



## CHEMISTRY

### BOOKS - NTA MOCK TESTS

#### NTA JEE MOCK TEST 28

#### Chemistry

1. Two moles of a gas expand reversibly and isothermally at temperature of 300K. Initial volume of the gas is 1 L while the final pressure is 4.926 atm . The work done by gas is

A.  $- 11488.28J$

B.  $- 15036.28J$

C.  $- 22488.28J$

D.  $-33488.28J$

**Answer: A**

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2. The angular momentum of electron in  $Li^{2+}$  is found to be  $14\left(\frac{h}{11}\right)$ . Calculated the potential energy (in eV) of system .

A.  $13.6 \times \left(\frac{3}{8}\right)^2$

B.  $-13.6 \times \left(\frac{3}{8}\right)^2$

C.  $-2 \times 13.6 \times \left(\frac{3}{8}\right)^2$

D.  $-2 \times 13.6 \times \left(\frac{8}{3}\right)^2$

**Answer: C**

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3. At constant T and P, 5.0 L of  $SO_2$  are reacted with 3.0 L of  $O_2$  according to the following equation  $2SO_2(g) + O_2(g) \rightarrow 2SO_3(g)$ . The volume of the reaction mixture at the completion of the reaction is

A. 0.5 L

B. 8.0 L

C. 5.5 L

D. 5 L

**Answer: C**



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4. Two van der waal's gases have same value of a but different value of b which of the following statement is correct ?

- A. The smaller the value of b larger will be compressibility
- B. The larger the value of b larger will be compressibility
- C. Both have same compressibility
- D. All the with smaller value of b will occupy larger volume

**Answer: A**



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5. IUPAC name of complex ion  $[CrCl_2(Ox)_2]^{3-}$  is

- A. dichlorodioxalatochromium (III)
- B. dioxaladichlorochromate (III)

C. dichlorodioxalatochromate (III)

D. bisoxlaedichlorochromate (III)

**Answer: C**

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6. Metals which will not evolve  $H_2$  gas with dil. HCl are

A. Cu, Ag, Au

B. Cu, Zn, Al

C. Fe, Ag, Pt

D. Hg, Mg, Pt

**Answer: A**

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7. The reaction  $X + Y \rightarrow Z$  is first order with respect to X and second order with respect to Y, initial rate of formation of  $Z = R \text{ mol dm}^3 \text{ sec}^{-1}$  when  $[X]$  and  $[Y]$  are  $0.40 \text{ mol dm}^{-3}$  and  $0.30 \text{ mol dm}^{-3}$  respectively . If  $[X]$  is halved and  $[Y]$  is doubled , the value of the initial rate would become

A.  $4R$

B.  $\frac{R}{4}$

C.  $R$

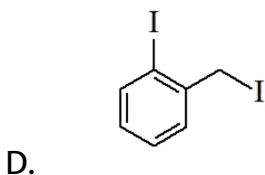
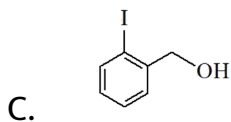
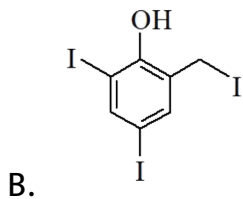
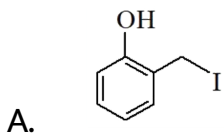
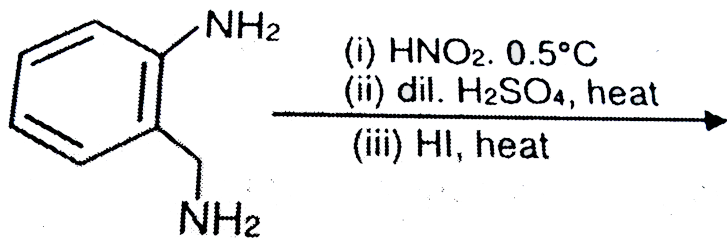
D.  $2R$

**Answer: D**



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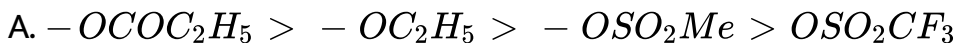
8. The product of the following reaction is



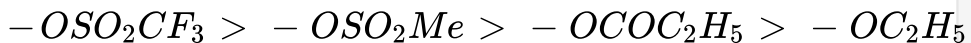
Answer: C



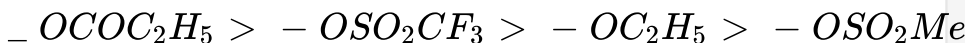
9. The correct order of the ability of the leaving group is



C.



D.



Answer: C



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10. D - Glucose and D - Mannose are :



A. enantiomers

B. functional isomers

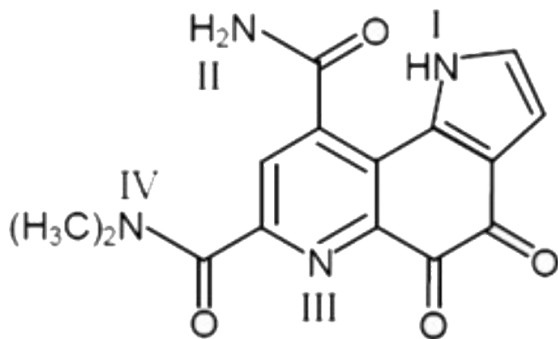
C. epimers

D. metamers

**Answer: C**

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11. The most basic nitrogen in the following compound is



A. I

B. II

C. III

D. IV

**Answer: C**



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12. 1,3- Pentadiene and 1,4 - pentadiene are compared with respect to their intrinsic stability and reaction with HI . The correct statement is

A. 1,3 pentadiene is more stable and more reactive than 1,4-pentadiene

B. 1,3 pentadiene is less stable and less reactive than 1,4-pentadiene

C. 1,3 pentadiene is more stable and less reactive than 1,4-pentadiene

D. 1,3 pentadiene is less stable and less reactive than 1,4-pentadiene

**Answer: A**



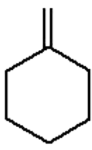
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13. Which of the following on treatment with hot concentrated acidified  $KMnO_4$  gives 2 - methylhexane -1,6 - dioic acid the only organic product ?

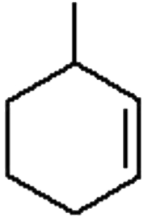
A.



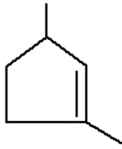
B.



C.



D.

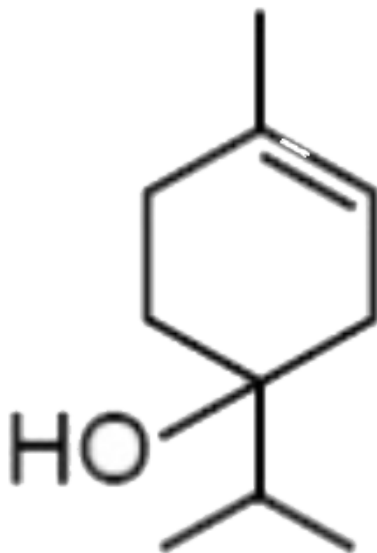


**Answer: C**



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**14.** Terpen - 4 - ol is an active ingredient in tea tree oil has the following structure



The correct observations for terpen - 4 - ol is/are

I. It rotates the plane of plane polarized light.

II It reacts with baeyer's reagent to form a triol

III. On reaction with NaBr and  $H_2SO_4$  , it gives a di bromo compound

IV On ozonolysis it gives a compound with molecular formula

$C_{10}H_{18}O_3$ .

A. I,II,III and IV

B. I,III and IV

C. II and III

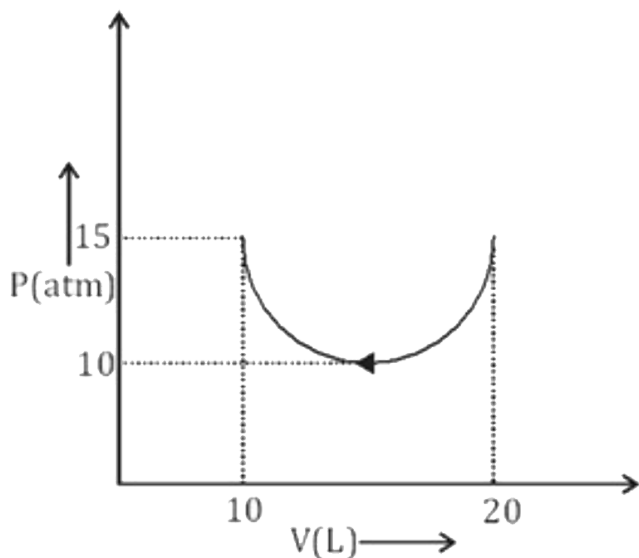
D. III and IV

**Answer: A**



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15. The total work done in the following PV curve is



- A.  $\left(150 - \frac{25\pi}{2}\right) \text{ L} \cdot \text{atm}$
- B.  $\left(150 + \frac{25\pi}{2}\right) \text{ L} \cdot \text{atm}$
- C.  $\left(-\frac{25\pi}{2}\right) \text{ L} \cdot \text{atm}$
- D. 150 L · atm

**Answer: A**



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16. The antiseptic action of Dettol is due to

- A. Chlorobenzene
- B. Chloroxylenol
- C. Chloroquine
- D. Chloramphenicol

**Answer: B**

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17. The vapour pressure of benzene is  $53.3kP_a$  at  $60.6^\circ$  but it falls to  $51.5kP_a$  when 19 g of a non-volatile organic compound is dissolved in 500 g benzene . The molar mass of the non-volatile compound is close to :



A. 82

B. 85

C. 88

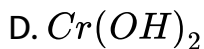
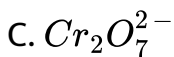
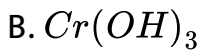
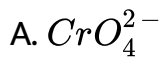
D. 92

**Answer: B**



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**18.**  $CrO_3$  dissolves in aqueous NaOH to give



**Answer: A**



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**19.** A  $50\text{ml}$  solution of  $pH = 1$  is mixed with a  $50\text{ml}$  solution of  $pH = 2$ . The  $pH$  of the mixture will be nearly

A. 0.86

B. 1.26

C. 1.76

D. 2.26

**Answer: B**



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20. Oxidation states of the metal in the minerals haematite and magnetite , respectively , are

- A. II,III in haematite and III in magnetite
- B. II,III in haematite and II in magnetite
- C. II in haematite and II, III in magnetite
- D. III in haematite and II, III in magnetite

**Answer: D**



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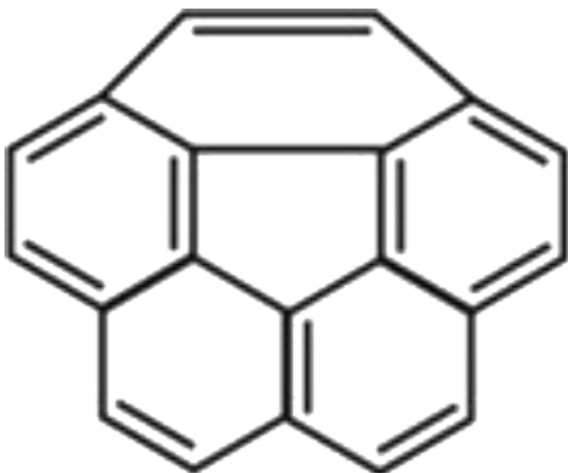
21. Number of molecules among the following having non - zero dipole moment is :

$O_3$ ,  $SO_3$ ,  $SF_4$ ,  $SF_6$ ,  $H_2S$ ,  $CS_2$ ,  $SO_2$ ,  $H_2O$  and  $H_2O_2$



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22. The given compound exists in polar form in which there is a close loop of Huckle's number of electrons. The number of electrons in the outer loop is .



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23. The metal M crystallizes in a body centered lattice with cell edge 40 pm . The atomic radius of M is .



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24. When the following aldohexose exists in its D-configuration, the total number of stereoisomers in its pyranose form, is



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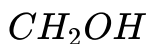
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25. The total number of sigma bonds in the structure of  $P_4O_{10}$  is



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