SRIGAYATRI EDUCATIONAL INSTITUTIONS

INDIA

Time: 3 Hours **JEE MAIN TOT GT-3** **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 (B) 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

***SYLLABUS:* TOTAL SYLLABUS ON GRAND TEST**

1. **Let** $a=\cos^{-1}(\cos 20), b=\cos^{-1}(\cos 30)$ **and** $c=\sin^{-1}(\sin 10)$ **then maximum value of** $\sin(2(a+b+c)x)+\cos^2((a+b+c)x)$ **is**

A) $\frac{\sqrt{5}+1}{2}$ B) $\frac{\sqrt{5}-1}{2}$ C) $\frac{\sqrt{3}-1}{2}$ D) none of these

2. **The value of** $\left(\sqrt{3}+\tan 1^0\right)\left(\sqrt{3}+\tan 2^0\right)\left(\sqrt{3}+\tan 3^0\right).....\left(\sqrt{3}+\tan 28^0\right)\left(\sqrt{3}+\tan 29^0\right)$ **is**

A) 2^{28} B) $2^{15}+2-\sqrt{3}$ C) 2^{29} D) $2^{14}+2-\sqrt{3}$

3. **'A' is a** 3×3 **matrix with entries from the set** $\{-1,0,1\}$. **The probability that 'A' is neither symmetric nor skew symmetric is**

A) $\frac{3^9-3^6-3^3+1}{3^9}$ B) $\frac{3^9-3^6-3^3}{3^9}$ C) $\frac{3^9-1}{3^{10}}$ D) $\frac{3^9-3^3+1}{3^9}$

4. **Let** $f(x)=x+\sin x$, **then** $\int_a^1 f^{-1}(x)$ **is equal to, where** $a=\lim_{x\to0^+}\left[\sec^{-1}\left(\frac{1}{x}\right)-\sec^{-1}\left(-\frac{1}{x}\right)\right]$, **(where** $[.]$ **denotes the greatest integer function)**

A) $-2+\sin 1$ B) 0 C) $2(1+\sin 1)$ D) 3

5. **The angle of elevation of the top of the tower observed from each of the three points A, B, C on the ground, forming a triangle is the same angle** α. **If R is the circum radius of the triangle ABC, then the height of the tower is**

A) $R\sin\alpha$ B) $R\cos\alpha$ C) $R\cot\alpha$ D) $R\tan\alpha$

6. **The distance of the point** $(1,-2,3)$ **from the plane** $x-y+z=5$ **measured parallel to the line** $\frac{x}{2}=\frac{y}{3}=\frac{z-3}{-4}$ **is**

A) $\frac{\sqrt{21}}{4}$ B) $\frac{\sqrt{29}}{5}$ C) $\frac{\sqrt{13}}{5}$ D) $\frac{2}{\sqrt{5}}$

7. **Let** $f(x)=1-x+x^2-x^3+....+x^{16}-x^{17}=\alpha_0+\alpha_1(1+x)+\alpha_2(1+x)^2+....+\alpha_{17}(1+x)^{17}$ **then** α_2 **is**

A) 204 B) 408 C) 1632 D) 816

8. **Let** $ab^2c^3, a^2b^3c^4, a^3b^4c^5$ **are in A.P. (a, b, c>0), then minimum value of** $27a+8b+125c$ **is**

A) 30 B) 60 C) 90 D) 120

9. **The term independent of x in** $\left(1+x+x^{-2}+x^{-3}\right)^{10}$ **is n then last digit of** $(n+2)^n$ **is**

A) 1 B) 3 C) 7 D) 9

10. **If** a,b,c **are in A.P. and sum of coefficients of** $\left(1+\left(ax^2-2bx+c\right)^2\right)^{2017}$ **is equal to** $-y^2-y,$ **then value of** $y^{2018}+\frac{1}{y^{2018}}+1$ **is**

A) 0 B) 1 C) 2 D) None of these

11. **If** $f(n+1)=\frac{1}{2}\left\{f(n)+\frac{9}{f(n)}\right\}, n\in N$ **and** $f(n)>0$ **for all** $n\in N$ **then** $\lim_{n\to\infty} f(n)$ **is equal to**

A) 3 B) -3 C) $\frac{1}{2}$ D) none of these

12. **If** $f(x)=\begin{cases} ax^2+1, & x\le 1 \\ x^2+ax+b, & x>1 \end{cases}$ **is differentiable at** $x=1,$ **then**

A) $a=1,b=1$ B) $a=1,b=0$ C) $a=2,b=0$ D) $a=2,b=1$

13. **If** $\sqrt{\left(1-x^6\right)}+\sqrt{\left(1-y^6\right)}=a\left(x^3-y^3\right)$ **and** $\frac{dy}{dx}=f(x,y)\sqrt{\left(\frac{1-y^6}{1-x^6}\right)}$ **then**

A) $f(x,y)=y/x$ B) $f(x,y)=y^2/x^2$ C) $f(x,y)=2y^2/x^2$ D) $f(x,y)=x^2/y^2$

14. **The shortest distance between the line** $y-x=1$ **and the curve** $x=y^2$ **is**

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

15. $\int e^{\tan^{-1}x}\left(1+x+x^2\right).d\left(\cot^{-1}x\right)$ **is equal to**

A) $-e^{\tan^{-1}x}+C$ B) $e^{\tan^{-1}x}+C$ C) $-x.e^{\tan^{-1}x}+C$ D) $x.e^{\tan^{-1}x}+C$

16. **The differential equation of the curve** $\frac{x}{c-1}+\frac{y}{c+1}=1$ **is given by**

A) $\left(\frac{dy}{dx}+1\right)\left(y-x\frac{dy}{dx}\right)=2\frac{dy}{dx}$ B) $\left(\frac{dy}{dx}+1\right)\left(y-x\frac{dy}{dx}\right)=\frac{dy}{dx}$

C) $\left(\frac{dy}{dx}+1\right)\left(y-x\frac{dy}{dx}\right)=3\frac{dy}{dx}$ D) $\left(\frac{dy}{dx}+1\right)\left(y-\frac{xdy}{dx}\right)=4\frac{dy}{dx}$

17. **The equation of the lines passing through the point (1, 0) and at a distance** $\sqrt{3}/2$ **from the origin are**

A) $\sqrt{3}x+y-\sqrt{3}=0,\sqrt{3}x-y-\sqrt{3}=0$ B) $\sqrt{3}x+y+\sqrt{3}=0,\sqrt{3}x-y+\sqrt{3}=0$

C) $x+\sqrt{3}y-\sqrt{3}=0,x-\sqrt{3}y-\sqrt{3}=0$ D) $x+y+\sqrt{3}=0;x-y+\sqrt{3}=0$

18. **Locus of mid-point of chords of circles** $x^2+y^2=a^2$ **that subtends angle** $\frac{\pi}{2}$ **at the point** $(0,b)$ **is**

A) $2x^2+2y^2-2bx+b^2-a^2=0$ B) $2x^2+2y^2-2by+b^2-a^2=0$

C) $2x^2+2y^2-2by+a^2-b^2=0$ D) $2x^2+2y^2-2by+a^2+b^2=0$

19. **The parabola** $y^2=4x$ **and the circle** $(x-6)^2+y^2=r^2$ **will have no common tangent if**

A) $r>\sqrt{20}$ B) $r<\sqrt{20}$ C) $r>\sqrt{18}$ D) $r\in\left(\sqrt{20},\sqrt{28}\right)$

20. The image of the line $\frac{x-1}{9}=\frac{y-2}{-1}=\frac{z+3}{-3}$ in the plane $3x-3y+10z-26=0$ is

A) $\frac{x-5}{9}=\frac{y-1}{3}=\frac{z-2}{1}$ B) $\frac{x+1}{3}=\frac{y+5}{1}=\frac{z-2}{-3}$

C) $\frac{x-5/2}{9}=\frac{y-1/2}{-1}=\frac{z-2}{-3}$ D) $\frac{2x-1}{18}=\frac{2y-1}{2}=\frac{z-2}{-3}$

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.

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21. Standard deviation of two distributions are same and their arithmetic means are 30 and 25 respectively. If their coefficient of variation is V_1 and V_2, then $6V_1-5V_2$ is equal to ____

22. The number of seven digit integers with the sum of digits is equal to 10 and formed by using the digits 1,2,3 only is _______

23. If z_1, z_2 are complex numbers such that $z_1^3-3z_1z_2^2=2$ and $3z_1^2z_2-z_2^3=11$ then $\left|z_1^2+z_2^2\right|=$ _____

24. $\int_0^4 \frac{\left(y^2-4y+5\right)\sin\left(y-2\right)dy}{\left[2y^2-8y+1\right]}$ is equal to ______

25. If PSQ is the focal chord of the parabola $y^2=8x$ such that $SP=6$, then the length of SQ is__

SECTION – I
(SINGLE CORRECT ANSWER TYPE)

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PHYSICS

SYLLABUS:* *TOTAL SYLLABUS ON GRAND TEST

26. In a Vernier Calliper, the zero of Vernier scale is slightly left to the zero of main scale with both jaws are closely joined to each other. Total number of divisions on Vernier scale is 80 which is equal to 2.32 cm. 70th division of Vernier is exactly coinciding with 2nd division of main scale when jaws are closely joined to each other. Now diameter of cylinder is measured, it is found that zero of Verniner lies between 6.2 cm to 6.23 cm on the main scale and 50th division of Vernier exactly coincides with a main scale. Then choose the correct option.

A) Vernier calipers has negative zero error of 1.97 cm
B) Vernier calipers has positive zero error of 1.97 cm
C) Vernier calipers has negative error of 0.01 cm
D) Vernier calipers has positive zero error of 0.01 cm

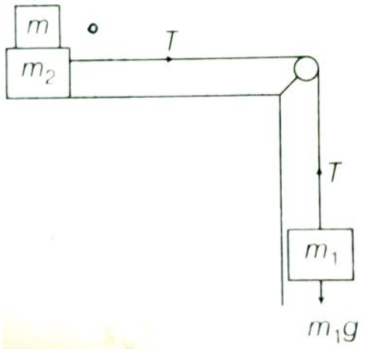
27. A particle moves from the point $\left(2.0\hat{i}+4.0\hat{j}\right)m$ at $t=0$ with an initial velocity $\left(5.0\hat{i}+4.0\hat{j}\right)ms^{-1}$. It is acted upon by a constant force which produces a constant acceleration $\left(4.0\hat{i}+4.0\hat{j}\right)ms^{-2}$. What is the distance of the particle from the origin at time 2 s?

A) 5m B) $20\sqrt{2}$ m C) $10\sqrt{2}$ m D) 15 m

28. A boy can throw a stone upto a maximum height of 10 m. The maximum horizontal distance That the boy can throw the same stone upto will be

A) $20\sqrt{2}$ m B) 10 m C) $10\sqrt{2}$ m D) 20 m

29. Two masses $m_1 = 5kg$ and $m_2 = 10kg$ connected by an inextensible string over a frictionless pulley, are moving as shown in the figure. The coefficient of friction of horizontal surface is 0.15. The minimum weight m that should be put on top of m_2 to stop the motion is



A) 18.3 kg B) 27.3 kg C) 20.3 kg D) 10.3 kg

30. A time dependent force $F = 6t$ acts on a particle of mass 1 kg. If the particles starts from rest, the work done by the force during the first 1s will be

A) 22 J B) 9 J C) 18 J D) 4.5 J

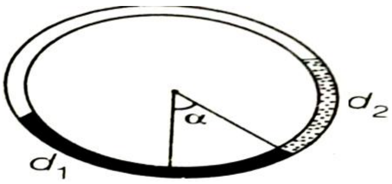
31. A simple harmonic motion is represented by $y = 5\left(\sin 3\pi t + \sqrt{3}\cos 3\pi t\right) cm.$ The amplitude and time period of the motion are

A) $10cm, \frac{3}{2}s$ B) $5cm, \frac{2}{3}s$ C) $5cm, \frac{3}{2}s$ D) $10cm, \frac{2}{3}s$

32. A steel wire having a radius of 2.0 mm, carrying a load of 4 kg, is hanging from a ceiling. Given that $g = 3.1\pi\, ms^{-2}$, what will be the tensile stress that would be developed in the wire?

A) $6.2\times10^6\ Nm^{-2}$ B) $5.2\times10^6\ Nm^{-2}$ C) $3.1\times10^6\ Nm^{-2}$ D) $4.8\times10^6\ Nm^{-2}$

33. There is a circular tube in a vertical plane. Two liquids which do not mix and of densities d_1 and d_2 are filled in the tube. Each liquid subtends 90^0 angle at centre. Radius joining their interface makes an angle α with vertical. Ratio $\frac{d_1}{d_2}$ is

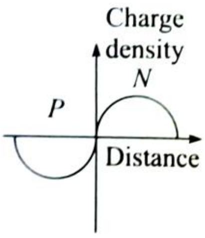


A) $\frac{1+\sin\alpha}{1-\sin\alpha}$ B) $\frac{1+\cos\alpha}{1-\cos\alpha}$ C) $\frac{1+\tan\alpha}{1-\tan\alpha}$ D) $\frac{1+\sin\alpha}{1-\cos\alpha}$

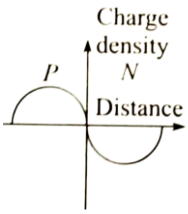
34. A sound wave of wavelength λ travels towards the right horizontally with a velocity V. It strikes and reflects from a vertical plane surface, traveling at a speed v towards the left. The number of crests striking in a time interval of three seconds on the wall is

A) $\frac{3(V+v)}{\lambda}$ B) $\frac{3(V-v)}{\lambda}$ C) $\frac{(V+v)}{3\lambda}$ D) $\frac{(V-v)}{3\lambda}$

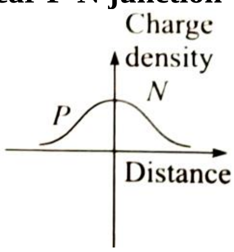
35. The curve between charge density and distance near P-N junction will be



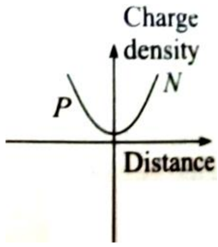
A)



B)



C)



D)

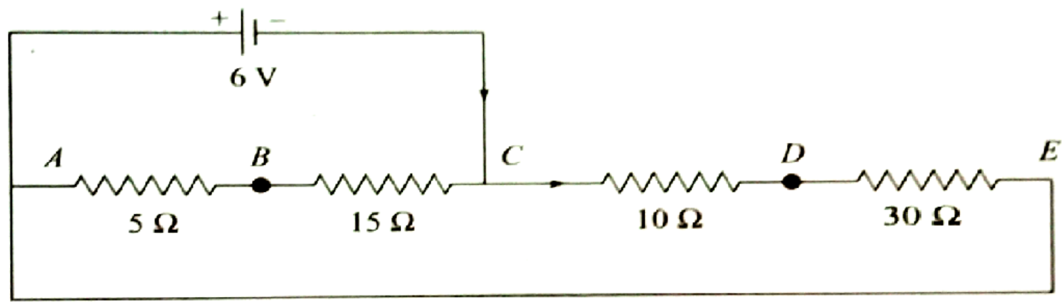
36. **A satellite is moving with a constant speed v in circular orbit round the earth. An object of mass 'm' is ejected from the satellite such that it just escapes from the gravitational pull of the earth. At the time of ejection, the kinetic energy of the object is**

A) $\frac{3}{2}mv^2$ B) $2mv^2$ C) mv^2 D) $\frac{1}{2}mv^2$

37. **Two Carnot engines A and B are operated in series. The first one, A receives heat at $T_1(=600\,K)$ and rejects to a reservoir at temperature T_2. The second engine B receives heat rejected by the first engine and in turn rejects to a heat reservoir at $T_3(=400\,K)$. Calculate the temperature T_2 if the work outputs of the two engines are equal.**

A) 600 K B) 500 K C) 400 K D) 300 K

38. **Four resistors are connected as shown in following figure. A 6V battery of negligible resistance is connected across terminal A and C. The potential difference across terminals B and D will be**

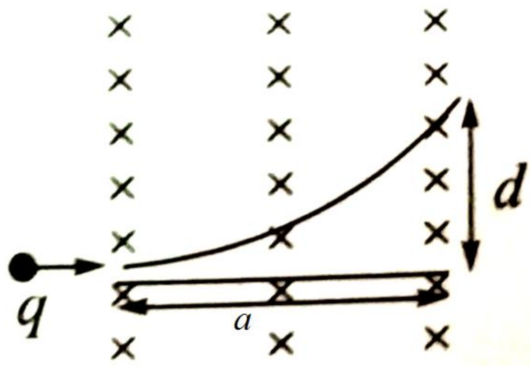


A) 0V B) 1.5 V C) 3V D) 2V

39. **A radioactive material of half-life T was produced in a nuclear reactor at different instants. The quantity produced second time was twice of that produced first time, if now their present activities are A_1 and A_2, respectively, then their age difference equals**

A) $\frac{T}{\ln 2}\left|\ln\frac{2A_1}{A_2}\right|$ B) $T\left|\ln\frac{A_1}{A_2}\right|$ C) $\frac{T}{\ln 2}\left|\ln\frac{A_2}{2A_1}\right|$ D) $T\left|\ln\frac{A_2}{2A_1}\right|$

40. **In a certain region of space there exists a constant and uniform magnetic field of induction B. The width of the magnetic field is a. A charged particle having charge q, is projected perpendicular to $\vec{B}$ and along the width of the field. If deflection produced by the field perpendicular to the width is d, then the magnitude of the momentum of the particle is**

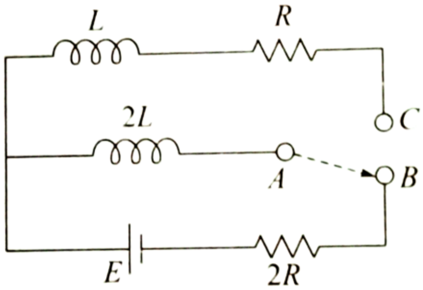


A) $\left(\frac{d^2+a^2}{2d}\right)qB$ B) $\frac{a^2}{2d^2}qB$ C) $\frac{4a^2}{(a+d)}qB$ D) $\frac{(a^2-d^2)}{2d}qB$

41. **White light of wavelength 400 nm to 700 nm is incident normally on a Young's double slit experiment apparatus. The distance between slits is d=1mm and distance between plane of the slits and the screen is 0.8m. At a point on the screen just in front of one of the slits, the missing wavelengths is**

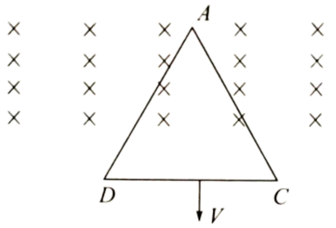
A) 533.3 nm B) 416.7 nm C) 666.7 nm D) 577.7 nm

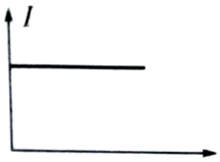
42. **In the circuit shown, A is joined to B for a long time, and then A is joined to C. The total heat produced in resistance R is**

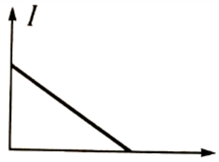


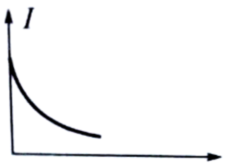
A) $\frac{LE^2}{6R^2}$ B) $\frac{LE^2}{4R^2}$ C) $\frac{4R^2}{LE^2}$ D) $\frac{LE^2}{R^2}$

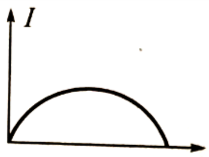
43. **An equilateral triangular loop ADC of uniform specific resistivity having some resistance is pulled with a constant velocity v out of a uniform magnetic field directed into the paper. At time t =0, side DC of the loop is at the edge of the magnetic field. The induced current (I) versus time (t) graph will be**



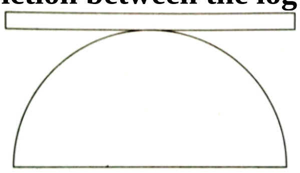
A) 

B) 

C) 

D) 

44. **A board is balanced on a rough horizontal semi-circular log. Equilibrium is obtained with the help of addition of a weight to one of the ends of the board when the board makes an angle θ with the horizontal. Coefficient of friction between the log and the board is**



A) $\tan\theta$ B) $\cot\theta$ C) $\cos\theta$ D) $\sin\theta$

45. **If number of turns in MCG doubled, Hence current sensitivity increases to two times then voltage sensitivity**

A) Increases B) Decreases C) Remains the same D) We cannot say

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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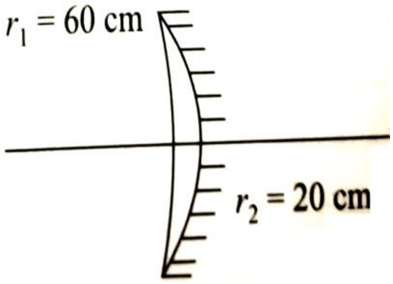
46. **Moment of inertia of a body about a given axis is 1.5 kg m^2. Initially, the body is at rest. In order to produce a rotational kinetic energy of 1200J, the angular acceleration of 20 rad/s^2 must be applied about the axis for a duration of _____ sec**

47. **A thermometer graduated according to a linear scale reads a value x_0, when in contact with boiling water and $x_0/3$, when in constant with ice. When this thermometer in the contact with the object reads $x_0/2$ the temperature of an the object is in ^0C 5n then n value _____**

48. **Convex surface of thin concavo-convex lens of refractive index 1.5 is silvered as shown. A small object is kept in air 30 cm left of the lens on its principal axis. If the distance magnitude (in cm) of the final image from mirror is 10k then k value _____**



49. **The oscillating magnetic field of a plane electromagnetic wave is given as.** $B = 4\times10^{-6}\sin\left[200\pi x - 30\times10^{9}\pi t\right]$ **tesla. If the amplitude of electric field (in V/m) is 150n then n value ____**

50. **Two particles A and B have de-Broglie's wavelengths $30A^0$ and $20A^0$, combined to form a particle C. Momentum is conserved in this process. If the difference between possible maximum and minimum de-Broglie's wavelength of C $(in\ A^0)$ is 12k then k______**

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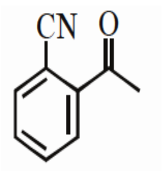
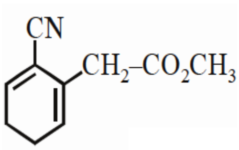
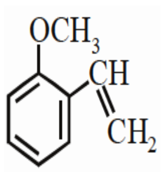
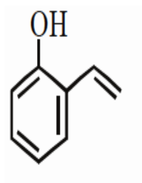
CHEMISTRY

***SYLLABUS:* TOTAL SYLLABUS ON GRAND TEST**

51. **The radius of the largest sphere which fits properly at the centre of the edge of body centred cubic unit cell is : (Edge length is represented by 'a') :**
A) 0.134 a B) 0.027 a C) 0.067 a D) 0.047 a

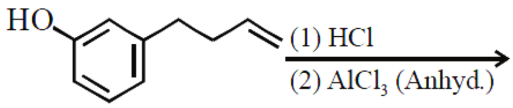
52. **Among the colloids cheese (C), milk (M) and smoke (S), the correct combination of the dispersed phase and dispersion medium, respectively is :-**
A) C : solid in liquid; M : solid in liquid; S : solid in gas
B) C : solid in liquid; M : liquid in liquid; S : gas in solid
C) C : liquid in solid; M : liquid in solid; S : solid in gas
D) C : liquid in solid; M : liquid in liquid; S : solid in gas

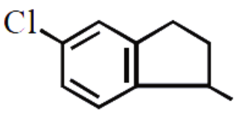
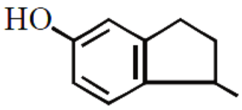
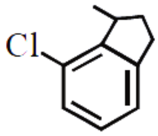
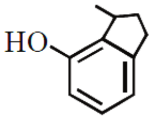
53. **Which of the following compounds reacts with ethylmagnesium bromide and also decolourizes bromine?**

A) 
B) 
C) 
D) 

54. **25 ml of the given HCl solution requires 30 mL of 0.1 M sodium carbonate solution. What is the volume of this HCl solution required to titrate 30 mL of 0.2 M aqueous NaOH solution?**
A) 25 mL B) 50 mL C) 12.5 mL D) 75 Ml

55. The major product of the following reaction is:

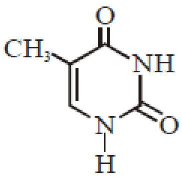
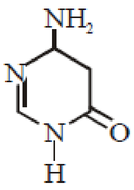
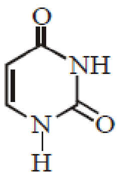
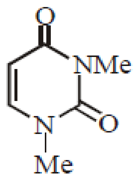


A)  B)  C)  D) 

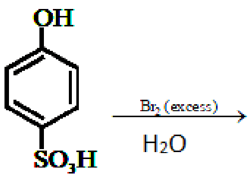
56. The concentration of dissolved oxygen (DO) in cold water at 0^0C can go upto a maximum of

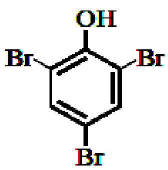
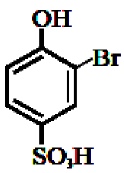
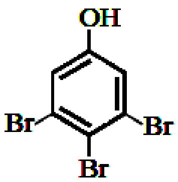
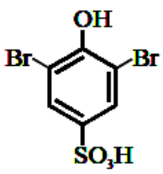
A) 10.6 ppm B) 14.6 ppm C) 16.6 ppm D) 8.6 ppm

57. Among the following compound which one is found in RNA ?

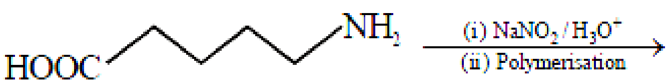
A)  B)  C)  D) 

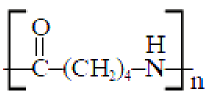
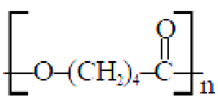
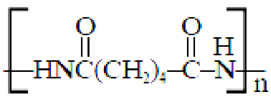
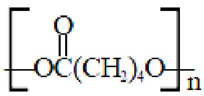
58. The major product of the following reaction is :



A)  B)  C)  D) 

59. The polymer obtained from the following reactions is :



A)  B)  C)  D) 

60. The magnetic moment of an octahedral homoleptic $Mn(II)$ complex is $5.9BM$. The suitable ligand for this complex is:

A) ethylenediamine B) CN^- C) NCS^- D) CO

61. Λ_m^o for $NaCl, HCl$ and NaA are $126.4, 425.9$ and $100.5\ S\ cm^2 mol^{-1}$, respectively. If the conductivity of $0.001\ MHA$ is $5\times10^{-5} S\ cm^{-1}$, degree dissociation of HA is :

A) 0.50 B) 0.25 C) 0.125 D) 0.75

62. Chlorine on reaction with hot and concentrated sodium hydroxide gives:

A) Cl^- and ClO_3^- B) Cl^- and ClO^- C) ClO_3^- and ClO_2^- D) Cl^- and ClO_2^-

63. The element that shows greater ability to form $p\pi - p\pi$ multiple bond is:

A) Sn B) C C) Ge D) Si

64. Freezing point of a 4% aqueous solution of X is equal to freezing point of 12% aqueous solution of Y. If molecular weight of X is A, then molecular weight of Y is :-

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

65. What is the work function of the metal if the light of wavelength 4000 Å generates photoelectrons of velocity 6×10^{5} ms^{-1} form it ?
(Mass of electron = 9×10^{-31} kg Velocity of light = 3×10^{8} ms^{-1} Planck's constant = 6.626×10^{-34} Js Charge of electron = 1.6×10^{-19} JeV$^{-A)}$

A) 0.9 eV B) 4.0 eV C) 2.1 eV D) 3.1 Ev

66. The metal d-orbitals that are directly facing the ligands in $K_3[Co(CN)_6]$ are :

A) d_{xz}, d_{yz} and d_{z^2} B) d_{xy}, d_{xz} and d_{yz} C) d_{xy} and $d_{x^2-y^2}$ D) $d_{x^2-y^2}$ and d_{z^2}

67. The correct order for acid strength of compounds
$CH\equiv CH, CH_3-C\equiv CH$ and $CH_2=CH_2$

A) $CH=CH>CH_2=CH_2>CH_3-C=CH$

B) $HC\equiv CH>CH_3-C\equiv CH>CH_2=CH_2$

C) $CH_3-C\equiv CH>CH_2=CH_2>HC\equiv CH$

D) $CH_2-C\equiv CH>CH=CH>CH2=CH_2$

68. In the following reaction Aldehyde + Alcohol $\xrightarrow{HCl}$ Acetal

Aldehyde	**Alcohol**
HCHO	**^{t}BuOH**
CH_3CHO	**MeOH**

The best combinations is:

A) HCHO and MeOH B) HCHO and ^{t}BuOH

C) CH_3CHO and MeOH D) CH_3CHO and ^{t}BuOH

69. A metal on combustion in excess of air forms X, X upon hydrolysis with water yields H_2O_2 and O_2 along with another product. The metal is :

A) Rb B) Na C) Mg D) Li

70. The solubility of noble gases in water shows the order:

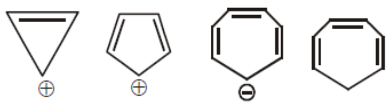
A) $He>Ar>Kr>Ne>Xe$ B) $He>Ne>Ar>Kr>Xe$

C) $Xe>Kr>Ar>Ne>He$ D) None of the above

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. Which compound(s) out of the following is/are not aromatic?



72. Based on VSEPR theory, the number of 90^0 for $F-Br-F$ in a BrF_5 molecules are ___.

73. Out of the following, how many of them have magnetic moment value $\sqrt{24}BM$.
$Ti^{2+}, Ti^{3+}, V^{2+}, Cr^{2+}, Cr^{3+}, Mn^{2+}, Fe^{2+}$

74. How many compounds liberate NH_3 on heating from the following
$(NH_4)_2SO_4, (NH_4)_2CO_3, NH_4Cl, NH_4NO_3, (NH_4)_2Cr_2O_7$

75. The dissociation constant of a substituted benzoic acid at 25^0C is 1.0×10^{-4}. Find the pH of a 0.01 M solution of its sodium salt _____.