

# JEE-ADVANCE: TEST-2

## TEST SERIES

PAPER-I

Time : 3 hrs.

M.M.: 180

TEST CODE - A

### TOPIC COVERED :

**PHYSICS:** Solids, Fluids, Simple Harmonic Motion and Heat & Thermodynamics.

**CHEMISTRY:** s-Block, Chemical equilibrium, Chemical Kinetics, Electrochemistry, Hydrocarbon, Alkyl, Aryl Halide and Chemical Bonding

**MATHEMATICS:** Algebra (Permutation and Combination, Quadratic Equation, Complex Number, Binomial Theorem, Progression and Series)

**ATTENTION:** *Kindly ask for the Roll No. from the invigilator to fill in OMR SHEET. Mark the Roll No. & Test code on the answer sheet properly. (No other sheet will be issued)*

### GENERAL INSTRUCTIONS :

1. The Test Paper consists of **60** questions
2. There are **Three Subjects (Physics, Chemistry & Mathematics)** in the question paper.
3. **This paper is divided into 3 parts: Physics Section (I), (II) and (III); Chemistry Section (I), (II) and (III) & Mathematics Section (I), (II) and (III).**
  - **Single Choice: Physics Section (I) (1 to 10) Chemistry Section I (16 to 25) and Mathematics Section I (31 to 40), 2 marks for each correct answer and no negative marking for incorrect answer.**
  - **Multiple correct answer type questions : Physics Section (II) (11 to 15) Chemistry Section II (26 to 30) and Mathematics Section II (41 to 45), 4 marks for each correct answer and -1 mark for incorrect answer.**
  - **Integer Type: Physics Section-III (1 to 5); Chemistry Section-III (6 to 10) and Mathematics Section- III (11 to 15), for each question you will be awarded 4 marks if you darken the bubble corresponding to the correct answer and zero mark if no bubbles are darkened. In all other cases, minus one (-1) mark will be awarded.**

Name of the Student : \_\_\_\_\_

Section : \_\_\_\_\_

Centre : \_\_\_\_\_

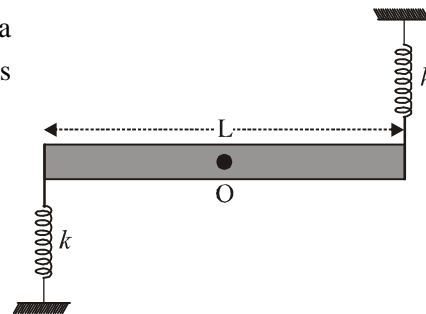
Invigilator's Signature : \_\_\_\_\_

**SECTION- I: STRAIGHT OBJECTIVE TYPE**

This section contains 10 multiple choice questions numbered 1 to 10. Each question has 4 choice (A), (B), (C) and (D), out of which ONLY-ONE is correct

1. A rod of mass  $M$  and length  $L$  is pivoted at its centre and can rotate in a vertical plane. Two springs of force constant  $k$  are connected at its ends as shown in figure. The time period of SHM is:

- (a)  $2\pi\sqrt{\frac{M}{k}}$  (b)  $2\pi\sqrt{\frac{M}{2k}}$   
 (c)  $2\pi\sqrt{\frac{M}{6k}}$  (d)  $2\pi\sqrt{\frac{M}{3k}}$



2. A particle is subjected to two SHMs  $X_1 = A_1 \sin \omega t$  and  $X_2 = A_2 \sin\left(\omega t + \frac{\pi}{4}\right)$ . The resultant SHM will have an amplitude of:

- (a)  $(A_1 + A_2)/2$  (b)  $\sqrt{A_1^2 + A_2^2}$  (c)  $\sqrt{A_1^2 + A_2^2 + \sqrt{2}A_1A_2}$  (d)  $\sqrt{A_1^2 + A_2^2 + \sqrt{3}A_1A_2}$

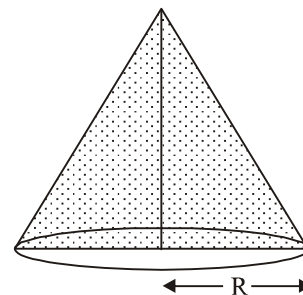
3. A particle is moving such that its displacement as a function of time is given by:  $x(x - 6) = 1 - 10 \cos \omega t$ . Then:  
 (a) its motion is translational (b) its motion is oscillatory but not SHM  
 (c) its motion is SHM (d) its motion is circular

4. A cylindrical tank is filled with water to a level of 3m. A hole is opened at a height of 52.5 cm from bottom. The ratio of the area of the hole to that of cross-sectional area of the cylinder is 0.1. Find the square of the velocity with which water is coming out: ( $g = 10 \text{ m/sec}^2$ )

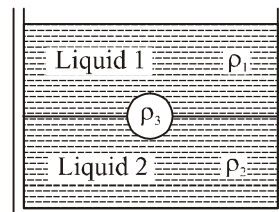
- (a)  $50 \text{ m}^2/\text{sec}^2$  (b)  $40 \text{ m}^2/\text{sec}^2$  (c)  $51.5 \text{ m}^2/\text{sec}^2$  (d)  $50.5 \text{ m}^2/\text{sec}^2$

5. A liquid of density  $\rho$  is filled in a conical vessel as shown in figure. Force exerted by liquid on side wall is:

- (a)  $\frac{2}{3}\pi R^2 \rho gh$   
 (b)  $\frac{1}{3}\pi R^2 \rho gh$   
 (c)  $\pi R^2 \rho gh$   
 (d) 0



6. A jar is filled with two non-mixing liquids 1 and 2 having densities  $\rho_1$  and  $\rho_2$  respectively. A solid ball, made of a material of density  $\rho_3$ , is dropped in the jar. It comes to equilibrium in the position shown in the figure.



- (a)  $\rho_3 < \rho_1 < \rho_2$                       (b)  $\rho_1 > \rho_3 > \rho_2$   
(c)  $\rho_1 < \rho_2 < \rho_3$                       (d)  $\rho_1 < \rho_3 < \rho_2$
7. Two capillary tubes of same length  $l$  but radii  $r_1$  and  $r_2$  are fitted in parallel to the bottom of a vessel. The pressure head is  $P$ . What should be the radius  $r$  of the single tube, that can replace the two tubes, so that the rate of flow is same as before:
- (a)  $r = r_1 + r_2$               (b)  $r = r_1^2 + r_2^2$               (c)  $r^4 = r_1^4 + r_2^4$               (d)  $\frac{1}{r} = \frac{1}{r_1} + \frac{1}{r_2}$
8. The average velocity of the molecules in a gas in equilibrium is:
- (a)  $\propto \sqrt{T}$               (b)  $\propto T$               (c)  $\propto T^2$               (d) Equal to zero
9. When an ideal diatomic gas is heated at constant pressure, the fraction of the heat energy supplied which increases the internal energy of the gas is:
- (a) (2/5)              (b) (3/5)              (c) (3/7)              (d) (5/7)
10. An electric fan is switched on in a closed room. The air in the room:
- (a) is cooled                      (b) is heated  
(c) maintains its temperature              (d) is heated or cooled depending on the atmospheric pressure

### SECTION- II: MULTIPLE CORRECT ANSWERS TYPE

This section contains 5 multiple choice questions numbered 11 to 15. Each question has 4 choice (A), (B), (C) and (D), out of which ONE OR MORE is/are correct

11. Figure shows a section of tube of varying cross-section area. Let  $A_1$ ,  $v_1$  and  $\rho_1$  respectively be cross-sectional area, velocity of fluid (an ideal gas) and density of liquid at 1 and corresponding value at 2 be  $A_2$ ,  $v_2$  and  $\rho_2$  respectively. Assuming temperature at point 1 and 2 to be same.



- (a)  $A_1 v_1 < A_2 v_2$               (b)  $A_1 v_1 = A_2 v_2$               (c)  $A_1 v_1 \rho_1 = A_2 v_2 \rho_2$               (d)  $v_1 = v_2$

12. Three simple harmonic motions in the same direction having the same amplitude  $a$  and same period are superposed. If each differs in phase from the next by  $45^\circ$ , then:
- The resultant amplitude is  $(1 + \sqrt{2})a$
  - The phase of the resultant motion relative to the first is  $90^\circ$
  - The energy associated with the resulting motion is  $(3 + 2\sqrt{2})$  time the energy associated with any single motion
  - The resulting motion is not simple harmonic
13. A linear harmonic oscillator of force constant  $2 \times 10^6$  N/m and amplitude 0.01 m has total mechanical energy of 160 J. Its:
- Maximum potential energy is 100 J
  - Maximum kinetic energy is 100 J
  - Maximum potential energy is 160 J
  - Maximum potential energy is zero
14. The  $x$ -coordinate of a particle moving on  $x$ -axis is given by  $x = 3 \sin 100x + 8 \cos^2 50t$  where  $x$  is in cm and  $t$  is time in seconds. Which of the following is/are correct about this motion?
- The motion of the particle is not SHM
  - The amplitude of the SHM of the particle is 5 cm
  - The amplitude of the resultant SHM is  $\sqrt{73}$  cm
  - The maximum displacement of the particle from the origin is 9 cm
15. If amplitude of a particle executing SHM is doubled, which of the following quantities will be doubled?
- Time period
  - Maximum velocity
  - Maximum acceleration
  - Total energy

## CHEMISTRY

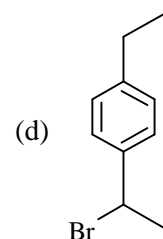
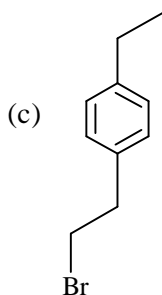
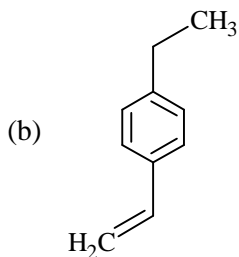
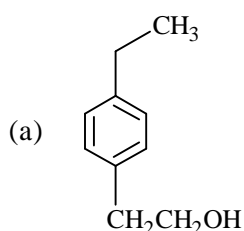
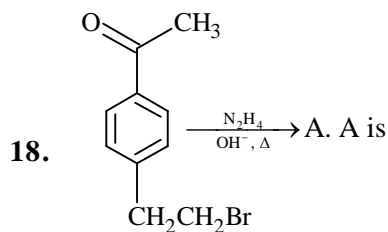
### SECTION- I: STRAIGHT OBJECTIVE TYPE

**This section contains 10 multiple choice questions numbered 16 to 25. Each question has 4 choice (A), (B), (C) and (D), out of which ONLY-ONE is correct**

16. For a reaction  $2\text{SO}_2 + \text{O}_2 \longrightarrow 2\text{SO}_3$   $\frac{-d\text{SO}_3}{dt} = 100 \text{ kg min}^{-1}$ . Find  $\frac{-d\text{SO}_2}{dt}$  in  $\text{kg min}^{-1}$
- $100 \text{ kg min}^{-1}$
  - $50 \text{ kg min}^{-1}$
  - $200 \text{ kg min}^{-1}$
  - $80 \text{ kg min}^{-1}$

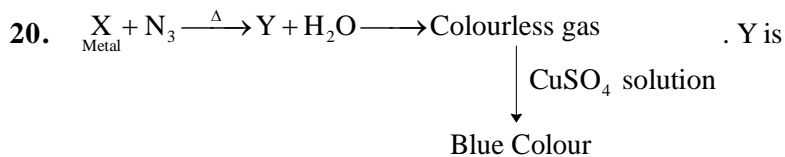
17.  $\text{PCl}_{5(g)} \rightleftharpoons \text{PCl}_{3(g)} + \text{Cl}_{2(g)}$  2 moles of  $\text{PCl}_{5(g)}$  are present in 1 L container, equilibrium constant of the reaction is 1, find the degree of dissociation

- (a)  $\frac{1}{2}$                       (b)  $\frac{1}{\sqrt{2}}$                       (c) 0.36                      (d) 0.08



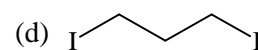
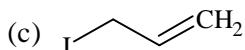
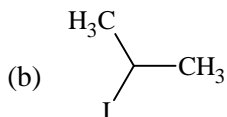
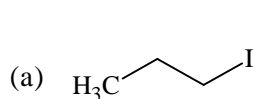
19. Property of all the alkaline earth metals that increases with their atomic number is

- (a) Solubility of their carbonates                      (b) Thermal stability of their sulphates  
(c) Ionisation energy                      (d) Electronegativity



- (a)  $\text{Mg}(\text{NO}_3)_2$                       (b)  $\text{Mg}_3\text{N}_2$                       (c)  $\text{NaN}_3$                       (d)  $\text{MgO}$

21. The major product P in the following reaction is  $\text{CH}_3 - \text{CH} = \text{CH}_2 \xrightarrow[\text{peroxide}]{\text{HI}} \text{P}$



22. The rate constant of a reaction  $A \longrightarrow \text{Product}$ , with initial concentration of a mole/L, is  $K$ , mole / L / min. The  $t_{1/2}$  for the reaction is equal to
- (a)  $\frac{0.6932}{K}$       (b)  $\frac{1}{aK}$       (c)  $\frac{1}{2aK}$       (d)  $\frac{a}{2K}$
23. Which of the following can produce more electric work
- (a)  $\text{Pb, H}_2 \mid \text{NH}_4\text{Cl} \parallel 0.1 \text{ M } \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{OH} \mid \text{H}_2, \text{Pt}$
- (b)  $\text{Pb, H}_2 \mid 0.1 \text{ M HCl} \parallel 0.1 \text{ M NaOH} \mid \text{H}_2, \text{Pt}$
- (c)  $\text{Pt, H}_2 \mid 0.1 \text{ M HCl} \parallel 0.1 \text{ M } \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O}^- \text{K}^+ \mid \text{H}_2, \text{Pt}$
- (d)  $\text{Pt, H}_2 \mid 0.1 \text{ M } \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O}^- \text{K}^+ \parallel 0.1 \text{ M HCl} \mid \text{H}_2, \text{Pt}$
24. With  $t$  taken in seconds and  $I$  taken in Ampere, the variation of  $I$  follows the equation  $t^2 + I^2 = 25$ . What amount of  $\text{Ag}$  will be electrodeposited with this current flowing in the interval  $0 - 5$  sec.
- (a) 22 mg      (b) 66 mg      (c) 77 mg      (d) 88 mg
25. What is the value of  $\text{pK}_b(\text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O}^- \text{K}^+)$  if  $\lambda_m^0 = 390$  and  $\lambda_m = 78$  for  $0.04 \text{ M}$  of  $\text{CH}_3\text{COOH}$  at  $25^\circ\text{C}$
- (a) 9.3      (b) 9.2      (c) 4.7      (d) 4.8

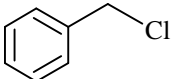
### SECTION- II: MULTIPLE CORRECT ANSWERS TYPE

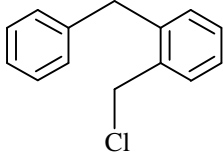
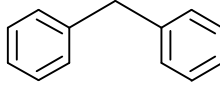
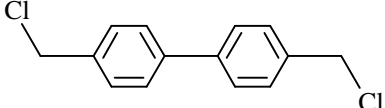
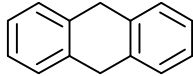
This section contains 5 multiple choice questions numbered 26 to 30. Each question has 4 choice (A), (B), (C) and (D), out of which ONE OR MORE is/are correct

26. In the following gaseous phase first order reaction:  $A_{(g)} \longrightarrow 2B_{(g)} + C_{(g)}$
- Initial pressure was found to be 400 mm of Hg and it changed to 1000 mm of Hg after 20 min then
- (a) Half life for A is 10 min
- (b) Rate constant is  $0.0693 \text{ min}^{-1}$
- (c) Partial pressure of C at 30 min is 350 mm of Hg
- (d) Total pressure after 30 min 1150 mm of Hg

27. Which of the following alkali metal oxide will form superoxide.

- (a) Na (b) K (c) Rb (d) Cs

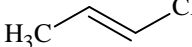
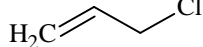
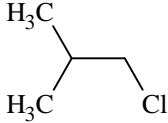
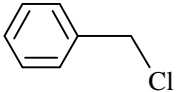
28. In the reaction   $\xrightarrow{\text{AlCl}_3}$  Products. The possible product of this reaction is

- (a)  (b)   
 (c)  (d) 

29. For the reaction  $\text{PCl}_5 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$  at equilibrium what is not true

- (a) Reaction proceed in forward direction on adding inert gas  
 (b) Reaction proceed in forward direction on decreasing pressure  
 (c) No effect of temperature in  $K_p$   
 (d)  $K_p \neq K_c$

30. Which of the following compound will give  $\text{S}_{\text{N}}1$  reaction

- (a)  (b)  (c)  (d) 

## MATHEMATICS

### SECTION- I: STRAIGHT OBJECTIVE TYPE

This section contains 10 multiple choice questions numbered 31 to 40. Each question has 4 choice (A), (B), (C) and (D), out of which ONLY-ONE is correct

31. If  $|z - 2 - i| = |z| \sin\left(\frac{\pi}{4} - \arg z\right)$ , then locus of  $z$  is a/an

- (a) ellipse (b) circle (c) parabola (d) pair of straight line

32. The value of  $a$  for which the quadratic expression  $ax^2 + |2a - 3|x - 6$  is positive for exactly two integral values of  $x$  is
- (a)  $\left(-\frac{3}{4}, \frac{-3}{5}\right)$       (b)  $\left[-\frac{3}{4}, \frac{-3}{5}\right]$       (c)  $\left[-\frac{3}{4}, \frac{-3}{5}\right]$       (d) none of these
33. If  $\alpha, \beta$  are roots of  $ax^2 + bx + c = 0$ , ( $a, b, c \in \mathbb{R}$ ),  $\frac{c}{a} < 1$  and  $b^2 - 4ac < 0$ ,  $f(n) = \sum_{r=1}^n (|\alpha|^r + |\beta|^r)$ , then  $\lim_{n \rightarrow \infty} f(n) =$
- (a)  $\frac{1}{\sqrt{a/c} + 1}$       (b)  $\frac{1}{\sqrt{a/c} - 1}$       (c)  $\frac{\sqrt{c}}{-\sqrt{a} + \sqrt{c}}$       (d)  $\frac{2}{\sqrt{a/c} - 1}$
34. If  $\alpha, \beta, \gamma$  are the roots of  $x^3 - x^2 - 1 = 0$ , then the value of  $\frac{1+\alpha}{1-\alpha} + \frac{1+\beta}{1-\beta} + \frac{1+\gamma}{1-\gamma}$  is equal to
- (a)  $-5$       (b)  $-6$       (c)  $-7$       (d) none of these
35. The values of  $a$  for which the inequality  $3 - |x - a| > x^2$  is satisfied by at least one negative  $x$ , lie in the interval
- (a)  $\left(-\frac{13}{4}, 3\right)$       (b)  $\left(\frac{13}{4}, 4\right)$       (c)  $\left(-\frac{13}{4}, \frac{13}{4}\right)$       (d) none of these
36. The sum of  $\frac{3}{1.2} \cdot \frac{1}{2} + \frac{4}{2.3} \cdot \left(\frac{1}{2}\right)^2 + \frac{5}{3.4} \cdot \left(\frac{1}{2}\right)^3 + \dots$  to  $n$  terms is equal to
- (a)  $1 - \frac{1}{(n+1)2^n}$       (b)  $1 - \frac{1}{n \cdot 2^{n-1}}$       (c)  $1 + \frac{1}{(n+1)2^n}$       (d) none of these
37. There are  $p$  intermediate stations on a railway line from one terminus to another. Number of ways a train can stop at 3 of these intermediate stations if no two of these stopping stations are to be consecutive is
- (a)  $(p - 2)^3$       (b)  $(p - 2)!$       (c)  ${}^{p-2}C_3$       (d) none of these
38. Total number of positive integral solution of  $x_1 + x_2 + x_3 \leq 10$  is
- (a)  ${}^{10}C_3$       (b)  ${}^{12}C_3$       (c)  ${}^{11}C_3$       (d)  ${}^{13}C_3$
39. Coefficient of  $x^{\frac{n^2+n-14}{2}}$  in  $(x-1)(x^2-2)(x^3-3)(x^4-4) \dots (x^n-n)$ , ( $n \geq 8$ ) is
- (a) 13      (b) 21      (c) 28      (d) none of these



40. The coefficient of  $x$  in  $\begin{vmatrix} (1+x)^{a_1b_1} & (1+x)^{a_1b_2} & (1+x)^{a_1b_3} \\ (1+x)^{a_2b_1} & (1+x)^{a_2b_2} & (1+x)^{a_2b_3} \\ (1+x)^{a_3b_1} & (1+x)^{a_3b_2} & (1+x)^{a_3b_3} \end{vmatrix}$  is
- (a) 1                      (b) 0                      (c)  $\sum_{i=1}^3 a_i b_i$                       (d) none of these

**SECTION- II: MULTIPLE CORRECT ANSWERS TYPE**

**This section contains 5 multiple choice questions numbered 41 to 45. Each question has 4 choice (A), (B), (C) and (D), out of which ONE OR MORE is/are correct**

41. Let  $z_1, z_2$  be two complex numbers represented by points on the circle  $|z| = 1$  and  $|z| = 2$  respectively then
- (a)  $\max |2z_1 + z_2| = 4$                       (b)  $\min |z_1 - z_2| = 1$
- (c)  $\left| z_2 + \frac{1}{z_1} \right| \leq 3$                       (d) none of these
42. The equation  $5x^4 + 3x^3 - 2x^2 + 5x - 8 = 0$  have
- (a) exactly one negative root  
 (b) two positive roots  
 (c) either one positive root or three positive root  
 (d) none of these
43. If  $a, b, c$  are non zero real numbers such that  $3(a^2 + b^2 + c^2 + 1) = 2(a + b + c + ab + bc + ca)$ ; then  $a, b, c$  are
- (a) in A. P.                      (b) in G.P.                      (c) in H.P.                      (d) Equal
44. For a positive integer  $n$ , let  $a(n) = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{(2^n)-1}$ . Then
- (a)  $a(100) < 100$                       (b)  $a(200) < 200$                       (c)  $a(200) > 100$                       (d)  $a(2006) > 1003$
45. If  $N = 37800$
- (a) total number of factors of  $N$  is 96                      (b) total number of factors of  $N$  is 92  
 (c) sum of odd proper divisors of  $N$  is 9919                      (d) sum of odd proper divisors of  $N$  is 9918

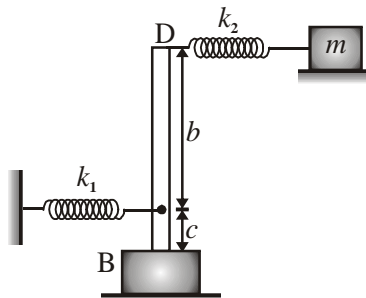
SECTION- III: INTEGER ANSWER TYPE

This section contains 15 questions. The answer to each of the question is a single digit integer, ranging from 0 to 9. The bubble corresponding to the correct answer is to be darkened in the ORS. The appropriate bubbles corresponding to the answers to these questions have to be darkened as illustrated in the following example: If answer of question number (1) is 8, then the correct darkening of bubbles will look like the following.

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	●
9	9	9	9	9	9

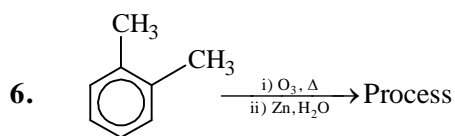
PHYSICS

1. Find the angular frequency (in rad/s) of oscillation of motion of block for small angular motion of rod BD. Consider the rod to be massless. ( $k_1 = 100 \text{ N/m}$ ,  $k_2 = 50 \text{ N/m}$ ,  $c = 5 \text{ cm}$ ,  $b = 10 \text{ cm}$ ,  $m = 1.01 \text{ kg}$ )



2. If  $\alpha$  is the coefficient of linear expansion, the change in the time period  $t$  of a physical pendulum with temperature change of  $\Delta T$  is  $x \left( \frac{1}{4} \alpha t \Delta T \right)$ . What is the value of  $x$ .
3. An ice cube of size  $a = 10 \text{ cm}$  is floating in a tank (base area  $A = 50 \text{ cm} \times 50 \text{ cm}$ ) partially filled with water. The change in gravitational potential energy, when ice melts completely is  $-x/200 \text{ J}$ . Find the value of  $x$ : (density of ice is  $900 \text{ kg/m}^3$ ).
4. Two spherical soap bubbles coalesce. If  $V$  is the consequence change in volume of the contained air and  $S$  the change in total surface area, the value of  $\frac{PV}{TS} = \frac{x}{3}$ , where  $T$  is the surface tension of soap bubble and  $P$  is atmospheric pressure.
5. A glass rod of diameter  $d_1 = 1.5 \text{ mm}$  is inserted symmetrically into a glass capillary with inside diameter  $d_2 = 2 \text{ mm}$ . Then, the whole arrangement is vertically oriented and brought in contact with the surface of water. To what height will the water rise in (in cm) the capillary? (Take  $g = 10 \text{ ms}^{-2}$  and surface tension  $T = 7.5 \times 10^{-5} \text{ N/m}$ )

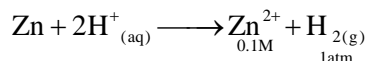
**CHEMISTRY**



Total no. of different products in the above reaction is

7. From different sets of data  $t_{1/2}$  at different initial concentration say 'a' for a given reaction, the product  $(t_{1/2} \times a)$  is found to be constant. The order of reaction is

8. The emf of cell corresponding to the reaction



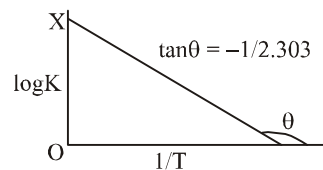
is 0.26 volt at 25°C. Calculate the pH of the solution at the hydrogen electrode

$$E^0_{\text{Zn}^{2+}|\text{Zn}} = -0.76 \text{ Volt}$$

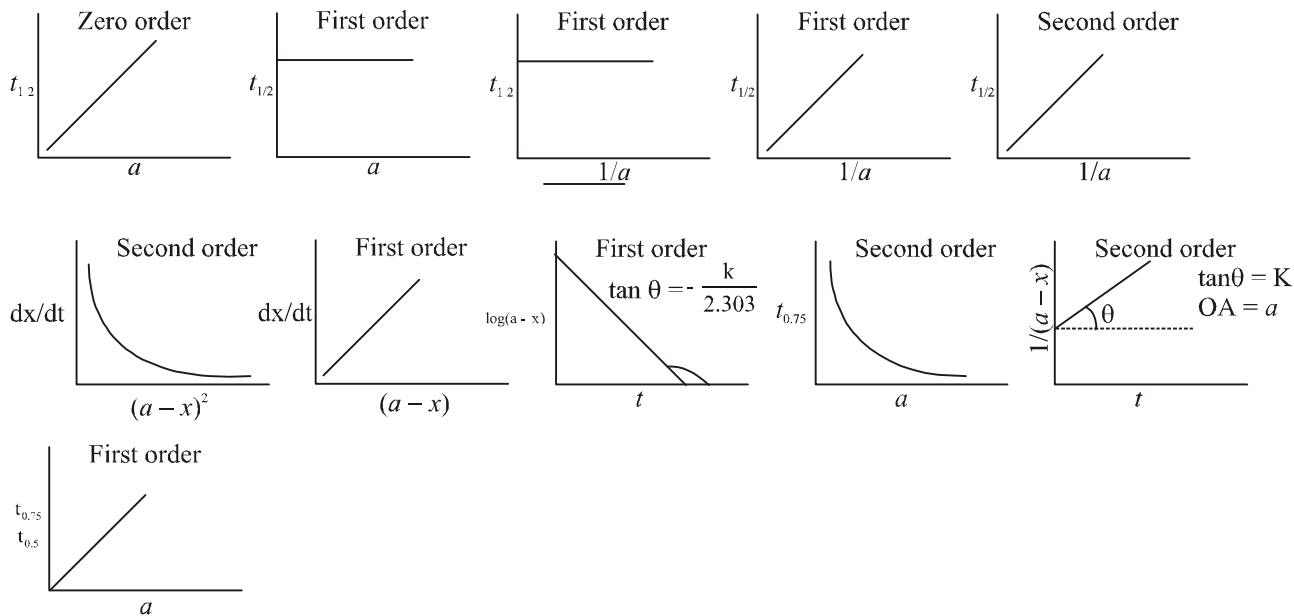
$$E^0_{\text{H}^+|\text{H}_2} = -0.0 \text{ Volt}$$

9. The graph between  $\log k$  and  $1/T$  [ $k$  is rate constant ( $\text{sec}^{-1}$ )] is a straight line

with  $\text{OX} = 5$  and  $\theta = \tan^{-1}(1/2.303)$ . Calculate the value of  $E_a$  in cal



10. In the given graph how many graphs are correct



## MATHEMATICS

11. The number of the terms free from radical sign in the expansion of  $(1 + 3^{1/3} + 7^{1/7})^{10}$  is
12. If  $\frac{2}{9!} + \frac{2}{3!7!} + \frac{1}{5!5!} = \frac{2^a}{b!}$ , where  $a, b \in \mathbb{N}$ , then the value of  $b - a$  is.
13. If  $a, b, c, d$  are distinct integers in AP such that  $d = a^2 + b^2 + c^2$ , then  $a + b + c + d$  is
14. If  $z_1, z_2, z_3$  be three complex numbers s.t.  $|z_1 + 1| \leq 1$ ,  $|z_2 + 2| \leq 2$ ,  $|z_3 + 4| \leq 4$ , then the maximum value of  $\frac{1}{2}(|z_1| + |z_2| + |z_3|)$  is
15. The point of intersection of the curves  $\arg(z - 3i) = \frac{3\pi}{4}$  and  $\arg(2z + 1 - 2i) = \frac{\pi}{4}$  is

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# JEE-ADVANCE: TEST-2

## ETP TEST SERIES

**PAPER-I**

**Time : 3 hrs.**

**M.M.: 180**

**TEST CODE - A**

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### ANSWERS

#### Physics: Section I to II

- |           |           |           |         |             |           |
|-----------|-----------|-----------|---------|-------------|-----------|
| 1. (c)    | 2. (c)    | 3. (c)    | 4. (a)  | 5. (a)      | 6. (d)    |
| 7. (c)    | 8. (a)    | 9. (d)    | 10. (b) | 11. (a,c,d) | 12. (a,c) |
| 13. (b,c) | 14. (b,d) | 15. (b,c) |         |             |           |

#### Chemistry: Section I to II

- |           |             |             |         |               |             |
|-----------|-------------|-------------|---------|---------------|-------------|
| 16. (d)   | 17. (a)     | 18. (b)     | 19. (b) | 20. (b)       | 21. (b)     |
| 22. (d)   | 23. (d)     | 24. (a)     | 25. (b) | 26. (a,b,c,d) | 27. (b,c,d) |
| 28. (a,d) | 29. (a,b,d) | 30. (b,c,d) |         |               |             |

#### Mathematics: Section I to II

- |               |               |           |         |             |           |
|---------------|---------------|-----------|---------|-------------|-----------|
| 31. (c)       | 32. (b)       | 33. (d)   | 34. (a) | 35. (a)     | 36. (a)   |
| 37. (c)       | 38. (a)       | 39. (a)   | 40. (b) | 41. (a,b,c) | 42. (a,c) |
| 43. (a,b,c,d) | 44. (a,b,c,d) | 45. (a,c) |         |             |           |

#### Section-III (PCM)

- |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|
| 1. (3)  | 2. (2)  | 3. (9)  | 4. (4)  | 5. (6)  | 6. (3)  |
| 7. (9)  | 8. (9)  | 9. (2)  | 10. (7) | 11. (6) | 12. (1) |
| 13. (2) | 14. (7) | 15. (0) |         |         |         |

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# JEE-ADVANCE: TEST-2

## TEST SERIES

PAPER-II

Time : 3 hrs.

M.M.: 180

**TEST CODE - A**

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### ANSWERS

#### Physics: Section I to III

- |              |          |              |            |          |          |
|--------------|----------|--------------|------------|----------|----------|
| 1. (a,b,c,d) | 2. (c,d) | 3. (a,b,c,d) | 4. (a,b,c) | 5. (a,c) | 6. (b,d) |
| 7. (a,b,c,d) | 8. (a,b) | 9. (a)       | 10. (b)    | 11. (d)  | 12. (a)  |
| 13. (b)      | 14. (a)  | 15. (a)      | 16. (c)    | 17. (a)  | 18. (b)  |
| 19. (b)      | 20. (c)  |              |            |          |          |

#### Chemistry: Section I to III

- |             |             |               |             |               |               |
|-------------|-------------|---------------|-------------|---------------|---------------|
| 21. (a,b,c) | 22. (a,b,c) | 23. (a,b,c,d) | 24. (a,b,c) | 25. (a,b,c,d) | 26. (a,b,c,d) |
| 27. (a,b,c) | 28. (a,b)   | 29. (b)       | 30. (a)     | 31. (a)       | 32. (b)       |
| 33. (b)     | 34. (c)     | 35. (d)       | 36. (d)     | 37. (a)       | 38. (b)       |
| 39. (a)     | 40. (c)     |               |             |               |               |

#### Mathematics: Section I to III

- |             |           |               |           |           |           |
|-------------|-----------|---------------|-----------|-----------|-----------|
| 41. (a,d)   | 42. (b,c) | 43. (a,b,c,d) | 44. (b,c) | 45. (a,c) | 46. (a,b) |
| 47. (a,b,c) | 48. (a,b) | 49. (a)       | 50. (b)   | 51. (c)   | 52. (a)   |
| 53. (d)     | 54. (a)   | 55. (a)       | 56. (b)   | 57. (a)   | 58. (b)   |
| 59. (c)     | 60. (a)   |               |           |           |           |

## PAPER - I: ERRATA FOR QUESTION NO.9 (CHEMISTRY)

9. The graph between  $\log k$  and  $1/T$  [ $k$  is rate constant ( $\text{sec}^{-1}$ )] is a straight line with  $OX = 5$  and  $\theta = \tan^{-1} (1/2.303)$ . Calculate the value of  $E_a$  in cal

