SRIGAYATRI EDUCATIONAL INSTITUTIONS

INDIA

JEE MAIN TOT GT-5

Time: 3 Hours **Max. Marks: 300 M**

SECTION – I
(SINGLE CORRECT ANSWER TYPE)

This section contains 20 multiple choice questions. Each question has 4 options (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and -1 if not correct.

MATHEMATICS

1. Let $A=\begin{bmatrix}2 & b & 1\\ b & b^2+1 & b\\ 1 & b & 2\end{bmatrix}$ **where b>0, then the minimum value of** $\frac{\det(A)}{b}$ **is**

A) $-\sqrt{3}$ B) $-2\sqrt{3}$ C) $\sqrt{3}$ D) $2\sqrt{3}$

2. In a class 100 students, 55 students have passed in mathematics and 67 students have passed in physics. Then the number of students who have passed in physics only is

A) 22 B) 33 C) 10 D) 45

3. The sum of all values of $\theta\in\left(0,\frac{\pi}{2}\right)$ **satisfying** $\sin^2 2\theta+\cos^4 2\theta=\frac{3}{4}$ **is**

A) π B) $\frac{\pi}{2}$ C) $\frac{3\pi}{8}$ D) $\frac{5\pi}{4}$

4. If a_1,a_2,a_3---a_n **are in A.P with common difference d, then**

$$\tan\left[\tan^{-1}\left(\frac{d}{1+a_1a_2}\right)+\tan^{-1}\left(\frac{d}{1+a_2a_3}\right)+.....+\tan^{-1}\left(\frac{d}{1+a_{n-1}a_n}\right)\right]=$$

A) $\frac{(n-1)d}{a_1+a_n}$ B) $\frac{(n-1)d}{1+a_1a_n}$ C) $\frac{nd}{1+a_1a_n}$ D) $\frac{a_n-a_1}{a_n+a_1}$

5. A tower of height 'b' subtends an angle at a point 'O' on the level of the foot of the tower and at a distance 'a' from the foot of the tower. If a pole mounted on the tower also subtends an equal angle at 'O', then the height of the pole is

A) $a\left(\frac{a^2-b^2}{a^2+b^2}\right)$ B) $a\left(\frac{a^2+b^2}{a^2-b^2}\right)$ C) $b\left(\frac{a^2-b^2}{a^2+b^2}\right)$ D) $b\left(\frac{a^2+b^2}{a^2-b^2}\right)$

6. The number of ways of dividing 15 men and 15 women into 15 couples, each consisting of a man and a women is

A) 1240 B) 1840 C) 1820 D) 2005

7. Four cards are drawn at random from a pack of 52 playing cards. The probability that the drawn cards contains in exactly one pair is

A) $\frac{13\times {}^{12}C_2\times 4^2}{{}^{52}C_4}$ B) $\frac{13\times {}^{4}C_2\times {}^{12}C_2\times 4^2}{{}^{52}C_4}$

C) $\frac{13\times {}^{4}C_2\times {}^{48}C_2}{{}^{52}C_4}$ D) $\frac{13\times {}^{4}C_1\times {}^{4}C_1\times {}^{48}C_2}{{}^{52}C_4}$

8. If mean deviation is 12, then the value of standard deviation will be

A) 15 B) 12 C) 24 D) 18

9. **If $\left|Z-\frac{2}{z}\right|=1$, then the greatest value of $|z|$ is**

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

10. **If vectors $\bar{a}=\bar{i}-\bar{j}+2\bar{k},\bar{b}=2\bar{i}+4\bar{j}+\bar{k}$ and $\bar{c}=\lambda\bar{i}+\bar{j}+\mu\bar{k}$ are mutually orthogonal , then $(\lambda,\mu)=$**

A) (-3,2) B) (2,-3) C) (-2,3) D) (3,-2)

11. **Let $f:R\to R$ and $g:R\to R$ be respectively given by $f(x)=|x|+1$ and $g(x)=x^2+1$. Define $h:R\to R$ by $h(x)\begin{cases}\max\{f(x),g(x)\}\text{ if } x\le 0\\ \min\{f(x),g(x)\}\text{ if } x>0\end{cases}$.**

The number of points at which $h(x)$ is not differentiable is

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

12. **Let $g(x)=\log f(x)$ where $f(x)$ is twice differentiable positive function on $(0,\infty)$ such that $f(x+1)=x\,f(x)$. Then for N = 1,2,3,……, $g''\left(N+\frac{1}{2}\right)-g''\left(\frac{1}{2}\right)$ is equal to**

A) $-4\left\{1+\frac{1}{9}+\frac{1}{25}+....+\frac{1}{(2N-1)^2}\right\}$ B) $4\left\{1+\frac{1}{9}+\frac{1}{25}+....+\frac{1}{(2N-1)^2}\right\}$

C) $-4\left\{1+\frac{1}{9}+\frac{1}{25}+....+\frac{1}{(2N+1)^2}\right\}$ D) $4\left\{1+\frac{1}{9}+\frac{1}{25}+....+\frac{1}{(2N+1)^2}\right\}$

13. **The equation of the normal to the curve $y=(1+x)^y+\sin^{-1}(\sin^2 x)$ at $x=0$ is**

A) $5x+2y-2=0$ B) $x+3y-3=0$ C) $x+y-1=0$ D) $4x+y-1=0$

14. **A window of perimeter (including the base of the arch) is in the form of a rectangle surmounted by a semi-circle. The semi circular portion is fitted with coloured glass while the rectangular part is fitted with clear glass. The clear glass transmits three times as much light per square meter as the coloured glass does. The ratio of the sides of the rectangle so that window transmits the maximum light is**

A) $6:6+\pi$ B) $6+\pi:6$ C) $4:4+\pi$ D) $4+\pi:4$

15. **The area bounded by the curves $y=(x-1)^2$ and $y=(x+1)^2$ and $y=\frac{1}{4}$ is**

A) $\frac{1}{3}$ sq unit B) $\frac{2}{3}$ sq unit C) $\frac{1}{4}$ sq unit D) $\frac{1}{5}$ sq unit

16. **A and B are two reservoirs of water. Capacity of reservoir A is double the capacity of reservoir B. Both the reservoirs are completely filled with water, their inlets are closed and then water is released simultaneously from both the reservoirs. The rate of water flow out of each reservoir at any instant of time is proportional to the quantity of water in the reservoir at that time. One hour after, the water is released, the quantity of water in reservoir A is $1\frac{1}{2}$ times the quantity of water in reservoir B. After how many hours do both the reservoirs have the same quantity of water?**

A) $\log_{\frac{1}{2}}\frac{3}{4}$ B) $\log_{\frac{3}{4}}\frac{1}{2}$ C) $\log_{\frac{3}{4}}2$ D) $\log_{\frac{1}{2}}3$

17. **The distance of the point (1,1,1) from the plane passing through the point $(-1,-2,-1)$ and whose normal is perpendicular to both the lines $\frac{x+1}{3}=\frac{y+2}{1}=\frac{z+1}{2}$ and $\frac{x-2}{1}=\frac{y+2}{2}=\frac{z-3}{3}$ is**

A) $\frac{2}{\sqrt{75}}$ unit B) $\frac{7}{\sqrt{75}}$ unit C) $\frac{13}{\sqrt{75}}$ unit D) $\frac{23}{\sqrt{75}}$

18. **Let P be the point on the parabola $y^2 = 4x$ which is at the shortest distance from the centre S of the circle $x^2 + y^2 - 4x - 16y + 64 = 0$. Let Q be the point on the circle dividing the line segment SP internally. Then**

A) $SQ : QP = \left(\sqrt{5}+1\right) : 4$

B) $SP = 3\sqrt{5}$

C) x-intercept of the normal to the parabola at P is 8

D) Slope of the tangent to the circle at Q is 2

19. **Let $F_1(x_1, 0)$ and $F_2(x_2, 0)$ for $x_1 < 0$ and $x_2 > 0$ be the foci of the ellipse $\frac{x^2}{9} + \frac{y^2}{8} = 1$. Suppose a parabola having vertex at the origin and focus at F_2 intersects the ellipse at point M in the first quadrant and at point N in the fourth quadrant. If the tangents to the ellipse at M and N meet at R and the normal to the parabola at M meets the x-axis at Q, then the ratio of the area of ΔMQR to area of the quadrilateral MF_1NF_2 is**

A) 3:4 B) 4:5 C) 5:8 D) 2:3

20. **A chord of the circle $x^2 + y^2 - 4x - 6y = 0$ passing through (0,0) subtends an angle $\tan^{-1}\left(\frac{7}{4}\right)$ at the point where the circle meets the positive y-axis. Equation of the chord is**

A) $2x + 3y = 0$ B) $29x - 2y = 0$ C) $2x - y = 0$ D) $2x - 29y = 0$

SECTION- II
(Numerical Value Answer Type)

This section contains 5 questions. The answer to each question is a Numerical values comprising of positive or negative decimal numbers.
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21. **If coefficient of 4th term in the expansion of $(a+b)^n$ is 56, then n is**

22. **The sum of all real roots of equation $|x-2|^2 + |x-2| - 2 = 0$**

23. **Let m and n be two positive integers greater than 1. If $\lim\limits_{\alpha \to 0}\left(\frac{e^{\cos(\alpha^n)} - e}{\alpha^m}\right) = \frac{-e}{2}$, then the value of $\frac{m}{n} =$**

24. **If $\alpha = \int\limits_0^1 e^{\left(9x + 3\tan^{-1}x\right)}\left(\frac{12 + 9x^2}{1 + x^2}\right)dx$ where $\tan^{-1}x$ takes only principal values, then the value of $\left(\log_e|1+\alpha| - \frac{3\pi}{4}\right)$ is _____**

25. **The coordinates of the feet of the perpendiculars from the vertices of a triangle on the opposite sides are D(20, 25), E(8,16) and F(8,9). The number of such triangles are____**

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PHYSICS

26. Two particles undergo SHM along some line with the same time period (T) and equal amplitude (A). At an instant one is at $x=-A$ and other is at $x=0$. They move in same direction, they will cross each other at

a) $t=\frac{4T}{3}$ b) $t=\frac{3T}{8}$ c) $x=\frac{A}{2}$ d) $x=\frac{A}{\sqrt{2}}$

A) a,d are correct B) b,c are correct C) c,d are correct D) b,d are correct

27. The acceleration due to gravity at the equator is $'g'$, and angular velocity of rotation of earth is ω_0. The angular velocity of earth at which the value of acceleration due to gravity at the equator becomes $\frac{g}{2}$ is

A) $\sqrt{\omega_0^2+\frac{g}{R}}$ B) $\sqrt{\omega_0^2+\frac{g}{2R}}$ C) $\sqrt{\omega_0^2-\frac{g}{R}}$ D) $\sqrt{\omega_0^2-\frac{g}{2R}}$

28. The length of a string is l_1 when tension is $4N$ and $'l_2'$ when tension is $5N$. Its length when tension is $9N$

A) $5l_2-4l_1$ B) $4l_1-5l_2$ C) $5l_1-4l_2$ D) $4l_2-5l_1$

29. Water flows into a large tank with flat bottom at rate of $10^{-4}\ m^3/s$. When also leaking out of a hole of area $1cm^2$ at its bottom. If the height of the water in the tank remains steady, then the height is

A) 1.7 cm B) 4 cm C) 2.9 cm D) 5.1 cm

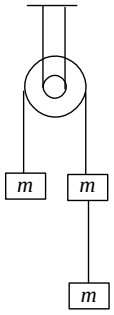
30. From an elevated point $'A'$ a stone is projected vertically upwards, when stone is at a distance $'h'$ below $'A'$ is its velocity is twice of what it was at a height $'h'$ above A. The greatest height attained by the stone above A is

A) $\frac{2h}{3}$ B) $\frac{5h}{3}$ C) $\frac{2h}{5}$ D) $\frac{7h}{5}$

31. For two projectiles the ratio of their minimum kinetic energies is 9:4 and ratio of their maximum heights is 16 : 25, then the ratio of their horizontal ranges

A) $\frac{36}{25}$ B) $\frac{25}{36}$ C) $\frac{6}{5}$ D) $\frac{5}{6}$

32. Three equal weights of mass $'m'$ each are hanging on a string passing over a fixed pulley as shown. What are the tensions in the strings.



A) $\frac{4mg}{3},\frac{mg}{3}$ B) $\frac{5mg}{3},\frac{7mg}{3}$ C) $\frac{4mg}{3},\frac{2mg}{3}$ D) $\frac{4mg}{3},\frac{g}{3}$

33. The potential energy of 1 kg object free to move along X-axis is given by $U(x)=\frac{x^4}{4}-\frac{x^2}{2}J$. The total energy of object is $2J$. Maximum speed of object is

A) $\frac{3}{\sqrt{2}}ms$ B) $\frac{\sqrt{2}}{3}ms$ C) $\sqrt{\frac{3}{2}}ms$ D) $\sqrt{\frac{2}{3}}ms$

34. In a process temperature and volume of 1mole of Ideal monoatomic gas related by $VT=\text{Constant}$. The amount of heat absorbed by gas when its temperature is increased by ΔT. $[R\rightarrow$ Universal Gas Constant$]$

A) $\frac{3}{2}R\Delta T$ B) $\frac{1}{2}R\Delta T$ C) $\frac{2}{3}R(\Delta T)$ D) $\frac{5}{2}R(\Delta T)$

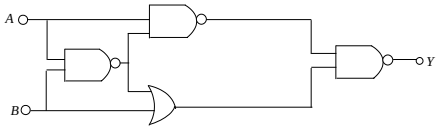
35. A thin disc of mass M and radius R has mass per unit area $\sigma(r)=Kr^2$ where $'r'$ is the distance from centre. Its moment of inertia about an axis going through its centre of mass and perpendicular to its plane is

A) $\frac{MR^2}{2}$ B) MR^2 C) $\frac{MR^2}{3}$ D) $\frac{2MR^2}{3}$

36. If A_n is the area enclosed by nth orbit of hydrogen atom then the graph between $ln\left(\frac{A_n}{A_1}\right)$ against $ln(n)$ will be $(A_1\rightarrow$ Area of first orbit$)$

A) Straight line passing through origin with slope 4.
B) Straight line passing through origin with slope 2.
C) Parabola
D) Straight line with $-$ve slope of 4

37.



The output of the given logic circuit is

A) $A\bar{B}+\bar{A}B$ B) $\bar{A}$ C) $A\bar{B}$ D) $AB+\overline{AB}$

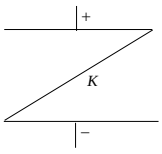
38. Two coherent light sources of intensity ratio $'n'$ are employed in an interference experiment. The ratio intensities of maxima and minima in interference pattern is

A) $\frac{n+1}{n-1}$ B) $\left(\frac{n+1}{n-1}\right)^2$ C) $\frac{\sqrt{n}+1}{\sqrt{n}-1}$ D) $\left(\frac{\sqrt{n}+1}{\sqrt{n}-1}\right)^2$

39. A circle of radius R and a square of side length $'a'$ are made from two identical wires of length $'l'$. Each carry same current I. If B_A, B_B are the magnetic field inductions at their centres then ratio $\frac{B_A}{B_B}$ is

A) $\frac{\pi^2}{8}$ B) $\frac{\pi^2}{16\sqrt{2}}$ C) $\frac{\pi^2}{16}$ D) $\frac{\pi^2}{8\sqrt{2}}$

40.



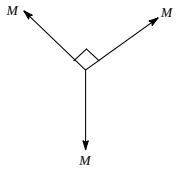
Effective dielectric constant of given capacitor is

A) $\frac{K}{K-1}lnK$ B) $\frac{K}{K-1}ln\left(\frac{1}{K}\right)$ C) $\frac{K}{K+1}lnK$ D) $\frac{K}{K+1}ln\left(\frac{1}{K}\right)$

41. **The electric field intensity at (30, 30)cm due to a charge of** $-8NC$ at the origin in NC^{-1} is

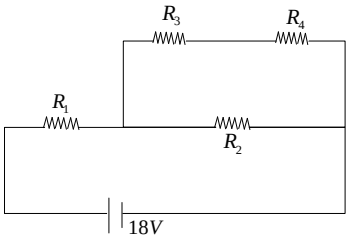
A) $-400(i+j)$ B) $400(i+j)$ C) $-200\sqrt{2}(i+j)$ D) $200\sqrt{2}(i+j)$

42. **Find the resultant magnetic moment for the following arrangement**



A) $\sqrt{2}M$ B) $\left(\sqrt{2}-1\right)M$ C) $\left(\sqrt{2}+1\right)M$ D) M

43. **In the given circuit the internal resistance of the** $18V$ **cell is negligible. If** $R_1 = 400\Omega$, $R_3 = 100\Omega$, $R_4 = 500\Omega$ **and voltage across** R_4 **is** $5V$**. Then the value of** R_2 **will be**



A) $450\,\Omega$ B) $300\,\Omega$ C) $200\,\Omega$ D) $230\,\Omega$

44. **Four equal point charges** Q **are placed in** $X-Y$ **plane at** $(0,2),(4,2),(4,-2)$ **and** $(0,-2)$**. The work required to put 5th charge** $'Q'$ **at origin of Co-ordinate system will be**

A) $\frac{Q^2}{4\pi\in_0}\left[1+\frac{1}{\sqrt{3}}\right]$ B) $\frac{Q^2}{4\pi\in_0}$ C) $\frac{Q^2}{4\pi\in_0}\left[1+\frac{1}{\sqrt{5}}\right]$ D) $\frac{Q^2}{2\sqrt{2}\pi\in_0}$

45. **At a given instant** $t=0$ **radioactive substances A and B have equal activities. Half-life of** A **is** $0.693\,years\,(=ln\,2\,\text{years})$**. After time** $'t'$**, the ratio of their activities** $\frac{R_B}{R_A}=e^{-3t}$**. The half-life of** $'B'$ **is (In years)**

A) $\frac{ln2}{4}$ B) $2ln2$ C) $4ln2$ D) $\frac{ln2}{2}$

SECTION-II
(Numerical Value Answer Type)

This section contains 5 questions. The answer to each question is a Numerical values comprising of positive or negative decimal numbers
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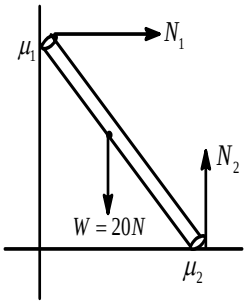
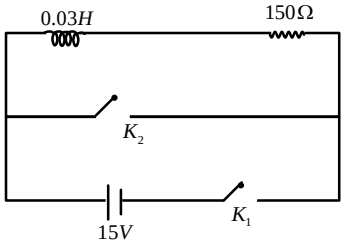
46. **A uniform rod of weight** $'20N'$ **is made to lean between rough vertical wall and the ground. If** $\mu_1=\frac{1}{2}$ **and** $\mu_2=\frac{1}{4}$ **then normal reaction (in Newton) at horizontal surface when the rod is about to slip is____.**



47. **2 Kg of Ice at -20^0C is mixed with 5 Kg of water at 20^0C. Find mass of water is (in Kg) _____.**

48.



K_1 has been kept closed for long time. Then at $t = 0$ 'K_1' is opend and key K_2 is closed simultaneously. At $t = 1ms$, the current in circuit is (in mA) $\left[e^5 \approx 150\right]$

49. **Light incidents normally on a completely absorbing surface with an energy flux of $25 W\,cm^{-2}$. If surface has an area of $25 cm^2$, the momentum transferred to the surface in 40 minutes time duration will be $\left(\text{in} \times 10^{-3} NS\right)$.**

50. **When the energy of incident photon is increased by 20%, the K.E. of photo electron will increase from 0.5 to 0.76 eV. The work function of metal is (in eV).**

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CHEMISTRY

51. **A solid compound contains x,y and z atoms in a cubic lattice with x atoms occupying the corners, y atoms in the body-centered positions, and z atoms at the center of the faces of the unit cells what is the empirical formula of the compound?**
A) XY_2Z_3 B) XYZ_3 C) $X_2Y_2Z_3$ D) X_8YZ_6

52. **The relative lowering of vapour pressure caused by dissolved 71.3g of a substance in 1000g of water is 7.13×10^{-3}. The molecular mass of the substance is:**
A) 360 B) 18 C) 1.8 D) 180

53. **How long (approximate) should water be electrolyzed by passing through 100 amperes current so that the oxygen released can completely burn 27.66g of diborane?**
A) 0.8 hours B) 3.2 hours C) 1.6 hours D) 6.4 hours

54. **Energy of an electron is given by $E = -2.178\times10^{-18}\left[\frac{z^2}{n^2}\right]J$. Wavelength of light required to excited an electron in an hydrogen atom from level n = 1 to n = 2 will be $\left(h = 6.62\times10^{-34} J.s \text{ and } c = 3.0\times10^8 m/s\right)$**
A) $1.214\times10^{-7} m$ B) $2.816\times10^{-7} m$ C) $6.500\times10^{-7} m$ D) $8.500\times10^{-7} m$

55. **The ratio between the rms velocity of H_2 at 50 k and that at O_2 at 800 k is**
A) 4 B) 2 C) 1 D) 1/4

56. **In conversation of limestone to lime, $CaCO_{3(s)} \rightarrow CaO_{(s)} + CO_{2(g)}$. The values of ΔH^0 and ΔS^0 are +179.1 KJ/mole and 160.2 J/K respectively at 298 K and 1 bar. Assuming that ΔH^0 and ΔS^0 do not change with temperature above which conversation of limestone to lime will be spontaneous is**
A) 1008 K B) 1200 K C) 845 K D) 1118 K

57. For the first order decomposition of N_2O_5 it is found that

$2N_2O_{5(g)} \rightarrow 4NO_{2(g)(g)} + O_{2(g)} \quad \frac{-d\left[N_2O_5\right]}{d+} = K\ \left[N_2O_5\right]$

$N_2O_{5(g)} \rightarrow 2NO_{2(g)} + \frac{1}{2}O_{2(g)} \quad \frac{-d\left[N_2O_5\right]}{d+} = K^1\left[N_2O_5\right]$**. There four which of the following is true?**

A) $K = K^1$ B) $K > 2K^1$ C) $K > K^1$ D) $2K = K^1$

58. The value of electronegativity of atoms A and B are 1.2 and 4 respectively. The percentage ionic character of A-B bond is

A) 50.0% B) 43.0% C) 55.3% D) 72.2%

59. Which of the following processes involves smelting?

A) $Al_2O_3.2H_2O \xrightarrow{Heat} Al_2O_3 + 2H_2O$ B) $ZnCO_3 \xrightarrow{Heat} ZnO + CO_2$

C) $2PbS + 3O_2 \xrightarrow{Heat} 2PbO + 2SO_2$ D) $Fe_2O_3 + 3C \xrightarrow{Heat} 2Fe + 3CO$

60. The volume of oxygen liberated from 0.68 g of H_2O_2 is

A) 112 mL B) 224 mL C) 56 mL D) 336 mL

61. Bromine is liberated when an aqueous solution of potassium bromide is treated with

A) Cl_2 B) I_2 C) Dilute H_2SO_4 D) SO_2

62. For the reaction $N_2 + 3H_2$ $2NH_3, N_2$ and H_2 were taken in the molar ratio of 1:3 upto the point of equilibrium 50% each reactant has been reacted. If total pressure at equilibrium is P. The partial pressure of ammonia would be

A) $\frac{P}{3}$ B) $\frac{P}{6}$ C) $\frac{P}{4}$ D) $\frac{P}{8}$

63. $M\left(OH\right)x$ has $K_{sp} = 4\times10^{-12}$ and solubility $10^{-4}M$. Hence x is

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

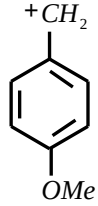
64. Identify the product 'z' in the following series of reactions $C_6H_{12}O_6$ (glucose) $\xrightarrow{HCN} X \xrightarrow{H_2O} Y \xrightarrow{HI} Z$:

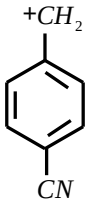
A) Hexanoinc acid B) $\alpha-$methyl caproic acid

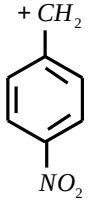
C) Heptanoic acid D) none of these

65. Arrange the following carbocation in decreasing order of stability

I. 

II. 

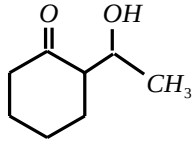
III. 

IV. 

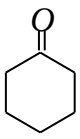
A) I > III > II > IV B) II > I > III > IV C) IV > III > II > I D) III > IV > II > I

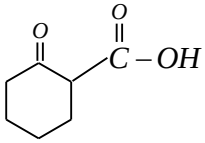
66. Electrolysis of cold concentrated aqueous solution of potassium succinate yields.

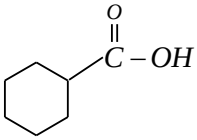
A) Ethene B) Ethane C) Ethyne D) Ethane -1,2-diol

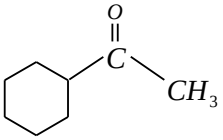
67. 

$\xrightarrow[\Delta]{I_2/NaOH} \xrightarrow{H^+} \xrightarrow{\Delta}$ **A.A is**

A) 

B) 

C) 

D) 

68. Ethyl cyanide can be converted into ethylamine by

A) Reduction with Sn and HCl

B) Acidic hydrolysis followed by heating with ammonia and then alkaline bromine

C) Redaction with $LiAlH_4$

D) None

69. Which one of the following is a chain growth polymer?

A) Polyester B) Nylon 6-6 C) Nylon 6 D) Poly propylene

70. The substance having the largest concentration in acid rain?

A) H_2CO_3 B) HNO_3 C) HCl D) H_2SO_4

SECTION-II
(Numerical Value Answer Type)

This section contains 5 questions. The answer to each question is a Numerical values comprising of positive or negative decimal numbers.
Marking scheme: +4 for correct answer, 0 in all other cases.

71. The number of hydroxyl group in pyrophosphoric acid is

72. The number of possible isomers for the compound C_7H_8O are ___

73. What is the coordination number of Cr in $K_3\left[Cr(Ox)_3\right]$?

74. Caffeine has a molecular mass of 194. If it contains 28.9% by mass of nitrogen, number of atoms of nitrogen in one molecule of caffeine is

75. How many phenylic H-atoms are present in mesitylene?