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JEE MAINS 2026

MEMORY BASED QUESTIONS AND SOLUTIONS



BORA VARUM CHAKRAVARTHI
NEET 2023

VAVILALA CHIDVILAS REDDY
JEE ADVANCE 2023

SINGARAJU VENKAT KOUNDINYA
JEE MAIN 2023



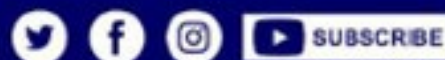
4 Students in Top 11 in JEE-Advanced 2025, All India Open Category

Congratulations to Students, Parents & Staff

#TransformingYourDreamsIntoReality

*In One or More Subjects

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Memory Based Questions and Answers

JEE MAIN 2026

SESSION 2

Test Date: 02nd April 2026 | Shift 2

Instructions

- The test is of **3 hours** duration.
- This test paper consists of 75 questions. Each subject (PCM) has 25 questions. The maximum marks are 300.
- This question paper contains Three Parts. Part-A is Physics, Part-B is Chemistry and Part-C is Mathematics. Each part has only two sections: Section-A and Section-B.
- Section - A: Attempt all questions.
- Section - B: Attempt all questions.
- Section - A (01–20) contains 20 multiple choice questions which have only one correct answer. Each question carries +4 marks for correct answer and –1 mark for wrong answer.
- Section - B (21–25) contains 5 Numerical value based questions. The answer to each question should be rounded off to the nearest integer. Each question carries +4 marks for correct answer and -1 mark for wrong answer.

TOPPERS ARE NOT BORN, THEY'RE MADE @ SRI CHAITANYA
3 RANKS IN TOP 10 IN JEE MAIN 2025 (ALL-INDIA OPEN CATEGORY)

1  **1**  **10** 

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SAKSHAM JINDAL
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300 **300** **295**
300 **300** **300**
Marks

BELOW **100** **31** | BELOW **500** **95** | BELOW **10** **10** | BELOW **100** **98** | BELOW **1000** **579** | TOTAL QUALIFIED RANKS FOR JEE ADVANCED-2025 **22,094**



JEE Main – 02nd April – 2026 (Shift-2)

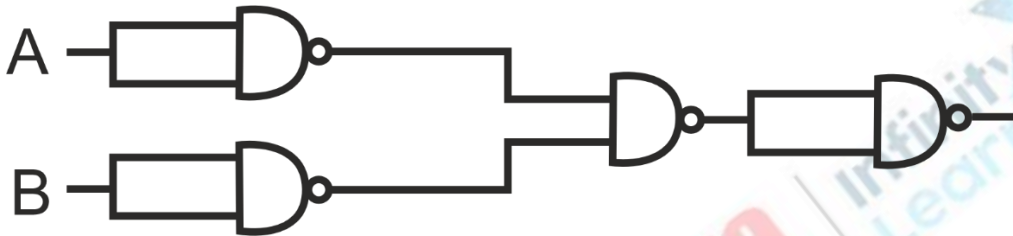
[Memory-Based Questions]

PHYSICS

1. The surface tension of a soap bubble is 0.03 N/m . The work done in increasing the diameter of bubble from 2 cm to 6 cm is $\alpha\pi \times 10^{-4} \text{ J}$. Find the value of α .

Ans: (2)

2. A and B are inputs, the given circuit works a



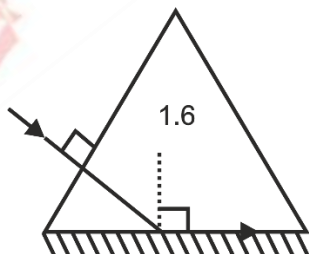
- (1) NOR (2) NAND
(3) AND (4) OR

Ans: (1)

3. If an air bubble of diameter 2 mm rises steadily through a liquid of density 2000 kg/m^3 at a rate of 0.5 cm/sec , then the coefficient of viscosity of the liquid is _____ Poise .

Ans: (8.88)

4. One side of an equilateral prism is painted by a transparent material of refractive index n_2 . The refractive index of prism is 1.6 . The minimum value of n_2 required for total internal reflection from the painted face is _____.



Ans: $0.8\sqrt{3}$

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5. 5 moles of an unknown gas is heated at a constant volume from 10°C to 20°C . Molar specific heat of the gas at constant pressure is given as $C_p = 8\text{cal/mole}^{\circ}\text{C}$. ($R = 8.36\text{J/mole }^{\circ}\text{C}$)

Find the change in internal energy of gas

Ans: (300 cal)

6. Using Bohr's model, find the ratio of the magnetic fields generated due to the motion of the electron in the 1st and 4th orbit of hydrogen atom.

Ans: (1024:1)

7. A body falling from infinity gets a velocity V on reaching the surface of the earth. What is the value of V .

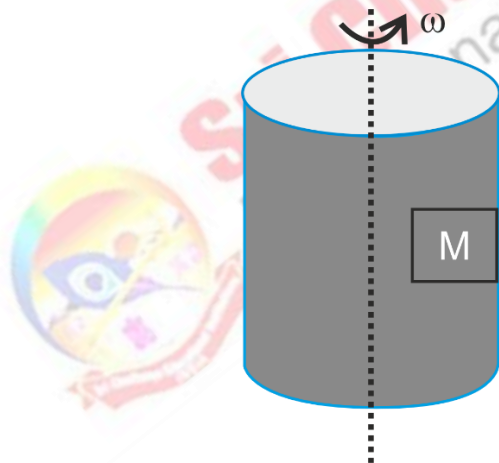
Given $R_E = 6400\text{km}$, $g = 9.8\text{m/s}^2$

Ans: (11.2 km/s)

8. Position of a particle is given by $x = a\sin(50t + \pi/3)$. If the speed and acceleration is 0 for the first time at time t_1 and t_2 respectively. Then t_1 & t_2 are

Ans: $t_1 = \frac{\pi}{300}$, $t_2 = \frac{\pi}{75}$

9. A hollow cylinder of radius 1 m is rotating with an angular velocity $\omega = 10\text{rad/s}$. Find the minimum value of coefficient of friction such that the block is at rest w.r.t cylinder.



Ans: (0.1)

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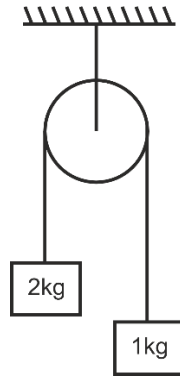


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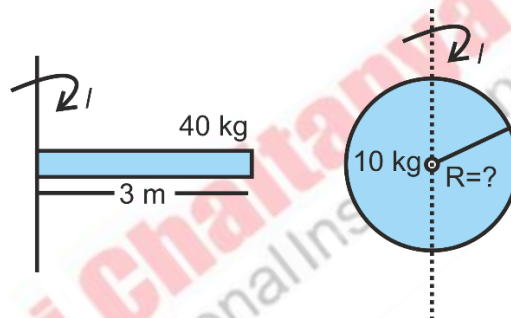


10. For the given system, find the displacement of the centre of mass after 2s.



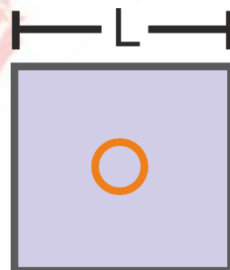
Ans: (2.22)

11. A rod of length 3 m and mass 40 kg has the same moment of inertia as that of the solid sphere. Find the radius of the solid sphere.



Ans: $\sqrt{30}$

12. Small circular loop of radius r is completely enclosed within a large square loop of length L . Both loops are concentric and coplanar ($L \gg r$). Find the coefficient of mutual inductance.



Ans: $\frac{\mu_0 2\sqrt{2}r^2}{L}$

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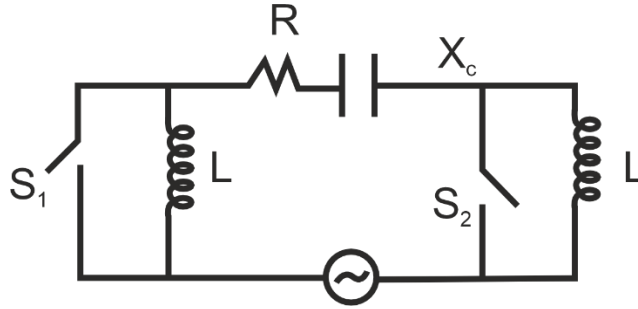
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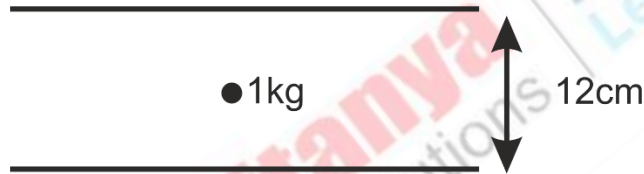
13. In the given AC circuit if only switch S_1 is closed then phase difference is 30° while if only switch S_2 is closed then phase difference is 60° . The current lags in both cases.

If $X_C = 30\Omega$ and $\omega = 300 \text{ s}^{-1}$ then $3L_1 - L_2$ is ____



Ans: (0.2)

14. A ball of mass 1 kg and charge 9 nC is in equilibrium between two parallel plates. Find the potential difference between the plates.



Ans: (1.33×10^8)

15. A paper is placed in front of a lens at a distance of 30 cm such that the paper gets burnt in minimum time. The radius of curvature of the biconvex lens is 60 cm. If refractive index μ of the lens is $\mu = \frac{a}{10}$, Find a .

Ans: (20)

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CHEMISTRY

1. The correct set that contains all kinds (basic, acidic, amphoteric and neutral) in Oxides is
(1) Na_2O , N_2O , Al_2O_3 and CO (2) Al_2O_3 , As_2O_3 , CO and NO
(3) K_2O , Cl_2O_7 , As_2O_3 and NO (4) Na_2O , K_2O , Al_2O_3 and As_2O_3
Ans: (3)
2. Among Fe^{2+} , Fe^{3+} , Cr^{2+} and Zn^{2+} , the ion that shows positive Borax bead test and with highest ionisation enthalpy is:
(1) Zn^{2+} (2) Fe^{2+} (3) Fe^{3+} (4) Cr^{2+}
Ans: (3)
3. SF_4 is iso-structural with:
A) BrF_4^- B) CH_4 C) IF_4^+ D) XeF_4
E) XeO_2F_2
(1) B and E only (2) C only (3) C and E only (4) A and D only
Ans: (3)
4. Which of following to complex as will show co-ordination isomerism?
A) $[\text{Ag}(\text{NH}_3)_2][\text{Ag}(\text{CN})_2]$ B) $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$
C) $[\text{Co}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]$ D) $[\text{Fe}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]$
E) $[\text{Co}(\text{NH}_3)_6][\text{Fe}(\text{CN})_6]$
(1) C, D and E only (2) B, D and E (3) B, C and D (4) A, C and D
Ans: (2)
5. complete combustion of 'x' gram of an organic compound gave 0.25 g of CO_2 and 0.12 g of H_2O . If the percentage of carbon is 25% and of hydrogen is 4.89% then $x \times 10^{-3}$ g (Nearest integer) (molar mass of C : H and our 12,1 and 16 g mol^{-1} respectively,
(1) 273 (2) 27.30 (3) 227 (4) 27
Ans: (1)
6. The ratio of mass percentage (w/w) of C: H in a hydrocarbon is 12: 1, it has two carbon atoms. The weight (in grams) of CO_2 (g) formed when 3.38 g of hydrocarbon is completely burnt in oxygen: (Given molar mass in g mol^{-1} C: 12, H: 1, O: 8)

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- (1) 17.05 (2) 22.74 (3) 11.4 (4) 5.68

Ans: (3)

7. Two solutions of protein (M.Wt = 50,000 g) are prepared separately

Solution A: 1 g protein in 0.5 L solution

Solution B: 2 g protein in 1.0 L solution

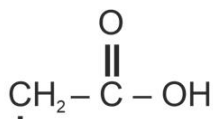
When the two solutions are mixed at 300 K. Find total osmotic pressure:

$$(R = 0.08 \text{ L. atm K}^{-1} \text{ mol}^{-1})$$

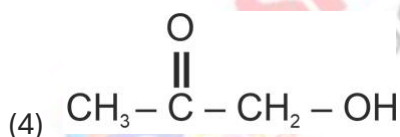
- (1) 9.8×10^{-3} torr (2) 6.5×10^{-2} torr
(3) 7.3×10^{-1} torr (4) 5.4×10^{-4} torr

Ans: (3)

8. An organic compound 'x', where molar ratio of C : O : H are equal, on treatment with 50% KOH on reflux. followed by acidification produced 'y'. The most likely structure of 'y'. Molar mass of x is 58 g/mol.



- (1) OH
(2) $\text{CH}_3\text{-COOH}$
(3) $\text{CH}_2=\text{CH-COOH}$



Ans: (1)

9. Identify compounds A and E in the following reaction sequence

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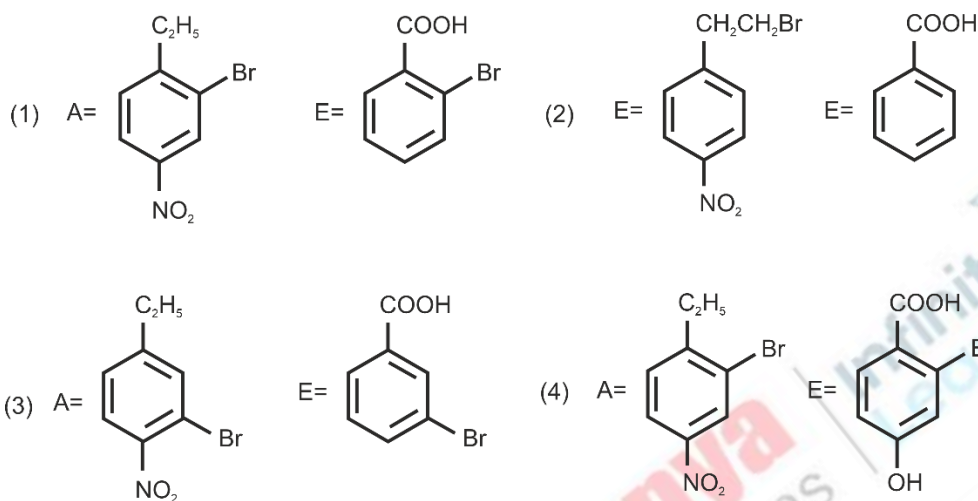
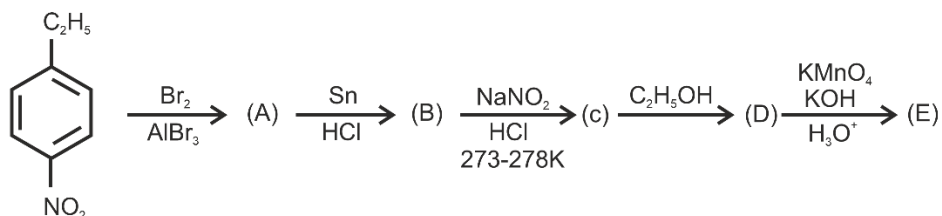
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Ans: (1)

10. Arrange following complexes in increasing order of CFSE (Δ_o)



(1) $c > a > b$ (2) $c > b > a$ (3) $a > b > c$ (4) $b > a > c$

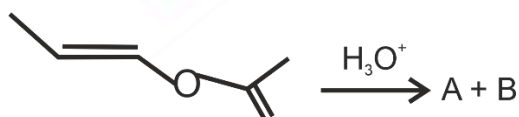
Ans: (2)

11. 20 mL of 0.2 M HA (weak monoprotic acid) is titrated with 10 mL of 0.2 M NaOH solution. pH of solution at 25°C is, (pK_a of weak acid is 4.76)

(1) 19.24 (2) 5.24 (3) 4.76 (4) 9.76

Ans: (3)

12. Consider the reaction given below.



A gives positive Fehling's test. Choose the correct relation.

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- (1) Molar weight of A and molar weight of B are same
(2) Molar weight of A is greater than molar weight of B
(3) Molar weight of B is greater than molar weight of A
(4) None of these

Ans: (1)

13. Molarity of H_2SO_4 solution is 4.9 M. If density of solution is 1.40 g/ml, then molality and mole fraction of solute in solution is

- (1) 1 m = 5.34, $\chi_{\text{solute}} = 0.088$ (2) 2 m = 5.34, $\chi_{\text{solute}} = 0.072$
(3) 3 m = 5.21, $\chi_{\text{solute}} = 0.088$ (4) 4 m = 5.21, $\chi_{\text{solute}} = 0.072$

Ans: (1)

14. Solution (A) containing 1 gm of protein. (Molar mass = 50,000 g/mol) in 0.5 L. solution has osmotic pressure ' x ' bar. Solution (B) containing 2 gm of same protein in 1 Lt. of solution has osmotic pressure ' y ' bar.

Now solution (C) is found by mixing of solutions (A) & (B) has osmotic pressure ' z ' bar. Correct order is

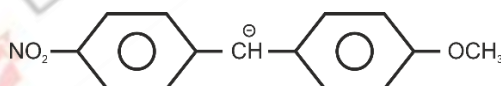
- (1) $x > y > z$ (2) $x < y < z$ (3) $x = y > z$ (4) $x = y = z$

Ans: (4)

15. The number of species among Cu^{+2} , Zn^{+2} , Cr^{+3} , Yb^{+3} , Ce^{+2} , La^{+3} , Lu^{+3} , Mn^{+2} , are paramagnetic ____.

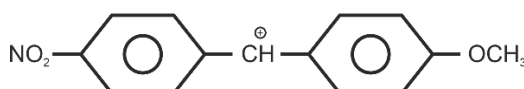
Ans: (5)

16. Statement I:



-ve charge is stabilized by -M effect of -NO₂ group

Statement II :



+ve charge is stabilized by +M effect of -OCH₃ group

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- (1) Statement I is correct & Statement II is incorrect
- (2) Statement I is incorrect & Statement II is correct
- (3) Both Statements are correct
- (4) Both Statements are incorrect

Ans: (3)

17. For 1st order reaction: $2 A_{(g)} \rightarrow 4 B_{(g)} + C_{(g)}$

Time	30 min	∞
Total pressure (mmHg)	300	600

Find pressure of C at 30 min .

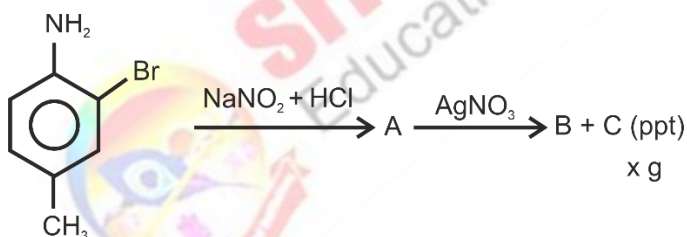
Ans: (20)

18. Identify the correct pair having amino acid (A) and the hormone(B) That is iodinated derivative of the amino acid (A). (T and Y represent one letter code for amino acid)

Amino acid (A)	Hormone (B)
(1) Y	Insulin
(2) Y	Thyroxine
(3) T	Insulin
(4) T	Insulin

Ans: (2)

- 19.



(1.86 g)

C is a white ppt. find 10(x) (nearest integer)

Ans: (14.3)

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20. The first and second ionization constants of a weak dibasic acid H_2A are 8.1×10^{-8} and 1.0×10^{-13} respectively. 0.1 M of H_2A was dissolved in 1 L of 0.1 M HCl solution. The concentration of HA^- in the resultant solution is:

(1) 8.1×10^{-8} m

(2) 9.53×10^7 m

(3) 1.0×10^{-13} m

(4) 0.1 m

Ans: (1)

21. The work function of Na metal is 2.3 eV. If maximum kinetic energy of emitted photoelectron is 2.8×10^{-19} J, then calculate the wavelength of incident photon in. ____ nm.

Ans: (307)



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MATHEMATICS

1. Sum of $\frac{1^3}{1} + \frac{1^3+2^3}{1+3} + \frac{1^3+2^3+3^3}{1+3+3} + \dots$ up to 8 terms is
(1) 71 (2) 70 (3) 73 (4) 72
Ans: (1)
2. The value of $\int_0^{20\pi} (\sin^4 x + \cos^4 x) dx$ is equal to
(1) 15π (2) $\frac{15\pi}{2}$ (3) 25π (4) $\frac{25\pi}{2}$
Ans: (1)
3. If for $3 \leq r \leq 30$, ${}^{30}C_{30-r} + 3({}^{30}C_{31-r}) + 3({}^{30}C_{32-r}) + {}^{30}C_{33-r} = {}^m C_r$ then m equals to ____.
Ans: (33)
4. If $x = x(y)$, satisfies $2y^2 \frac{dx}{dy} - 2xy + x^2 = 0, y > 1, x(e) = e$. Then $x(e^2)$
Ans: $\frac{2e^2}{3}$
5. Let $f(x)$ be a polynomial of degree 5, and have extrema at $x = 1$ and $x = -1$. If $\lim_{x \rightarrow 0} \left(\frac{f(x)}{x^3} \right) = -5$, then $f(2) - f(-2)$ is
Ans: (112)
6. If $L_1: \frac{x-a}{2} = \frac{y-2}{3} = \frac{z-b}{6}$ and $L_2: \frac{x-b}{3} = \frac{y-7}{6} = \frac{z-1}{3}$ intersect in xy -plane then the value of $|a + b|$ is
(1) 15 (2) 10 (3) 14 (4) 11
Ans: (15)
7. Let P_n denote the total number of triangles formed by joining the vertices of an n -side regular polygon. If $P_{n+1} - P_n = 66$, find the value of n is
Ans: (12)
8. Let $f(x) = \int \left(\frac{16x+24}{x^2+2x-15} \right) dx$. If $f(4) = 14 \log_e (3)$. Find $f(7)$
Ans: $(\ln 2^{32} \cdot 3^7)$

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9. Find the area enclosed by hyperbola $16x^2 - 9y^2 = 144$ and a straight line $8x - 3y = 24$

Ans: $(6 \ln 3 - 8)$

10. If a coin is tossed many times. Where getting head means 10 points and tail is 5 points what is the probability of getting 30 points if the answer is in $m : n$ ratio where $\gcd(m, n)$ is 1 what is $m + n$

Ans: (107)

11. Consider the number $N = 21PQ5304$ where P and Q are digits. The number of ordered pair (P, Q) such that N is divisible by 9 is

- (1) 11 (2) 12 (3) 10 (4) 8

Ans: (1)

12. Let $x_1, x_2, x_3, \dots, x_n$ be ' n ' observations such that $\sum_{i=1}^{n-1} x_i = 48$ and $\sum_{i=1}^{n-1} x_i^2 = 496$. If mean and variance of the distribution are 8 and 16 respectively. Then the value of n is ____

- (1) 7 (2) 9 (3) 8 (4) 12

Ans: (1)

13. If the system of equations $x + 5y + 6z = 4, 2x + 2y + 4z = 1$ and $x + y + az = b$ has infinite number of solutions then point (a, b) lies on ____

- (1) $x - 2y = 1$ (2) $x - y = 3$ (3) $x + y = 2$ (4) $y - x = 3$

Ans: (1)

14. If $C_1: |Z_1| = r$ and $C_2: |Z_2 - 3 - 4i| = 5$ and C_2 always lies in C_1 , and minimum of $|Z_1 - Z_2| = 2$, find maximum of $|Z_1 - Z_2| =$

Ans: (12)

15. Let $S = \{2, 3, 4, 5, 6\}$, let a relation be $S \times S$ such that $(x, y)R(z, w)$ such that ' z ' is a multiple of x and $y \leq w$. Number of elements in R is ____

Ans: (120)

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Sri Chaitanya
Educational Institutions



JEE Mains 2026 Session 2



DETAILED PAPER SOLUTIONS



LIVE 2nd Apr - Shift 2



JEE ADVANCED



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