33}$ and $Q = 3^{33} + 3^{33} + 3^{33}$ and $PQ = 15^x$, then x equal to

(A) 32 (B) 30

(C) 34 (D) 35

Space for Rough Work

Recommended Time: 50 Minutes for Section – III

Section – III

PHYSICS – (PART – A)

*This part contains **6 Multiple Choice Questions** number **49 to 54.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

49. A body is thrown vertically upwards and rises to a height of 10 m. The velocity with which the body was thrown upwards is ($g = 9.8$ m/sec^2)
(A) 16 m/sec (B) 15 m/sec
(C) 14 m/sec (D) 12 m/sec

50. The radius of earth is about 6400 km and that of mars is 3200 km and the mass of the earth is about 10 times the mass of mars. An object weighs 200 N on the surface of earth. Then its weight on surface of mars will be
(A) 80 N (B) 40 N
(C) 20 N (D) 8 N

51. A body of mass 2 kg is initially moving with a velocity of 4 m/sec. Now a force of 1.25 N acts on it in the direction of initial motion for 8 sec. Final velocity of the body is
(A) 12.5 m/sec (B) 17 m/sec
(C) 9 m/sec (D) 25 m/sec

52. A car accelerates from rest at 5 m/s^2 and then retards to rest at 3 m/s^2. The maximum velocity of the car is 30 m/s. What is the distance covered by the car over the entire journey?
(A) 150 m (B) 240 m
(C) 300 m (D) 360 m

53. When a ball is thrown up vertically with velocity v_0, it reaches a maximum height of h. If one wishes to triple the maximum height then the ball should be thrown with velocity.
(A) $\sqrt{3}\, v_0$ (B) $3\, v_0$
(C) v_0 (D) $3\, v_0/2$

54. If the weight of a body on the surface of earth is W, then its weight at a height (measured from earth's surface) equal to double the radius of earth is
(A) W (B) W/2
(C) W/3 (D) W/9

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **6 Multiple Choice Questions** number **55 to 60.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

55. The size of colloidal particles lies in the range of
(A) 100 – 1000 nm
(B) 10^{-7} – 10^{-5} cm
(C) 10^{-5} – 10^{-2} cm
(D) 1000 – 10000 nm

56. A substance having a very low vapour pressure is expected to have
(A) High boiling point
(B) Low boiling point
(C) Weak inter particle forces of attraction
(D) Both (B) and (C)

57. Which of the following is NOT a compound?
(A) Silica
(B) Washing soda
(C) Quick lime
(D) Brass

58. Which of the following is a heterogeneous mixture?
(A) Bronze
(B) Steel
(C) Solution of $CuSO_4$ and water
(D) Iodized salt

59. Identify physical change out of the following changes
(A) Tarnishing of silver
(B) Dissolution of sulphur in CS_2
(C) Electrolysis of water
(D) Ripening of fruits

60. In which of the following sedimentation will NOT take place?
(A) Sulphur + water
(B) Soil + water
(C) Fine sand + water
(D) Albumin + water

Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **6 Multiple Choice Questions** number **61 to 66.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

61. If $2x - \frac{1}{3x} = y$, then the value of $\left(9x^2 + \frac{1}{4x^2}\right)$ in terms of y is

(A) $\left(y^2 + \frac{4}{3}\right)$ (B) $\frac{4}{9}\left(y^2 + \frac{4}{3}\right)$

(C) $\frac{9}{4}\left(y^2 + \frac{4}{3}\right)$ (D) $\frac{2}{3}\left(y^2 + \frac{4}{3}\right)$

62. If the two sides of a triangle are 9 cm and 15 cm, then which of the following lengths cannot be the length of third side of the triangle?

(A) 12 cm (B) 19 cm

(C) 21 cm (D) 24 cm

63. A number N has three digits. If the digits of N is reversed to make another three digits number M, if N > M, (N – M) is divisible by

(A) 5 (B) 9

(C) 6 (D) 7

64. If α and β are the roots of the quadratic polynomial $p(x) = 2x^2 - 4x + 1$, then the value of $\frac{1}{\alpha + 2\beta} + \frac{1}{2\alpha + \beta}$ is equal to

(A) $\frac{12}{17}$ (B) $\frac{17}{12}$

(C) $\frac{11}{17}$ (D) $\frac{13}{17}$

65. If the mid-points of the sides of a triangle are (1, 5), (2, 6) and (3, 2), the co-ordinates of the centroid of the triangle is

(A) $\left(2, \frac{13}{3}\right)$ (B) (3, 6)

(C) (6.5, 3) (D) (3.5, 6)

66. There are four prime numbers written in ascending order. The product of first three is 385 and the product of last three is 1001. The last number is

(A) 11 (B) 13

(C) 17 (D) 19

Space for Rough Work

BIOLOGY – (PART – D)

*This part contains **6 Multiple Choice Questions** number **67 to 72.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

67. Natural aging of lakes and ponds causes eutrophication due to excess of nutrients in the water bodies. Which of the following occurs as a result?
(A) BOD decreases (B) BOD increases
(C) DO increases (D) Both (A) and (C)

68. Kalyan Sona and Sonalika became very popular and were fore-runners of Green Revolution in India. These were varieties of
(A) Rice (B) Wheat
(C) Sugarcane (D) Maize

69. A prokaryotic organism **'X'** is very small in size. Although a bacteria it does not have a cell wall. Identify **'X'**.
(A) *Mycoplasma* (B) *Mycobacterium*
(C) *Lactobacillus* (D) All of the above

70. Statement I: Ribosomes help in protein synthesis.
Statement II: Ribosomes are non membranous.
(A) Both statement I and II are true
(B) Both statement I and II are false
(C) Statement I is true, statement II is false
(D) Statement I is false, statement II is true

71. The type of cells found in the nervous tissue are
(I) Neuron
(II) Glial cells
(III) Chondrocytes
(IV) Osteocytes
(A) (I), (II), (III) only (B) (II), (III), (IV) only
(C) (II) and (III) only (D) (I) and (II) only

72. The pollutant CFC is responsible for
(A) Ozone hole (B) Green House Effect
(C) Both (A) and (B) (D) Cumulative poisoning

Space for Rough Work

Recommended Time: 50 Minutes for Section – IV

Section – IV

PHYSICS – (PART – A)

*This part contains **5 Multiple Choice Questions** number **73 to 77.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

73. The masses of two planets A and B are in the ratio 1 : 2 and their radius are in the ratio 1 : 2 respectively. Then the ratio of acceleration due to gravity on the surface of planet A to the acceleration due to gravity on the surface of planet B will be
(A) 1 : 2 (B) 2 : 1
(C) 3 : 5 (D) 5 : 3

74. Two particles of equal mass 'm' go round a circle of radius 'R' on diametrically opposite ends under the action of their mutual gravitational attraction. The speed of each particle is
(A) $v = \frac{1}{2R}\sqrt{\frac{1}{Gm}}$ (B) $v = \sqrt{\frac{Gm}{2R}}$
(C) $v = \frac{1}{2}\sqrt{\frac{Gm}{R}}$ (D) $v = \sqrt{\frac{4Gm}{R}}$

75. The time period of a satellite moving around a planet in a circular orbit of radius R is T, the time period of another satellite moving around the same planet in a circular orbit of radius 4R is
(A) 4 T (B) T/4
(C) 8 T (D) T/8

76. A hammer of mass 500 g, moving at 20 m/s, strikes a nail. The nail stops the hammer in a very short time of 0.01 sec. What is the magnitude of the force due to nail on the hammer?
(A) 10,000 N (B) 1000 N
(C) 100 N (D) 1 N

77. An aeroplane is moving with constant horizontal velocity u at height h. The velocity of a packet dropped from aeroplane, when it reaches on the earth's surface will be (g is acceleration due to gravity)
(A) $\sqrt{u^2 + 2gh}$ (B) $\sqrt{2gh}$
(C) 2 gh (D) $\sqrt{u^2 - 2gh}$

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **5 Multiple Choice Questions** number **78 to 82.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

78. Which technique is used in diagnostic laboratories for blood and urine tests?
(A) Filtration (B) Distillation
(C) Sublimation (D) Centrifugation

79. During fractional distillation of air, which gas is distilled first?
(A) Oxygen (B) Nitrogen
(C) Argon (D) Carbon dioxide

80. 18 carat gold contains 18 parts gold and 6 parts of copper by mass. The concentration of Au and Cu in 18 carat gold in % (m/m) respectively is :
(A) 65%, 35 % (B) 40%, 60%
(C) 75%, 25% (D) 80%, 20%

81. Rate of rusting (corrosion) is highest in
(A) Pure water (B) Alkaline water
(C) Dry air (D) Saline water

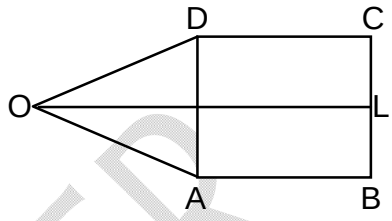
82. Read the given statement and select the correct option :
Statement I : During fractional distillation of petroleum, the temperature increases inside the fractionating column on going from bottom to the top.
Statement II : The fraction with the lower boiling point condenses first.
(A) Both statement I and II are true and statement II is the correct explanation of statement I
(B) Both statement I and II are true but statement II is not the correct explanation of statement I
(C) Statement I is true but statement II is false
(D) Both statement I and II are false

Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **5 Multiple Choice Questions** number **83 to 87.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

83. ABCD is a square of side 'a'. ΔADO is an equilateral triangle and OL is perpendicular to BC. Then area of trapezium AOLB is



(A) $\frac{a^2}{2}+\frac{\sqrt{3}}{8}a^2$

(B) $\frac{a^3}{2}+\frac{\sqrt{3}}{4}a^3$

(C) $a^3+\sqrt{3}\,a^3$

(D) $\frac{a^3}{2}+\frac{\sqrt{3}}{2}a^3$

84. A number N = ABCD is a four digit number where (A, B, C, D) are digits, in which A + D = 7 and B + C = 7. Another number M = DCBA is also a four digit where D, C, B and A are digits. The sum (N + M) is not divisible by

(A) 7 (B) 11

(C) 101 (D) 111

85. If A is the area of a right angled triangle and b is one of the sides containing the right angle, then the length of altitude on the hypotenuse is

(A) $\frac{2Ab}{\sqrt{b^4+4A^2}}$ (B) $\frac{2A^2b}{\sqrt{b^4+4A^2}}$

(C) $\frac{2Ab^2}{\sqrt{b^4+4A^2}}$ (D) $\frac{2A^2b^2}{\sqrt{b^4+A^2}}$

86. 'a' is the smallest odd prime number. If N is smallest two digit number by which $a(a^2-1)$ is divisible, then find the sum of digits of N.

(A) 6 (B) 8

(C) 3 (D) 0

87. If ab – b + 1 = 0 and bc – c + 1 = 0, then find the value of (a – ac).

(A) 1 (B) 0

(C) – 1 (D) none of these

Space for Rough Work

PHYSICS – (PART – D)

*This part contains **3 Numerical Based Questions** number **88 to 90.** Each question has **Single Digit Answer 0 to 9.***

88. A constant retarding force of 20 N is applied on a body of mass 2 kg moving with a speed of 10 m/s. Time taken by the body to stop is x sec. What is the value of x?

89. Two bodies are released from the same height at an interval of 1 sec. t second after the first body begins to fall, the two bodies are 5 m apart. The value of t in second is :– $\left(g = 10\ m/s^2\right)$

90. At a height h km above the earth surface the value of acceleration due to gravity g is same as in a mine d = 10 km deep, find the value of h in km. Given that h and d both are very small as compared to the radius(R) of the earth.

Space for Rough Work

CHEMISTRY – (PART – E)

*This part contains **3 Numerical Based Questions** number **91 to 93.** Each question has **Single Digit Answer 0 to 9.***

91. How many changes out of following are chemical changes.
Rusting of iron, Cooking of food, Freezing of water, Burning of candle, Mixing iron and sand, Dissolving sugar in water, Growth of plant.

92. If 3 ml of acetone is dissolved in 147 ml of water. What is its concentration (v/v).

93. How many out of the following are example of gel?
Milk, Cheese, Jam, Face cream, Curd, Shoe polish, Smoke

Space for Rough Work

MATHEMATICS – (PART – F)

*This part contains **3 Numerical Based Questions** number **94 to 96.** Each question has **Single Digit Answer 0 to 9.***

94. Let A(0, 0), B(3, 4), C(6, 0) be the co-ordinate of ΔABC. A point R inside the triangle is such that ΔRAB, ΔRBC and ΔRAC are of equal area. Find the product of the co-ordinates of R.

95. A triangle is formed by the points A(2, 5) B(3, 8) and C(x, y). If the centroid of ΔABC is (3, 5) then find the value of $8\left(\frac{1}{x}+\frac{1}{y}\right)$.

96. In a triangle ABC, if AB = 5 cm, BC = x cm and AC = 4 cm, then find the number of such possible triangles for which x is an integer?

Space for Rough Work

FIITJEE ADMISSION TEST

CLASS – X (PAPER – 2)
ANSWERS

1.	**B**	2.	**A**	3.	**C**	4.	**D**
5.	**D**	6.	**C**	7.	**A**	8.	**D**
9.	**A**	10.	**A**	11.	**B**	12.	**A**
13.	**B**	14.	**C**	15.	**A**	16.	**A**
17.	**A**	18.	**C**	19.	**D**	20.	**A**
21.	**D**	22.	**A**	23.	**B**	24.	**C**
25.	**D**	26.	**C**	27.	**C**	28.	**B**
29.	**C**	30.	**D**	31.	**A**	32.	**A**
33.	**B**	34.	**B**	35.	**B**	36.	**C**
37.	**B**	38.	**A**	39.	**B**	40.	**A**
41.	**B**	42.	**C**	43.	**B**	44.	**B**
45.	**D**	46.	**D**	47.	**C**	48.	**C**
49.	**C**	50.	**A**	51.	**C**	52.	**B**
53.	**A**	54.	**D**	55.	**B**	56.	**A**
57.	**D**	58.	**D**	59.	**B**	60.	**D**
61.	**C**	62.	**D**	63.	**B**	64.	**A**
65.	**A**	66.	**B**	67.	**B**	68.	**B**
69.	**A**	70.	**A**	71.	**D**	72.	**C**
73.	**B**	74.	**C**	75.	**C**	76.	**B**
77.	**A**	78.	**D**	79.	**B**	80.	**C**
81.	**D**	82.	**D**	83.	**A**	84.	**D**
85.	**A**	86.	**C**	87.	**A**	88.	**1**
89.	**1**	90.	**5**	91.	**4**	92.	**2**
93.	**4**	94.	**4**	95.	**6**	96.	**7**