Sr. No. .....2004....

# Ph.D. ENTRANCE TEST-2023

## SUBJECT (CHEMISTRY)

**Total Questions: 100**
**Time Allowed : 110 Minutes**

**Roll No.** | | | | | | |

### Instructions for Candidates

1. Write your roll number in the space provided at the top of this page of question booklet and fill up the necessary information in the spaces provided on OMR Answer sheet.
2. OMR Answer sheet has an original copy and a candidate's copy glued beneath it at the top. While making entries in the original copy, candidate should ensure that the two copies are aligned properly so that the entries made in the original copy against each item are exactly copied in the candidate's copy.
3. All entries in the OMR answers sheet including answers to questions are to be recorded in the original copy only.
4. Use only blue/ black ball point pen to darken the circle of correct / most appropriate response. In no ca gel/ ink pen or pencil should be used.
5. **Do not darken more the one circle of option for any question. A question with more than one darkened response shall be considered wrong.**
6. **There will be no "Negative Marking" for wrong answers.**
7. Only those candidates who would obtain positive score in entrance test examination shall be eligible for admission
8. Do not make any stray mark on the OMR sheet
9. Calculators and mobiles shall not be permitted inside the examination hall
10. Rough work, if any, should be done on the blank sheets provided with the question booklet.
11. OMR answer sheet must be handled carefully and it should not be folded or mutilated in such case it will not be evaluated.
12. Ensure that your OMR Answer sheet has been signed by the invigilator and the candidate himself/herself.
13. At the end of the examination hand over the OMR answer sheet to the invigilator who will first tear off the original OMR sheet in presence of the candidate and hand over the candidate's copy to the candidate.
14. If any of the information in the response sheet/question paper has been found missing or not mentioned as stated above the candidate is solely responsible for that lapse.

## Part I (General Aptitude 2023)

1. Tariq wants to sell a watch at a profit of 20%. He bought it at 10% less and sold it at ₹ 30 less, but still he gained 20%. The cost price of watch is.....

   A. ₹ 250
   B. ₹ 225
   C. ₹ 240
   D. ₹ 220

2. If today is Sunday then three days from now will be....

   A. Saturday
   B. Friday
   C. Thursday
   D. Wednesday

3. Absar is brother of Mehdi. Iqra is sister of Gulshan. Mehdi is son of Iqra. How is Absar related to Iqra?

   A. Son
   B. Brother
   C. Nephew
   D. Father

4. Ankit can do a piece of work in 6 days and Basharat in 9 days. How many days will both take together to complete the work?

   A. 7.5 days
   B. 5.4 days
   C. 3.6 days
   D. 3 days

5. The book "To Hell and Back: Humans of COVID" is authored by?

   A. Kavitha Iyer
   B. Jhumpa Lahiri
   C. Barkha Dutt
   D. Arundhati Roy

6. If PARTICLE is coded RCTVKENG, then how is SCIENCE coded?

   A. TBJUOMF
   B. TDJFODF
   C. UEKGPEG
   D. QBSUDMF

7. Where is the headquarter of the United Nations Environment Programme (UNEP) located?

   A. Nairobi, Kenya
   B. Venice, Italy
   C. Munich, Germany
   D. Geneva, Switzerland

8. Two years ago, Jane's age was three times Sam's age. If Jane is now 18, how old is Sam?

   A. 6 years
   B. 8 years
   C. 10 years
   D. 12 years

9. If WORK is coded as 4-12-9-16, then how will WOMAN be coded?

   A. 4-12-14-26-13
   B. 4-26-14-13-12
   C. 23-12-26-14-13
   D. 123-15-13-1-14

10. Which of the following states is not included in the sixth schedule of Indian Constitution?

    A. Meghalaya
    B. Tripura
    C. Mizoram
    D. Manipur

11. Letter : Word

A. Homework : School

B. Club : People

C. Product : Factory

D. Page : Book

12. The speed of a bus is 54 km/h if we don't let it stop at any point. If the bus stops at the bus-stops, the speed of the bus is 45 km/h. What is the time that the bus stops for per hour?

A. 7 mins

B. 10 mins

C. 21 mins

D. 22 mins

13. Blood does not coagulate inside the body due to the presence of _____?

A. Fibrin

B. Haemoglobin

C. Heparin

D. Plasma

14. If a triangle has angles measuring 30 degrees, 60 degrees, and 90 degrees, what type of triangle is it?

A. Equilateral

B. Isosceles

C. Scalene

D. Right-angled

15. The ..... of the Minister's statement cannot be verified by people who have no access to official records.

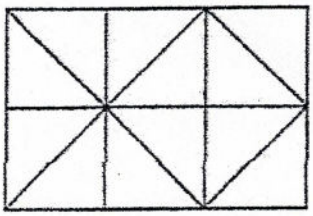
A. veracity

B. verbosity

C. ambiguity

D. validity

16. The number of squares in the given figure is.....



A. 7

B. 8

C. 9

D. 10

17. What is the percentage of profit if the cost price is 95% of the selling price?

A. 5%

B. 5.26%

C. 4%

D. 4.75%

18. If you start facing east and turn 135 degrees clockwise, which direction are you facing now?

A. North

B. West

C. North-East

D. South-East

19. Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) has been extended till which year recently?

A. 2025

B. 2028

C. 2030

D. 2032

20. Who is the present chairman of ISRO?

A. Sh. Heeralal Samariya

B. Sh. Harsh Chouhan

C. Sh. Ravneet Kaur

D. Sh. S Somanath

##### End of Part I #####

**Ph.D Entrance Test (Chemistry)**

**Question paper**

**Part-II**

Q 21. The Lewis acid character of $BF_3$, $BCl_3$ and $BBr_3$ follows the order

a) $BF_3 < BBr_3 < BCl_3$
b) $BCl_3 < BBr_3 < BF_3$
c) $BF_3 < BCl_3 < BBr_3$
d) $BBr_3 < BCl_3 < BF_3$

Q 22. Among the following diatomic molecules, the one that shows the EPR signal is.

a) $Li_2$
b) $B_2$.
c) $C_2$
d) $N_2$

Q 23. The structures of $O_3$ and $N_3^-$ are

a) linear and bent, respectively
b) both linear
c) both bent
d) bent and linear, respectively

Q 24. The region of electromagnetic spectrum employed in the electron spin resonance (ESR) spectroscopy is:

a) radiowave
b) microwave
c) infrared
d) visible

Q 25. The hybrid orbitals used by the bromine atom in $BrF_3$ are

a) $sp^2$
b) $sp^3$
c) $sp^3d$
d) $sp^3d^2$

Q 26. The compound $(SiH_3)_3N$ is expected to be

a) pyramidal and more basic than $(CH_3)_3N$
b) planar and less basic than $(CH_3)_3N$
c) pyramidal and less basic than $(CH_3)_3N$
d) planar and more basic than $(CH_3)_3N$

Q 27. Among the following orbitals of a diatomic molecule, the bonding one is

a) $1\sigma_u$
b) $2\sigma_u$
c) $1\pi_u$
d) $1\pi_g$

Q 28. The homogeneous catalyst that is used in hydroformylation or hydrocarbonylation is based on

a) Co
b) Cr
c) Ti
d) V

Q 29. In biological systems, the metal ions involved in electron transport are

a) $Na^{+}$and $K^{+}$
b) $Zn^{2+}$and $Mg^{2+}$
c) $Ca^{2+}$and $Mg^{2+}$
d) $Cu^{2+}$and $Fe^{3+}$

Q 30. The square planar complex, $[IrCl(PPh_3)_3]$undergoes oxidative addition of $Cl_2$ to give two products, which are

(a) Eantiomers

(b) cis–and trans–isomers

(c) linkage isomers

(d) None of the above

Q 31. The degeneracy of an excited state of a particle in 3-dimensional cubic box with energy three times its ground state energy is

a) 3
b) 2
c) 1
d) 4

Q 32. The number of ways in which four molecules can be distributed in two different energy levels is

a) 6
b) 3
c) 16
d) 8

Q 33. According to conventional transition state theory, for elementary bimolecular reactions, the molar entropy of activation, $\Delta S^{\neq}$ is

a) Positive
b) Zero
c) Negative
d) Positive for endothermic and negative for exothermic reactions

Q 34. Band theory predicts that Magnesium is an insulator. However in practice it acts as a conductor due to

a) Presence of filled 3s orbital
b) Overlap of filled 2p and filled 3s orbital
c) Overlap of filled 3s and empty 3p orbital
d) Presence of unfilled 3p orbital

Q 35. The value of $d_{111}$ in a cubic crystal is 352.6 Pm. The value of $d_{333}$ is

a) 352.6 Pm
b) 976.8 Pm
c) 108.5 Pm
d) 625.3 Pm

Q 36. When crystals of sodium chloride are heated in the presence of sodium vapour, they turn yellow. This is due to the formation of

a) Schottky defects
b) Frenkel defects
c) F-centers
d) H-centers

Q 37. For mixed micellization showing synergism, the value of interaction parameter, $\beta$, is

a) Positive
b) Negative
c) Zero
d) None of the above

Q 38. For an ideal gas with molar mass M, the molar translational entropy at a given temperature is proportional to

a) $M^{\frac{3}{2}}$
b) $M^{\frac{1}{2}}$
c) $e^{M}$
d) $lnM$

Q 39. If the degree of ionization of an anionic surfactant, $\alpha = 0.2$.The degree of binding is

a) 0.4
b) 0.6
c) 0.8
d) 1

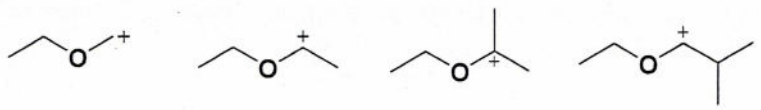
Q 40. Identify the HOMO hexa-1, 3,5-triene for thermal and photochemical reaction respectively

a) Ψ1 and Ψ2
b) Ψ2 and Ψ3
c) Ψ3 and Ψ4
d) Ψ4 and Ψ5

Q 41. Which among the following is a spin forbidden radiative relaxation?

a) Fluorescence
b) Phosphorescence
c) ISC
d) Internal conversion

Q 42. The correct order of the stability of the following carbocations is



a b c d

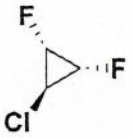
a) d > c > b > a
b) c > d > b > a
c) c > b > d > a
d) d > b > c > a

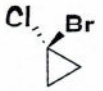
Q 43. As per Huckel theory, π-electron energy levels of cyclobutadiene are:

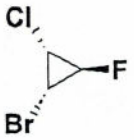
a) $\alpha+2\beta, \alpha+\beta, \alpha-\beta, \alpha-2\beta$
b) $\alpha+2\beta, \alpha-\beta, \alpha-\beta, \alpha-2\beta$
c) $\alpha+2\beta, \alpha, \alpha, \alpha-2\beta$
d) $\alpha+\beta, \alpha-\beta, \alpha-\beta, \alpha-2\beta$

Q 44. Which of the following molecule/s will show optical activity?

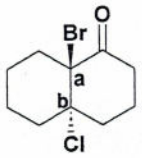
a) 


c) 


b) 

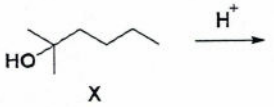

d) 

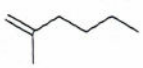

Q 45. The configurations of the chiral centres **a** and **b** of the given compound respectively is

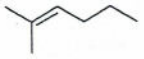



a) RR
b) SS
c) RS
d) SR

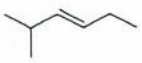
Q 46. The major product of the given compound X with $H_2SO_4$ is



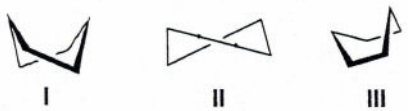

a) 

c) 

b) 

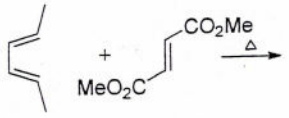
d) 

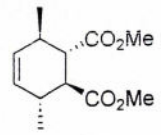
Q 47. Correct order of the stability of the given conformations of cyclohexane is

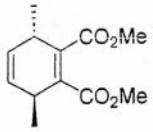


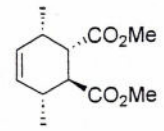

a) I > II > III
c) II > I > III
b) I > III > II
d) III > I > II

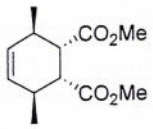
Q 48. product of the following reaction is:



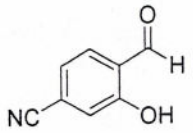

a) 


c) 


b) 


d) 


Q 49. Assign the correct absorption bands to the given compound



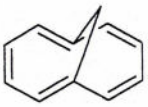

a) $\nu_{(OH)}$ = 3300-3500, $\nu_{(CH)}$ = 3000, $\nu_{(CN)}$ = 2225, $V_{(CO)}$ = 1680
b) $\nu_{(OH)}$ = 3000, $\nu_{(CH)}$ = 3300-3500, $\nu_{(CN)}$ = 2225, $V_{(CO)}$ = 1680
c) $\nu_{(OH)}$ = 3300-3500, $\nu_{(CH)}$ = 3000, $\nu_{(CN)}$ = 1680, $V_{(CO)}$ = 2225
d) $\nu_{(OH)}$ = 3000, $\nu_{(CH)}$ = 3300-3500, $\nu_{(CN)}$ = 1680, $V_{(CO)}$ = 2225

Q 50. Identify non-aromatic compound

**a)** 

**c)** 

**b)** 

**d)** 

## Part-III

Q 51. Identify which of the following is NOT Hermitian

a) $\frac{hd}{2\pi idx}$

b) $i\frac{d^2}{dx^2}$

c) $\frac{d^2}{dx^2}$

d) $x^2$

Q 52. Using Huckel molecular orbital approximation, the two roots of secular equation of ethane are

a) $\alpha+\sqrt{2}\beta, \quad \alpha-\sqrt{2}\beta$

b) $\alpha+\beta, \quad \alpha$

c) $\alpha+\beta, \quad \alpha-\beta$

d) $\alpha+2\beta, \quad \alpha-2\beta$

Q 53. The number of microstates that are possible, when two particles are distributed in four states such that resulting wave functions are anti-symmetric with respect to exchange of particles is

a) 16

b) 12

c) 8

d) 6

Q 54. Which of the following is correct

a) $[\widehat{L_Z^2}, \widehat{L_Z}] = 0$

b) $[\widehat{L^2}, \widehat{L_Z}] = 0$

c) Both a) and b)

d) None of the above

Q 55. A certain 2 level system has stationary state energies E1 and E2 (E1<E2) with normalized wave functions $\emptyset_1$ and $\emptyset_2$ respectively. In the presence of a perturbation V, the second order correction to the energy for the first state ($\emptyset_1$) will be

a) $\frac{\langle\emptyset_1|V|\emptyset_2\rangle}{(E_1-E_2)}$

b) $\frac{\langle\emptyset_1|V|\emptyset_2\rangle}{(E_2-E_1)}$

c) $\frac{\langle\emptyset_1|V|\emptyset_2\rangle^2}{(E_1-E_2)}$

d) $\frac{\langle\emptyset_1|V|\emptyset_2\rangle^2}{(E_1-E_2)^2}$

Q 56. Debye Length is proportional to ($I$ = ionic strength)

a) $\frac{1}{\sqrt{I}}$

b) $\frac{1}{2\sqrt{I}}$

c) $\sqrt{I}$

d) $2\sqrt{I}$

Q 57. The mean ionic activity coefficient of 0.01 m NaCl at 25$^0$C is

a) $log\gamma_\pm = -0.509$

b) $log\gamma_\pm = 0.509$

c) $log\gamma_\pm = -0.0509$

d) $log\gamma_\pm = -0.0509$

Q 58. Which of the following relation is true for Stern model

a) $-q_M = q_S = q_H + q_G$

b) $\frac{1}{C} = \frac{1}{C_H} + \frac{1}{C_G}$

c) $C = C_H + C_G$

d) Both a) and b)

Q 59. According to Helmholtz-Perrin model, the capacitance, C is

a) Dependent on potential
b) Independent on potential
c) Partially depends on potential
d) Inversely proportional to potential

Q 60. The change in chemical potential ($\Delta\mu_{i-i}$) for ion-ion interactions is given by

a) $RTlogf_i$
b) $RTlnf_i$
c) $logf_i$
d) $lnf_i$

Q 61. When $T \rightarrow \alpha$, value of single partition function will be (degeneracy of level $j = g_j$)

a) 1
b) $g_0$
c) $\sum_j g_j$
d) $\frac{1}{\sum_j g_j}$

Q 62. What is the vibrational contribution to molar heat capacity of $N_2$ (g) at 1000 K. The vibrational temperature of $N_2$ (g) is 3374 K

a) 4.48 J $K^{-1}$ $mol^{-1}$
b) 3.48 J $K^{-1}$ $mol^{-1}$
c) 5.38 J $K^{-1}$ $mol^{-1}$
d) 6.25 J $K^{-1}$ $mol^{-1}$

Q 63. The characteristic rotational temperature, $\theta_r$ , for $H_2$ (g) is 87.5 K. What is the value of molecular partition function for rotation at 3000 K?

a) 17.14
b) 15.26
c) 18.21
d) 19.20

Q 64. In terms of molar partition function q, the internal energy of a molecule is given by

a) $U = nRT^2\left(\frac{\partial lnq}{\partial V}\right)_T$
b) $U = nRT\ \left(\frac{\partial lnq}{\partial V}\right)_T$
c) $U = nRT^2\left(\frac{\partial lnq}{\partial T}\right)_V$
d) $U = nRT\ \left(\frac{\partial lnq}{\partial T}\right)_V$

Q 65. The streaming potential is given by

a) $\left(\frac{\Delta\emptyset}{\Delta P}\right)_{I=0} = -\frac{L_{12}}{L_{11}}$
b) $\left(\frac{\Delta\emptyset}{\Delta P}\right)_{I=0} = \frac{L_{21}}{L_{11}}$
c) $\left(\frac{\Delta\emptyset}{\Delta P}\right)_{I=0} = -\frac{L_{21}}{L_{22}}$
d) $\left(\frac{\Delta\emptyset}{\Delta P}\right)_{I=0} = \frac{L_{12}}{L_{22}}$

Q 66. In the Lindemann mechanism of unimolecular reactions, the observed order at low concentration is

a) 0.5
b) 1
c) 1.5
d) 2

Q 67. For the reaction given below

$$A \underset{k_2}{\overset{k_1}{\rightleftharpoons}} B$$

The relaxation time is $10^{-6}$s. Given that 10% of A remains at equilibrium, the value of $k_1$ ($s^{-1}$) is

a) $9\times10^{5}$
b) $10^{-5}$
c) $10^{5}$
d) $9\times10^{-5}$

Q 68. For an enzyme catalyzed reaction, a Lineweaver-Burk plot gave the following data
Slope = 40s and Intercept = 4 $(mmoldm^{-3}S^{-1})^{-1}$
If the initial concentration of enzyme is $2.5\times10^{-9}$ mol $dm^{-3}$, what is the catalytic efficiency (in $dm^{-3}$ $mol^{-1}$ $S^{-1}$)

a) $10^{5}$
b) $10^{6}$
c) $10^{7}$
d) $10^{4}$

Q 69. If NaCl is doped with $10^{-3}$ mol% $SrCl_2$, what is the concentration of cation vacancies

a) $6.02\times10^{28}$ $mol^{-1}$
b) $6.02\times10^{18}$ $mol^{-1}$
c) $6.02\times10^{-28}$ $mol^{-1}$
d) $6.02\times10^{-18}$ $mol^{-1}$

Q 70. When Si is doped with a group V element

a) Donor levels are created close to the valence band
b) Donor levels are created close to the conduction band
c) Acceptor levels are created close to the valence band
d) Acceptor levels are created close to the conduction band

Q 71. X-ray powder pattern of NaCl shows an intense cone at $\theta = 15.87^0$. Using X-rays of wavelength $1.54\times10^{-8}$cm. The spacing between the planes (in $A^0$) of NaCl crystal is

a) 1.14
b) 2.82
c) 4.23
d) 5.63

Q 72. Two samples have been given to you : $[NiCl_2(PPh_3)_2]$ and $[PdCl_2(PPh_3)_2]$. A physical method that can be used to identify these compounds unambiguously is

a) HPLC
b) $^{13}C$ NMR spectroscopy
c) Magnetic susceptibility
d) Mössbauer spectroscopy

Q 73. The complex with maximum CFSE is

a) $[CoCl_4]^{2-}$
b) $[Co(H_2O)_6]^{3+}$
c) $CoF_3(H_2O)_3$

d) $[CoF_6]^{3+}$

Q 74. The ground state term $[Ni(H_2O)_6]^{2+}$ is:

a) $^3T_{1g}$

b) $^3T_{2g}$

c) $^3A_{2g}$

d) $^4T_{1g}$

Q 75. The compound which obeys the 18-electron rule is:

a) $Mn(CO)_3$

b) $Fe(CO)_4$

c) $V(CO)_6$

d) $Cr(CO)_6$

Q 76. The compound which exhibits Jahn-Teller distortion is:

a) $[Mn(H_2O)_6]^{2+}$

b) $[Mn(H_2O)_6]^{3+}$

c) $[Cr(H_2O)_6]^{3+}$

d) $[Fe(CN)_6]^{4-}$

Q 77. The metals involved in nitrogenase are

a) Fe and Mg
b) Mo and K
c) Mo and Fe
d) Fe and K.

Q 78. The symmetry point group of the $BF_3$ molecule is:

a) $C_{3v}$
b) $D_{3h}$
c) $C_{2v}$
d) $D_{2h}$

Q 79. The $^{19}F$ NMR spectrum of $PCl_2F_3$ (I for $^{31}P$ = 1/2, I for $^{19}F$ = 1/2) shows

a) two triplets and two doublets
b) two triplets and one doublet
c) three triplets and one doublet
d) two doublets and one triplet

Q 80. The bonding of cyclopentadienyl in $Ti(Cp)_4$ is such that

a) all Cp rings are pentahapto
b) one Cp ring is pentahapto and the other three rings are monohapto
c) two Cp rings are monohapto and the other two rings are pentahapto
d) all Cp rings are monohapto

Q 81. The structure of $P_4N_4Cl_8$ is puckered whereas that of $P_4N_4F_8$ is planar because

a) F is more electronegative than Cl
b) F is smaller in size than that of Cl
c) F is more polarizable than Cl
d) Extent of $\pi$-electron delocalization is more in $P_4N_4Cl_6$ than in $P_4N_4F_6$.

Q 82. The values of CO stretching frequencies of (1) $Ni(CO)_4$, (2) $Ni(CO)_3(PMe_3)$ and (3) $Ni(CO)_2(PMe_3)_2$ follow the trend.

a) 1 > 2 > 3
b) 3 > 2 > 1
c) 1 > 3 > 2
d) ) 2 > 3 > 1

Q 83. The number of manganese ions in tetrahedral and octahedral sites, respectively in $Mn_3O_4$ are

a) one $Mn^{2+}$and two $Mn^{3+}$
b) one $Mn^{3+}$and two $Mn^{2+}$
c) two $Mn^{3+}$and one $Mn^{2+}$
d) two $Mn^{2+}$and one $Mn^{3+}$

Q 84. According to Wade's rule, the structures of $B_{10}C_2H_{12}$ and $[B_9C_2H_{11}]^{2-}$, respectively, are

a) closo and arachno
b) nido and closo
c) closo and nido
d) nido and arachno

Q 85. In the proton decoupled $^{13}C$ and $^{31}P$ NMR spectra of $(CH_3)_3 P=0$, the number of lines observed, respectively, are

a) two and one
b) one and two
c) three and one
d) two and two.

Q 86. Arrange the following metal complexes in order of their increasing hydration energy.

| $[Mn(H_2O)_6]^{2+}$ | $[V(H_2O)_6]^{2+}$ | $[Ni(H_2O)_6]^{2+}$ | $[Ti(H_2O)_6]^{2+}$ |
|---|---|---|---|
| P | Q | R | S |

a) P < S < Q < R
b) P < Q < R < S
c) Q < P < R < S
d) S < R < Q < P

Q 87. The spectroscopic ground state symbol and the total number of electronic transitions of $[Ti(H_2O)_6]^{2+}$ are

a) $^3T_{1g}$ and 2
b) $^3A_{2g}$ and 3
c) $^3T_{1g}$ and 3
d) $^3A_{2g}$ and 2

Q 88. The $^{31}P$ NMR spectrum of $P_4S_3$ consists of

a) a singlet
b) a doublet and a triplet
c) a doublet and a quartet
d) two doublets.

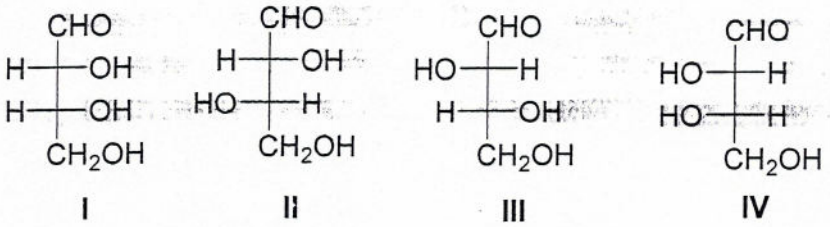
Q 89. In the transformation of oxyhaemoglobin to deoxyhaemoglobin

a) $Fe^{2+}$ in the low spin state changes to $Fe^{2+}$ in the high spin state
b) $Fe^{2+}$ in the low spin state changes to $Fe^{3+}$ in the low spin state.
c) $Fe^{2+}$ in the high spin state changes to $Fe^{2+}$ in the low spin state
d) $Fe^{2+}$ in the high spin state changes to $Fe^{3+}$ in the high spin state.

Q 90. The mechanism of the reaction between $[Fe(CN)_6]^{4-}$ and $[Fe(bpy)_3]^{3+}$ (bpy = 2, 2'–bipyridine) is

a) outer-sphere electron-transfer
b) inner-sphere electron-transfer.
c) self-exchange reaction
d) ligand exchange followed by electron transfer.

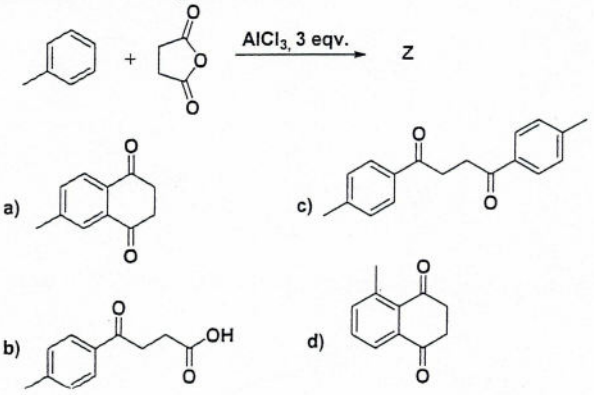
Q 91. For the following compounds I-IV, identify the true statements, among P-T



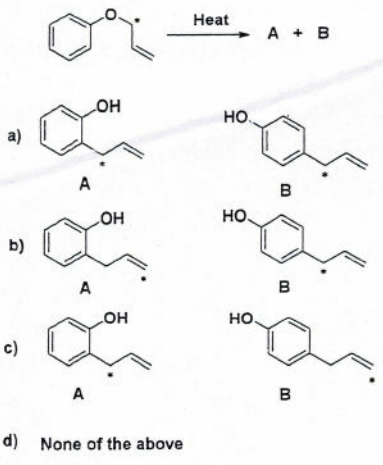

P = I and II are diastereomers and II and III are enantiomers
Q = I and IV are mesomers and are optically active
R = I and III can be interconverted by a basic catalyzed isomerization
S = Only I and IV are cleavable by $HIO_4$
T = I and III are D Sugars and II and IV are L Sugars

a) Q, R, T
b) P, R, T
c) Q, S, T
d) P, Q, S

Q 92. Predict the product Z of the following reaction

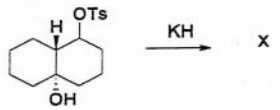


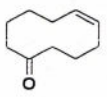

Q 93. The major products A and B in the following reaction are

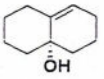


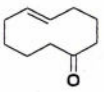

d) None of the above

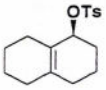
Q 94. The major product X of the conversion is



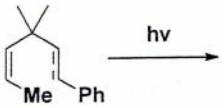

a) 

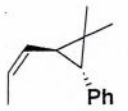

c) 

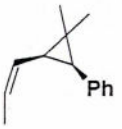

b) 

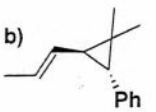

d) 

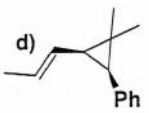

Q 95. Choose the major product of the following reaction



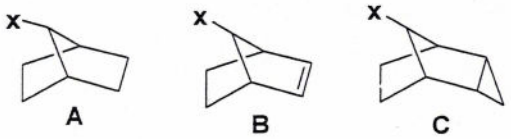

a) 


c) 


b) 


d) 


Q 96. The rate of hydrolysis of the given compounds follows the order

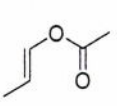


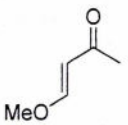

**X = OTs**

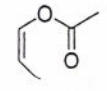
a) **A > B > C**
b) **C > B > A**
c) **B > C > A**
d) **C > B > A**

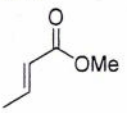
Q 97. The Spectral data of the compound Q is given, identify the compound

IR: 1760 $cm^{-1}$ δ
$^{1}$HNMR: δ (ppm): 7.2 (1H, d, J = 16.0 Hz), 5.1 (1H, m), 2.1 (3H, s), 1.8 (3H, d, J = 7.0 Hz)
$^{13}$C NMR: δ (ppm): 170

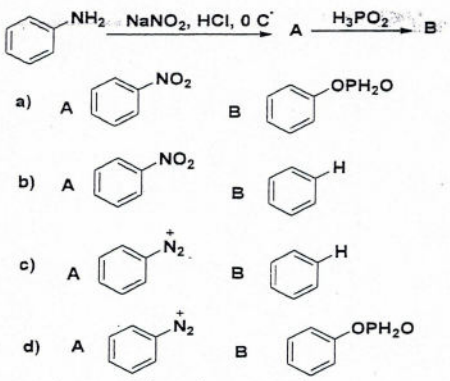
a) 


c) 

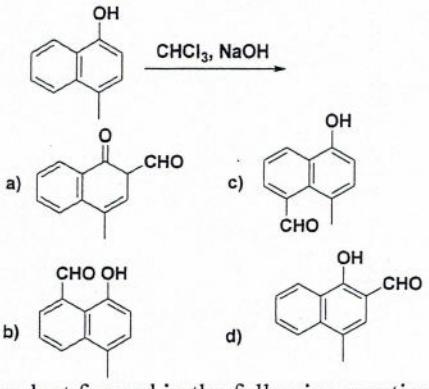

b) 


d) 

Q 98. Identify the products A and B of given reaction sequence




Q 99. Predict and identify the major products of the given reaction




Q 100. The structure of the major product formed in the following reaction is