

# FIITJEE Admission Test

for students presently in **Class 11 (Paper 1)**

Time: 3 Hours (9:00 am – 12:00 pm)

**CODE: 1112-1**

Maximum Marks: 243

## 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 60 Minutes on Section-I and 120 Minutes on Section-II.
2. This Question paper consists of 2 sections. Marking scheme is given in table below:

Section	Subject	Question no.	Marking Scheme for each question	
			Correct answer	Wrong answer
SECTION – I	APTITUDE TEST	1 to 30	+3	0
SECTION – II	PHYSICS (PART-A)	31 to 47	+3	0
	CHEMISTRY (PART-B)	48 to 64	+3	0
	MATHEMATICS (PART-C)	65 to 81	+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 below.

**Note:** Please check this Question Paper contains all **81** 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 : \_\_\_\_\_

## Recommended Time: 60 Minutes for Section – I

### Section – I

## APTITUDE TEST

*This section contains 30 Multiple Choice Questions number 1 to 30. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.*

1. Find out the missing term of the series.  
2, 3, 8, 27, 112, ?  
(A) 226 (B) 339 (C) 452 (D) 565
2. Find out the missing term of the series.  
 $\frac{2}{3}, \frac{4}{7}, ?, \frac{11}{21}, \frac{16}{31}$   
(A)  $\frac{5}{9}$  (B)  $\frac{6}{11}$  (C)  $\frac{7}{13}$  (D)  $\frac{9}{17}$
3. David gets on the elevator at the 11<sup>th</sup> floor of a building and rides up at the rate of 57 floors per minute. At the same time, Albert gets on an elevator at the 51<sup>st</sup> floor of the same building and rides down at the rate of 63 floors per minute. If they continue travelling at these rates, then at which floor will their paths cross?  
(A) 19 (B) 28 (C) 30 (D) 37
4. If 'A' is coded as 1, 'B' as 3, 'C' as 5 and so on, which of the following is the numerical value of the word 'FAZED'?  
(A) 81 (B) 79 (C) 77 (D) 80
5. If  $54/32 = 4$ ,  $36/42 = 3$ ,  $92/22 = 7$  then what is  $28/33 = ?$   
(A) 5 (B) 6 (C) 4 (D) 9
6. A letter number series is given with one or more terms missing as shown below. Choose the alternative next in the sequence.  
A4X, D9U, G16R, .....  
(A) K25P (B) J25P (C) J25O (D) J25C

**Space for Rough Work**

7. In what ratio must a person mix three kinds of tea costing Rs.60/kg, Rs.75/kg and Rs.100 /kg so that the resultant mixture when sold at Rs.96/kg yields a profit of 20%?  
 (A) 1 : 2 : 4 (B) 3 : 7 : 6 (C) 1 : 4 : 2 (D) None of these
8. How many litres of water should be added to a 30 litre mixture of milk and water containing milk and water in the ratio of 7 : 3 such that the resultant mixture has 40% water in it?  
 (A) 7 litres (B) 10 litres (C) 5 litres (D) None of these
9. A 20 litres mixture of milk and water comprising 60% pure milk is mixed with "x" litres of pure milk. The new mixture comprises 80% milk. What is the value of "x"?  
 (A) 40 litres (B) 20 litres (C) 8 litres (D) 16 litres
10. Of the 200 candidates who were interviewed for a position at a call center, 100 had a two-wheeler, 70 had a credit card and 140 had a mobile phone. 40 of them had both, a two-wheeler and a credit card, 30 had both, a credit card and a mobile phone and 60 had both, a two wheeler and mobile phone and 10 had all three. How many candidates had none of the three?  
 (A) 0 (B) 20 (C) 10 (D) 18

**Directions (Q11 – Q15): Study the following information carefully to answer the given questions.**

Seven Friends, namely A, B, C, D, E, F and G visit seven different Countries namely US Germany China, UAE, Netherlands,UK and Russia,(but not necessarily in same order). starting from Monday to Sunday(of the same week).C visits on Thursday. Only two people visit between C and the one who visits Germany. Only four people visit between the one who visits Germany and G. The one who visits Russia visits immediately before G. Only two people visit between the one who visits Russia and A. D visits one of the days after the one who visit Russia. F visits immediately after the onewho visit US. F does not visit Russia. Only three people visit between the one who visits US and the one who visits Netherlands. The one who visits UK visits immediately before the one who visits China. B does not visit on Monday.

11. Which of the following countries does B visit?  
 (A) China (B) Russia (C) US (D) Netherlands
12. On which of the following days does F visit a country?  
 (A) Friday (B) Saturday (C) Sunday (D) Wednesday
13. Which of the following is true about E?  
 (A) All the options are true (B) E visits on Friday  
 (C) E visits China (D) E visits immediately before A.
14. Who amongst the following visits UAE?  
 (A) D (B) E (C) A (D) G

---

*Space for Rough Work*

15. As per the given arrangement, A is related to the one who visits US in a certain way and G is related to the one who visits Netherlands in the same way. To which of the following is C related to in the same way.  
 (A) The one who visits UK (B) The one who visits China  
 (C) The one who visits UAE (D) The one who visits Russia

16. Choose the alternative which is closely resembles the mirror image of the given combination.

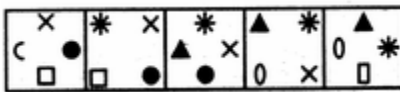
**JUDGEMENT**

- (1) TNEMEGDUJ (2) TNEMEGDUL  
 (3) TNEMEGDUL (4) LUDGEMET

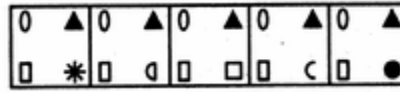
- (A) 1 (B) 2 (C) 3 (D) 4

**Directions (Q17 – Q18):**Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

17. Problem Figures:

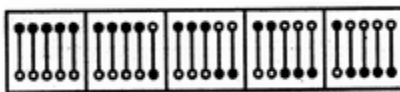


Answer Figures:

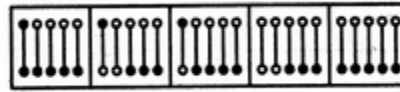


- (A) 1 (B) 2 (C) 3 (D) 4  
 (A) 1 (B) 2 (C) 3 (D) 4

18. Problem Figures:

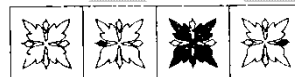


Answer Figures:

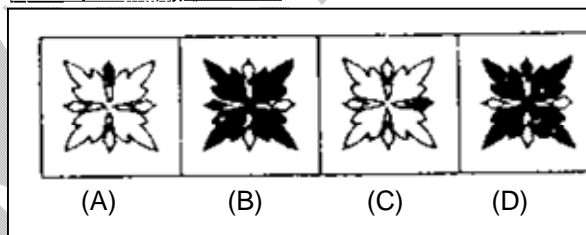


- (A) 1 (B) 2 (C) 3 (D) 5  
 (A) 1 (B) 2 (C) 3 (D) 5

19. Question figure:



Answer figure:



Space for Rough Work

20. What is the remainder when  $444^{444} \wedge 444$  is divided by 7 ?  
 (A) 1 (B) 2 (C) 3 (D) 4
21. What is the remainder when  $16^3 + 17^3 + 18^3 + 19^3$  is divided by 70 ?  
 (A) 35 (B) 2 (C) 5 (D) 0
22. A mixture contains milk and water in the ratio 5 : 1. On adding 5 liters of water, the ratio of milk and water becomes 5 : 2. The quantity of milk in the original mixture is?  
 (A) 16 litres (B) 25 litres (C) 22.75 liters (D) 32.5 liters
23. A earns 25% more than B. C earns 25% more than A. A earns 20% more than D. E earns 20% more than A. A, B, C, D, and E earn integer amounts less than Rs. 100. What is the total amount earned by all five of them put together?  
 (A) Rs. 300 (B) Rs. 245 (C) Rs. 305 (D) Rs. 480
24. A manufacturer has 200 litres of Acid solution which has 15% acid content. How many litres of solution with 30% Acid content may be added so that Acid content in the resulting mixture will be more than 20% but less than 25%  
 (A) More than 100 litres but less than 300 litres (B) More than 120 litres but less than 400 litres  
 (C) More than 100 litres but less than 400 litres (D) More than 120 litres but less than 300 litres
25. 4 men and 6 women complete a task in 24 days. If the women are at least half as efficient as the men, but not more efficient than the men, what is the range of the number of days for 6 women and 2 men to complete the same task?  
 (A) 30 to 33.6 days (B) 32 to 35 days (C) 33.6 to 35 days (D) 30 to 35 days
26. Which number replaces the question mark ?
- |   |   |   |
|---|---|---|
| 3 |   | 9 |
| 7 | 2 | 2 |
| 4 |   | 1 |
- |   |   |   |
|---|---|---|
| 1 |   | 6 |
| 5 | 7 | 3 |
| 4 |   | 8 |
- 
- |   |   |   |
|---|---|---|
| 9 |   | 8 |
| 2 | 1 | 7 |
| 6 |   | 3 |
- |   |   |   |
|---|---|---|
| 4 |   | 5 |
| 8 | ? | 1 |
| 2 |   | 3 |
- (A) 5 (B) 6 (C) 7 (D) 8

---

*Space for Rough Work*

27. A man drives his car 50 km towards eastward directions. He turned right went for 30 km, then he turned west and drive for 10 km. How far is he from the starting point?  
(A) 50 km (B) 60 km (C) 100 km (D) 20 km
28. C is 20% more efficient that A. A and B together can finish a piece of work in 16 days. B and C together can do it in 15 days. In how many days A alone can finish the same piece of work?  
(A) 42 (B) 48 (C) 54 (D) 36
29. A tank is filled by three pipes in a certain time. The first and the third pipes operating simultaneously fill the tank in the same time in which the tank is filled by the second pipe alone. The third pipe fills the tank 15 hours faster than the first pipe and 5 hours slower than the second pipe. The time required (in hours) by the first pipe to fill the tank alone is:  
(A) 30 (B) 20 (C) 45 (D) 50
30. Two runners A and B start running from the same point on a circle in the same direction. A runs at a speed of 20 meters/sec, B runs at the speed of 30 meters/sec. The circumference of the circle is 1000 meters. At what regular time intervals would they meet?  
(A) 100 sec. (B) 200 sec. (C) 300 sec. (D) 50 sec.

---

*Space for Rough Work*

## Recommended Time: 120 Minutes for Section – II

### Section – II

## PHYSICS – (PART – A)

**This part contains 17 Multiple Choice Questions number 31 to 47. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct.**

31. The height of the point vertically above the earth's surface at which the acceleration due to gravity becomes 1% of its value at the surface is ( $R$  is the radius of the earth)  
 (A)  $8R$  (B)  $9R$  (C)  $10R$  (D)  $20R$
32. A metal wire of length  $L$  and radius  $r$  is clamped rigidly at one end. A force  $F$  is applied at another end so that its length increases by  $L$ . The increase in length of another metal wire of length  $2L$  and radius  $2r$ , when stretched by a force  $2F$ , will be  
 (A)  $2L$  (B)  $L$  (C)  $L/2$  (D)  $L/4$
33. A body of mass  $m_1$  moving with uniform velocity of 40 m/s collides with another mass  $m_2$  at rest and then the two together begin to move with uniform velocity of 30 m/s. The ratio of their masses  $\frac{m_1}{m_2}$  is  
 (A) 0.75 (B) 1.33 (C) 3.0 (D) 4.0
34. A particle is released from rest at origin. It moves under the influence of potential field  $U = x^2 - 3x$ , where  $U$  is in Joule and  $x$  is in metre. Kinetic energy at  $x = 2$  m will be  
 (A) 2 J (B) 1 J (C) 1.5 J (D) 0 J
35. The potential energy of a particle of mass  $m$  is given by  $U = \frac{1}{2}kx^2$  for  $x < 0$  and  $U = 0$  for  $x \geq 0$ .  
 If total mechanical energy of the particle is  $E$ . Then its speed at  $x = \sqrt{\frac{2E}{k}}$  is  
 (A) zero (B)  $\sqrt{\frac{2E}{m}}$  (C)  $\sqrt{\frac{E}{m}}$  (D)  $\sqrt{\frac{E}{2m}}$

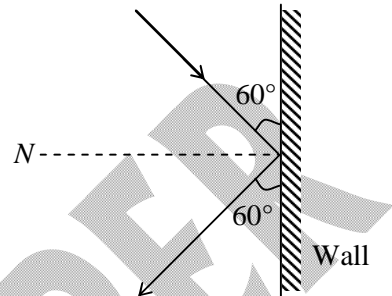
**Space for Rough Work**

36. If  $R$  is the radius of earth,  $\omega$  is its angular velocity and  $g_p$  is the value of acceleration due to gravity at the poles, then effective value of acceleration due to gravity at the latitude  $\lambda = 60^\circ$  will be equal to

(A)  $g_p - \frac{1}{4}R\omega^2$       (B)  $g_p - \frac{3}{4}R\omega^2$       (C)  $g_p - R\omega^2$       (D)  $g_p + \frac{1}{4}R\omega^2$

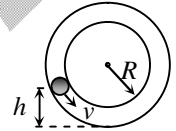
37. A 3 kg ball strikes a heavy rigid wall with a speed of 10 m/s at an angle of  $60^\circ$  with the wall. It gets reflected with the same speed at  $60^\circ$  with the wall. If the ball is in contact with the wall for 0.2 s, the average force exerted on the ball by the wall is

(A) 300 N      (B) zero  
(C)  $150\sqrt{3}$  N      (D) 150 N



38. With what minimum speed  $v$  must a small ball should be pushed inside a smooth vertical tube from a height  $h$  so that it may reach the top of the tube? Radius of the tube is  $R$ . (Assume radius of cross-section of tube is negligible in comparison to  $R$ )

(A)  $\sqrt{2g(h+2R)}$       (B)  $\frac{5}{2}R$       (C)  $\sqrt{g(5R-2h)}$       (D)  $\sqrt{2g(2R-h)}$

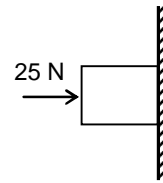


39. The relation between time 't' and displacement  $x$  is  $t = \alpha x^2 + \beta x$ , where  $\alpha$  and  $\beta$  are constants. The retardation is

(A)  $2\alpha v^3$       (B)  $2\beta v^3$       (C)  $2\alpha\beta v^3$       (D)  $2\beta^2 v^3$

40. A horizontal force of 25 N is necessary to just hold a block stationary against a wall. The coefficient of friction between the block and the wall is 0.4. The weight of the block is

(A) 2.5 N      (B) 20 N  
(C) 10 N      (D) 5 N



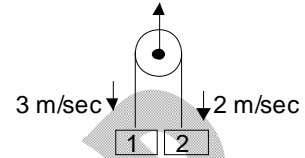
Space for Rough Work



41. A heavy particle of weight ' $w$ ' attached to a fixed point by a light inextensible string describes uniform circular motion in a vertical plane. The tension in the string has values ' $mw$ ' and ' $nw$ ' respectively when the particle is at highest and lowest points in the path. Then

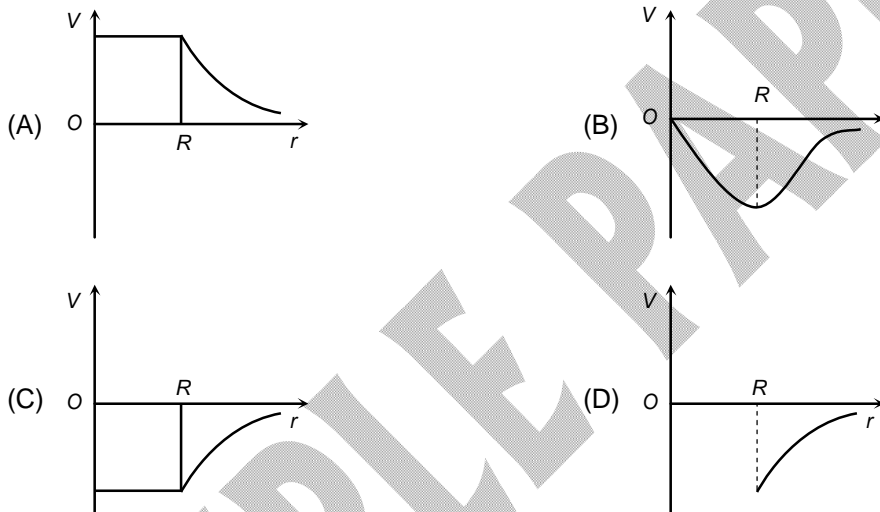
(A)  $m+n=6$                       (B)  $\frac{m}{n}=2$                       (C)  $m-n=-6$                       (D)  $n-m=-6$

42. Two masses are connected by string which passes over a pulley accelerated upward with an acceleration  $a_0$ . If acceleration of bodies 1 and body 2 are  $3 \text{ m/sec}^2$  and  $2 \text{ m/sec}^2$  respectively then  $a_0 = ?$



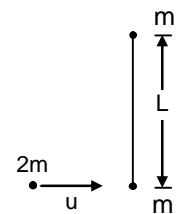
(A)  $5/2 \text{ m/sec}^2$                       (B)  $1/2 \text{ m/sec}^2$   
 (C)  $3/2 \text{ m/sec}^2$                       (D)  $1 \text{ m/sec}^2$

43. By which curve will the variation of gravitational potential of a hollow sphere of radius  $R$  with distance be depicted



44. Two small balls A and B, each of mass  $m$ , are joined rigidly at the ends of a light rod of length  $L$ . They are placed on a frictionless horizontal surface. Another ball of mass  $2m$  moving with speed  $u$  towards one of the ball and perpendicular to the length of the rod on the horizontal frictionless surface as shown in the figure. If the coefficient of restitution is  $1/2$  then the angular speed of the rod after the collision will be

(A)  $\frac{4}{3} \frac{u}{\ell}$                                       (B)  $\frac{u}{\ell}$   
 (C)  $\frac{2}{3} \frac{u}{\ell}$                                       (D) None of these

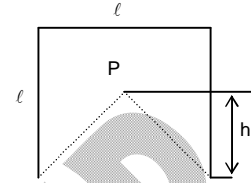


Space for Rough Work

45. Average velocity of a particle in projectile motion between its starting point and the highest point of its trajectory is (projection speed =  $u$ , angle of projection from horizontal =  $\theta$ )

- (A)  $u \cos \theta$                       (B)  $\frac{u}{2} \sqrt{1+3\cos^2 \theta}$                       (C)  $\frac{u}{2} \sqrt{2+\cos^2 \theta}$                       (D)  $\frac{u}{2} \sqrt{1+\cos^2 \theta}$

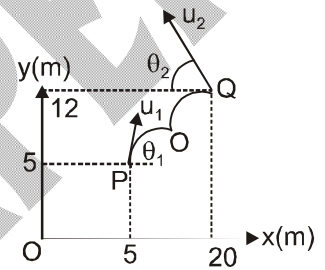
46. An isosceles triangle is to be cut from one edge of a square lamina (as shown in the figure) such that the remaining portion when suspended from the apex P of the cut will remain in equilibrium in any position. The value of  $h$  is



- (A)  $\frac{(3-\sqrt{3})\ell}{2}$                       (B)  $\frac{(3+\sqrt{3})\ell}{2}$                       (C)  $\frac{(2-\sqrt{2})\ell}{2}$                       (D)  $\frac{(2+\sqrt{2})\ell}{2}$

47. Two particles P and Q are projected simultaneously, as shown in figure. They collide in air at point O, after time  $t$ . Find the value of  $(u_1 \sin \theta_1 - u_2 \sin \theta_2) t$  (in meters).

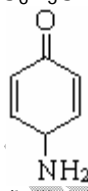
- (A) 4  
(B) 5  
(C) 6  
(D) 7



Space for Rough Work

## CHEMISTRY – (PART – B)

This part contains 17 Multiple Choice Questions number 48 to 64. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

48. The degree of dissociation of  $\text{Ca}(\text{NO}_3)_2$  in a dilute aqueous solution containing 14g of the salt per 200g of water at  $100^\circ\text{C}$  is 70 percent. If the vapour pressure of water at  $100^\circ\text{C}$  is 760 mm. Calculate the vapour pressure of the solution  
 (A) 746.3 mm of Hg (B) 757.5 mm of Hg  
 (C) 740.9 mm of Hg (D) 750 mm of Hg
49. Keto-enol tautomerism is observed in  
 (i)  $\text{C}_6\text{H}_5\text{COCH}_3$  (ii)  $\text{C}_6\text{H}_5\text{CHO}$   
 (iii)  $\text{C}_6\text{H}_5 - \text{CO} - \text{CH}_2 - \text{CO} - \text{CH}_3$  (iv)   
 (A) (i, iii) (B) (i, iii, iv)  
 (C) (i, ii, iii) (D) (ii, iv)
50. The ratio of the energy of the electron in ground state of hydrogen to that of the electron in first excited state of  $\text{Be}^{3+}$  is  
 (A) 1 : 4 (B) 1 : 8  
 (C) 1 : 16 (D) 16 : 1
51. In the process,  $\text{O}_2^+ \rightarrow \text{O}_2^{+2} + e^-$  the electron lost is from  
 (A) Bonding  $\pi$ -orbital (B) Antibonding  $\pi$ -orbital  
 (C)  $2p_z$  orbital (D)  $2p_x$  orbital
52. The first ionization potential in electron volts of nitrogen and oxygen atoms are respectively given by  
 (A) 14.6, 13.6 (B) 13.6, 14.6  
 (C) 13.6, 13.6 (D) 14.6, 14.6

**Space for Rough Work**

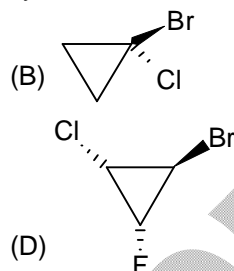
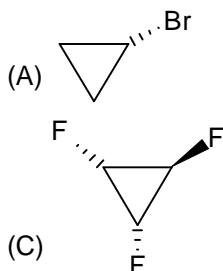
53. When  $N_2^+$  is formed from  $N_2$ , bond order ..... and when  $O_2^+$  is formed from  $O_2$  bond order  
 (A) increases, increases (B) decreases, decreases  
 (C) increases, decreases (D) decreases, increases
54. In the reaction:  $3Br_2 + 6CO_3^{2-} + 3H_2O \rightarrow 5Br^- + BrO_3^- + 6HCO_3^-$   
 Which statement is incorrect  
 (A) Bromine is oxidised, and carbonate is reduced  
 (B) Bromine is oxidised  
 (C) Bromine is reduced  
 (D) It is disproportionation reaction.
55. 25 ml of 0.50 M  $H_2O_2$  solution is added to 50 ml of 0.20 M  $KMnO_4$  in acidic solution. Which of the following statement(s) is/are true?  
 (A) 0.10 mole of oxygen is liberated  
 (B) 0.005 mole of  $KMnO_4$  does not react with  $H_2O_2$   
 (C) 0.01 mole of oxygen gas is evolved  
 (D) 0.0025 mole of  $H_2O_2$  does not react with  $KMnO_4$
56. Hydroxylamine reduces iron (III) according to following equation  
 $NH_2OH + Fe_2(SO_4)_3 \rightarrow N_2(g) + H_2O + FeSO_4 + H_2SO_4$   
 Which statement is correct?  
 (A) n-factor for hydroxylamine is 1.  
 (B) equivalent weight of  $Fe_2(SO_4)_3$  is  $M/2$   
 (C) 6 milliequiv. of  $Fe_2(SO_4)_3$  is contained in 3 millimoles of ferric sulphate.  
 (D) All of these.
57. Which of the following is the weakest acid?  
 (A)  $Cl_3CCOOH$  (B)  $Cl_2CHCOOH$   
 (C)  $ClCH_2COOH$  (D)  $CH_3COOH$
58. An ethanolic solution of naphthalene contains 0.25 mole fraction of solute. Molality of solution is  
 (A) 5.92 m (B) 3.39 m  
 (C) 7.25 m (D) 9.47
59. Choose the incorrect match.  
 (A)  $BrF_5$  - F-Br-F bond angles are of  $90^\circ$   
 (B)  $SO_3$  - contains 6 lone pairs  
 (C)  $PBr_{5(solid)}$  - cationic moiety contains all the P-Br bonds of equal bond length  
 (D)  $ClO_4^-$  - d-orbitals are involved in formation of all the three  $\pi$ -bonds.

---

*Space for Rough Work*

60. The electronic velocity in the fourth Bohr orbit of hydrogen is  $v$ . The velocity of the electron in the first orbit would be  
 (A)  $4v$  (B)  $16v$   
 (C)  $v/4$  (D)  $v/16$

61. Find out which of the following molecule is optically active.



62. Which of the following dimethylcyclobutanes is chiral?  
 (A) trans-1,2-dimethylcyclobutane (B) cis-1,2-dimethylcyclobutane  
 (C) trans-1,3-dimethylcyclobutane (D) cis-1,3-dimethylcyclobutane
63. A buffer solution cannot be prepared from a mixture of  
 (A) sodium acetate and acetic acid in water (B) sodium acetate and HCl in water  
 (C) ammonia and ammonium chloride in water (D) ammonia and sodium hydroxide in water.
64. Which hydride is an ionic hydride?  
 (A)  $H_2S$  (B)  $TiH_{1.73}$   
 (C)  $NH_3$  (D)  $NaH$

---

*Space for Rough Work*

## MATHEMATICS – (PART – C)

This part contains 17 Multiple Choice Questions number 65 to 81. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

65. Find ratio of radius of incircle to radius of circumcircle in an isosceles right angle triangle?  
 (A)  $\sqrt{2} + 1$  (B)  $\sqrt{2} - 1$  (C)  $\sqrt{3} + 1$  (D)  $\sqrt{3} - 1$
66. Find value of  $\left(1 + \cos \frac{\pi}{9}\right)\left(1 + \cos \frac{3\pi}{9}\right)\left(1 + \cos \frac{5\pi}{9}\right)\left(1 + \cos \frac{7\pi}{9}\right)$ ?  
 (A)  $\frac{9}{16}$  (B)  $\frac{11}{16}$  (C)  $\frac{13}{16}$  (D)  $\frac{5}{16}$
67. Value of series  $1^2 - 2^2 + 3^3 - 4^4 + \dots - 50^2 + 51^2$  is  
 (A) 1136 (B) 1256 (C) 1226 (D) 1326
68. If 100 times the 100<sup>th</sup> term of an Arithmetic progression (AP) with non-zero common difference equal the 50 times of its 50<sup>th</sup> term, then 150<sup>th</sup> term of this AP is  
 (A) 150 (B) -150 (C) 0 (D) 50
69. Length of intercept on the straight line  $4x - 3y - 10 = 0$  by circle  $x^2 + y^2 - 2x + 4y - 20 = 0$  is  
 (A) 8 (B) 12 (C) 6 (D) 10
70. If  $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ , (a, b, c, g, f, h are constants), find  $\frac{dy}{dx}$  equals ?  
 (A)  $-\frac{bx + hy + g}{hx + ay + f}$  (B)  $-\frac{ax + by + g}{hx + fy + g}$  (C)  $-\frac{ax + hy + g}{hx + by + f}$  (D)  $-\frac{hx + by + g}{ax + hy + f}$
71.  $\lim_{x \rightarrow 0} \frac{\tan x - \sin x}{x^3}$  equals  
 (A)  $\frac{1}{2}$  (B) 0 (C) 1 (D) 2

---

*Space for Rough Work*

72. Value of  $\lambda$  so that line  $3x - 4y = \lambda$  is tangent to circle  $x^2 + y^2 - 4x - 8y - 5 = 0$  is  
 (A)  $-15, 35$  (B)  $15, 35$  (C)  $-15, -35$  (D)  $15, -35$
73. Which of the following cannot be length of focal chord of parabola  $y^2 = 4ax$  ?  
 (A)  $4a$  (B)  $6a$  (C)  $3a$  (D)  $5a$
74. If P be any point on ellipse  $9x^2 + 16y^2 = 144$ , S and S' be its foci, then  $PS + PS'$  equals  
 (A) 4 (B) 6 (C) 8 (D) 10
75. If A and B are two sets and  $A^c$  denotes complement of set A, then  $A \cap (A \cup B)^c$  equals  
 (A)  $\phi$  (B) A (C) B (D)  $A \cap B$
76. Distance between foci of hyperbola  $x^2 - 4y^2 = 4$  is ?  
 (A)  $2\sqrt{5}$  (B)  $\sqrt{5}$  (C)  $4\sqrt{5}$  (D) 2
77.  $\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 + \cos 2x}{(\pi - 2x)^2}$  equals  
 (A) 2 (B) 0 (C) 1 (D)  $\frac{1}{2}$
78. If  $y = \sqrt{x \log_e x}$ , then  $\frac{dy}{dx}$  at  $x = e$  equals  
 (A)  $\sqrt{e}$  (B)  $\frac{1}{\sqrt{e}}$  (C)  $e\sqrt{e}$  (D)  $2\sqrt{e}$
79. If  $x^2 - \sqrt{3}x + 1 = 0$ , then value of  $x^{2020} + x^{2014} + x^{2008} + x^{2002}$  is  
 (A) 0 (B)  $\sqrt{3}$  (C) 1 (D) 2
80. If  $z$  be a complex number, then locus of  $\operatorname{Re}(z + 1) = |z - 1|$  is  
 (Re (z) represents real part of complex number z)  
 (A) Circle (B) straight line (C) Parabola (D) ellipse
81. Amplitude of  $\frac{1 + \sqrt{3}i}{\sqrt{3} + i}$  is  
 (A)  $\frac{\pi}{3}$  (B)  $\frac{\pi}{2}$  (C)  $-\frac{\pi}{6}$  (D)  $\frac{\pi}{6}$

Space for Rough Work

# FIITJEE Admission Test

for students presently in **Class 11 (Paper 1)**

## SAMPLE PAPER ANSWER KEY

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