



## CHEMISTRY

### BOOKS - TS EAMCET PREVIOUS YEAR PAPERS

#### QUESTION PAPER 2019(SOLVED)

##### Chemistry

1. The work function ( $W_0$ ) of Li, K, Mg, Ag and Cu are 2.42, 2.25, 3.70, 4.80 eV respectively. The number of metals which undergo photoelectric effect if a radiation of wavelength 540 nm falls on them is

(1 eV =  $1.602 \times 10^{-19}$  J)

A. 4

B. 2

C. 1

D. 3

**Answer: C**



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**2. What is the mass of a particle with a wavelength of 3.313**

**Å moving with a speed of  $2.0 \times 10^8 \text{ m s}^{-1}$  ?**

A.  $10 \times 10^{-28} \text{ kg}$

B.  $2.0 \times 10^{-37} \text{ kg}$

C.  $10 \times 10^{-37} \text{ kg}$

D.  $2.0 \times 10^{-28} \text{ kg}$

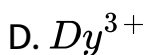
**Answer: C**



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3. If the electronic configuration of  $M^{3+}$  is  $[Xe]4d^3$ , then

$M^{3+}$  is



**Answer: A**





4. Observe the following statements :

i. According to VSEPR theory,  $ClF_3$  and  $SO_2$  are shown  $AB_3E$  and  $AB_2E$  type molecules respectively.

(ii).  $SF_4$  has "See-saw" shape.

iii.  $HgCl_2$  and  $PbCl_2$  have same shape.

The statements which are not correct are

A. i,ii only

B. i , iii only

C. i , ii, iii

D. ii, iii only

**Answer: B**



5. Observe the following molecules :  $C_2$ ,  $N_2$ ,  $O_2$ ,  $F_2$  Which one of the following statement is correct for the above molecules ?

- A. They exhibit same magnetic property
- B. They have same number of bonding molecular orbitals and same number of antibonding molecular orbitals
- C. The sequence of molecular orbitals is as follows
$$\sigma 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi 2p_x) = \pi 2p_y < \sigma 2p_z$$
- D. They have same bond order

**Answer: C**

6. The ratio of rates of diffusion of gases A and B is 1 : 0.707.

IF the molecular weight of B is 32, the molecular weight of A

is

A. 2

B. 64

C. 16

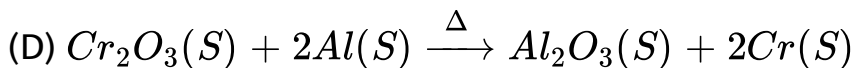
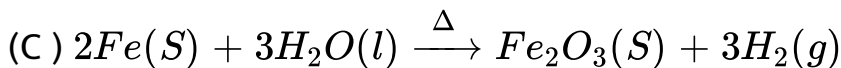
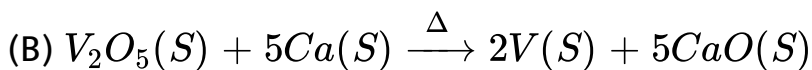
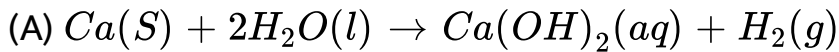
D. 8

**Answer: D**



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7. Which of the following are non-metal displacement reactions ?



A. A,B,C,D

B. B,C only

C. C,D only

D. A, C only

**Answer: C**



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8. Match the following :

List I	List II
(A) $\Delta U = W_{\text{ed}}$	I. Isothermal reversible expansion
(B) $\Delta U = q - W$	II. Wall is adiabatic
(C) $\Delta U = -q$	III. Thermally conducting walls
(D) $\Delta U = 0$	IV. Isolated system
	V. Closed system

The correct answer is

A. A - V, B - I, C - II, D - III

B. A-I, B- III, C - II, D - IV

C. A - II, B - V, C - III, D - I

D. A - II, B - V, C - I, D - III

**Answer: B**



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9. 18.4 g  $N_2O_4$  was placed in 1 L vessel at 400 K and allowed to attain the following equilibrium  $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ . IF the total pressure at equilibrium was 10.64 bar, approximate  $K_p$  is ( $R = 0.083 \text{ L bar } K^{-1} \text{ mol}^{-1}$ ) (Assume  $N_2O_4, NO_2$  as ideal gases)

A. 57.20

B. 24.24

C. 14.30

D. 6.64

**Answer: D**

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10. If the pH of a buffer solution containing 0.1 M of monoacidic base and 0.01 M of its salt is 10.5, the  $pK_a$  of conjugate acid is

- A. 9.5
- B. 4.5
- C. 3.5
- D. 11.5

**Answer: B**

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11. Three vessels (A, B, C) contain  $H_2O_2$  solution. In vessel A, 500 mL of 10 vol  $H_2O_2$  is present. 100 mL of 3 vol  $H_2O_2$  is

present in vessel B. Vessel C is filled with 250 mL of 2M  $H_2O_2$ . The weight (in g) of  $H_2O_2$  present in these vessels follows the order

A.  $C > A > B$

B.  $C > B > A$

C.  $B > A > C$

D.  $A > B > C$

**Answer: D**

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**12.** Identify correct statement from the following :

i. Beryllium oxide is an amphoteric oxide.

ii. Group II elements dissolve in liquid ammonia to form deep blue - black solutions.

iii. The hydration enthalpy of group II ions decreases from  $Be^{2+}$  to  $Ba^{2+}$ .

A. i,ii only

B. ii, iii only

C. i, iii only

D. i,ii, iii

**Answer: D**



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13. Identify correct statement from the following

- i.  $H_3BO_3$  is a monobasic acid.
- ii. The correct formula of borax is  $Na_2[B_4O_5(OH)_3] \cdot 8H_2O$ .
- iii.  $NaBH_4$  is a reducing agent.

A. i,ii, iii

B. i, ii only

C. ii, iii only

D. i, iii only

**Answer: B**



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14. Observe the following statements regarding  $C_{60}$ .

i. All carbons are  $sp^2$  - hybridised.

ii. It contains 12 rings of five carbons each and 20 rings of six carbons each.

iii. It is a non-aromatic compound.

iv. It is pure form of carbon.

v. C-C bond lengths in it are 143.5 and 138.5 pm.

vi. It is prepared by heating graphite in an electric arc in the presence of oxygen.

The correct statements are

A. i, ii, iii, iv, v

B. i, ii, iii, iv, v only

C. i, ii, iii, iv, vi only

D. i, ii, iii only

**Answer: D**



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**15.** Identify the correct statements from the following :

i. In the presence of UV light ,  $CF_2Cl_2(g)$  gives chlorine free radicals which will react with  $O_3(g)$  to form  $O_2(g)$ .

ii. Drinking water with 10 ppm fluoride is better than drinking water with 1 ppm fluoride.

iii. The maximum permissible concentration of lead in drinking water is 50 ppb.

A. i,ii,iii

B. i,ii only

C. ii,iii only

D. i,iii only

**Answer: D**



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**16.** Which of the following conversion represents Fries rearrangement ?

- A. O-acylated phenol to C - acylated phenol
- B. C - acylated phenol to O-acylated phenol
- C. N - acylated phenol to C - acylated phenol
- D. C - acylated phenol to N - acylated phenol

**Answer: A**







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17. What are X and Y in the following reactions

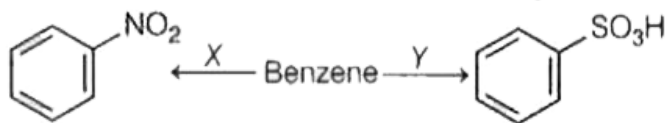


	X	Y
(a)	$\text{CH}_3\text{CH}_2\text{CHO}$	$(\text{H}_3\text{C})_2\text{CO}$
(b)	$\text{CH}_3\text{CH}(\text{CH}_3)\text{COOH}$	$\text{CH}_3\text{COOH}$
(c)	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$	$\text{CH}_3\text{CHO}$
(d)	$\text{CH}_3\text{CH}(\text{CH}_3)\text{CHO}$	$\text{CH}_3\text{CHO}$



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18. What are X and Y in the following reactions



X	Y
(a) Conc. $\text{HNO}_3$	$\text{H}_2\text{SO}_4(\text{SO}_3)$
(b) Conc. $\text{HNO}_3$ + Conc. $\text{H}_2\text{SO}_4$ / 333 K	$\text{H}_2\text{SO}_4(\text{SO}_3)$
(c) $\text{NaNO}_2 / \text{HCl}$	$\text{H}_2\text{SO}_4$
(d) Dil. $\text{HNO}_3$	$\text{SO}_3$

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19. Which of the following statements are not correct ?

- (A) Diode is a combination of n-type and p-type semiconductors.
- (B) Silicon or germanium is electron rich impurity.
- (C ) Phosphorus and arsenic and electron deficient

impurities.

(D) Schottky defect decreases the density of the crystal.

A. B, C

B. A, D

C. C, D

D. A, C

**Answer: A**



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**20.** At 298 K, the vapour pressure of a solution of 7.5 g of non-volatile solute in 90 g of water is 2.8 kPa. If 18 g of water is added to this solution vapour pressure becomes solution

the vapour pressure becomes 2.81 kPa at same temperature,  
the molar mass of solute in  $\text{g mol}^{-1}$  is

A. 17.5

B. 68.2

C. 71.5

D. 51.8

**Answer: C**



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**21.** At T (K), the vapour pressures of pure liquids A and B are 100 mm and 160 mm respectively. An ideal solution is formed by mixing 2 moles of A and 3 moles of B at the same

temperature. The mole fraction of A and B in the vapour state respectively are

A. 0.706, 0.294

B. 0.294, 0.706

C. 0.40, 0.60

D. 0.60, 0.40

**Answer: B**



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**22.** In which of the following cells, the space between cathode and anode is filled by a moist mixture of ammonium chloride and zinc chloride ?

- A. Mercury cell
- B. Leclanche cell
- C. Nickel-cadmium cell
- D. Fuel cell

**Answer: B**

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**23.** The rate equation for the reaction  $2A + B \rightarrow$  products is rate  $= k[A][B]^2$ . If  $k$  at  $T$  (K) is  $5.0 \times 10^{-6} \text{ mol}^{-2} \text{ L}^2 \text{ s}^{-1}$ , the initial rate of the reaction, when  $[A] = 0.05 \text{ mol L}^{-1}$  and  $[B] = 0.1 \text{ mol L}^{-1}$  is

A.  $1.25 \times 10^{-9} \text{ L mol L}^{-1} \text{ s}^{-1}$

B.  $1.25 \times 10^{-9} \text{ mol L}^{-1} \text{ s}^{-1}$

C.  $2.50 \times 10^{-9} \text{ mol L}^{-1} \text{ s}^{-1}$

D.  $2.50 \times 10^{-9} \text{ L mol L}^{-1} \text{ s}^{-1}$

**Answer: C**



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**24.** Which one of the following statements is not correct ?

A. The process of setting down of colloidal particles is coagulation

B. The mass in milligrams or lyophilic sol which protects the coagulates of 10 mL of a gold sol on adding 1 mL

of 10% NaCl solution is its gold number

C. The layer of positive or negative charge acquired by selective adsorption of ion on the surface of a colloidal particle is electrokinetic potential

D. The potential difference between the fixed layer on the colloidal particles and the diffused layer of opposite charge is zeta potential

**Answer: C**



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**25. Identify the correct statement from the following :**

i. In the extraction of Ag and Au, zinc is used as reducing



agent.

ii. Impure zinc can be refined by distillation method.

iii. Malachite is an ore of nickel.

A. i,ii,iii

B. i, ii only

C. ii, iii only

D. i, ii only

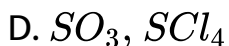
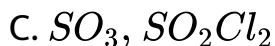
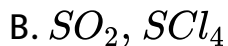
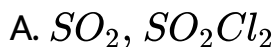
**Answer: D**



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**26.** White phosphorus reacts with sulphuryl chloride to form  $PCl_5$  and X. Chlorine reacts with X in the presence of

wood charcoal to form Y. X and Y are respectively



**Answer: A**



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**27.** Identify the correct statements from the following :

i. Sulphuric acid is manufactured by contact process.

ii.  $SO_3$  dissolves in  $H_2SO_4$  to form pyrosulphuric acid.

iii.  $H_2SO_4$  is used in the manufacture of fertilisers such as

ammonium sulphate and super phosphate.

iv. In the reaction,

$S + 2H_2SO_4(\text{Conc.}) \rightarrow 3SO_2 + 2H_2O$ ,  $H_2SO_4$  is oxidised to  $SO_2$ .

A. i,ii,iii, iv

B. i,ii, iv only

C. i,iii, iv only

D. i,ii,iii only

**Answer: D**



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**28.** Assertion (A) Helium has lowest boiling point (4.2 K).

Reason (R ) The forces that exist between helium atoms are weak dispersion forces.

A. Both (A) and (R ) are correct and (R ) is the correct explanation of (A)

B. Both (A) and (R ) are correct but (R ) is not the correct explanation of (A)

C. (A) is correct but (R ) is false.

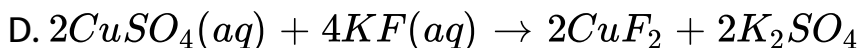
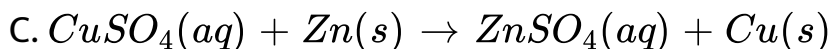
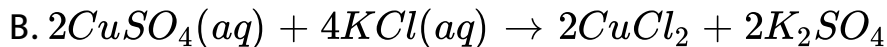
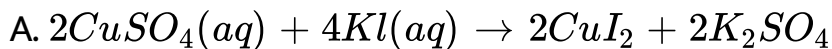
D. A is incorrect but (R ) is correct

**Answer: A**



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29. Which one of the following reactions does not take place ?

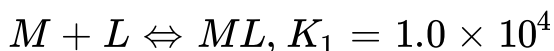


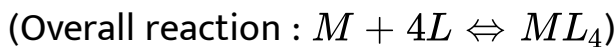
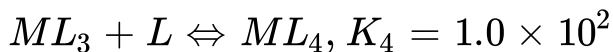
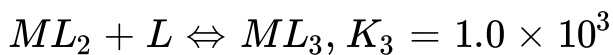
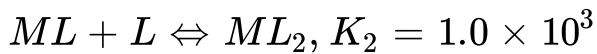
**Answer: A**



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30. The stepwise stability constants of a complex are given below. What is its overall reaction stability constant ( $\beta_4$ ) ?





A.  $1.0 \times 10^{12}$

B.  $12.1 \times 10^3$

C.  $1.0 \times 10^6$

D.  $1.0 \times 10^8$

**Answer: A**



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**31.** Number average molecular mass of a polymer that contains 15 molecules with each of mass, 8,000 and 15 molecules with each of mas 80,000 is

A. 22000

B. 33000

C. 11000

D. 44000

**Answer: D**



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**32.** Which of the following statements are correct ?

(A) A tripeptide had two peptide bonds.

(B) A penapeptide contains five amino acids.

(C) Nucleotide is a product of base and sugar

(D) In cellulose,  $\beta$ -glycosidic linkages are present.

A. B, C, D

B. C, D only

C. A, B, D

D. A, C only

**Answer: C**



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**33. Identify antihistamines from the following :**

Serotonin    Dimetane    Phenelzine    Seldane

1

2

3

4



A. 1, 3 only

B. 1, 3,4

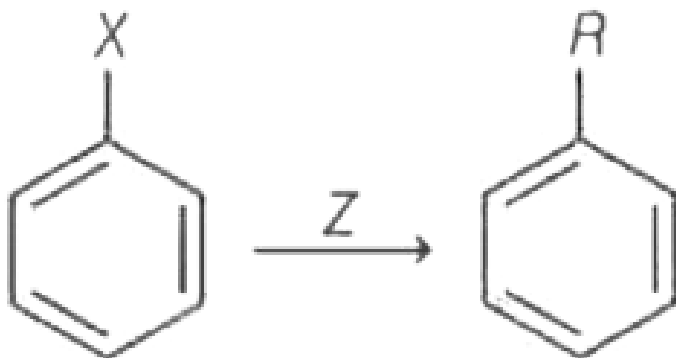
C. 2, 4, only

D. 1, 2, 3

**Answer: C**

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**34.** Identify  $\bar{Z}$  in the reaction :



A. RCOX / Anhydrous  $AlCl_3$

B. RX/Na/dry  $(C_2H_5)_2O$

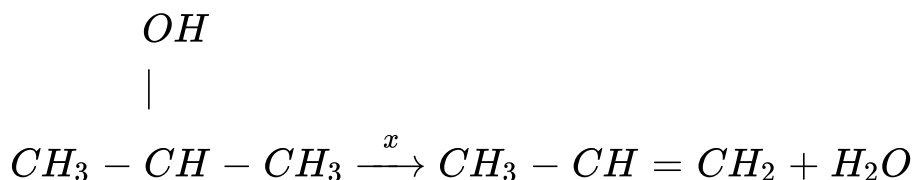
C. Na/dry  $(C_2H_5)_2O$

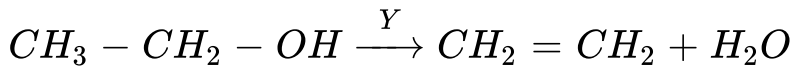
D. RCOX/  $FeCl_3$

**Answer: B**

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**35.** What are X, Y, Z in the following reactions ?





|



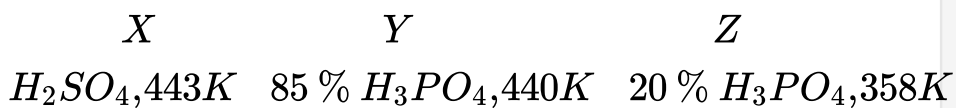
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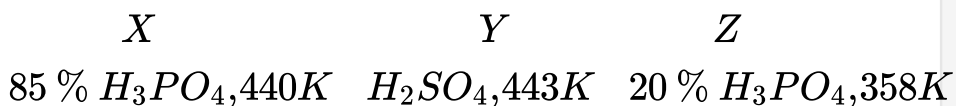
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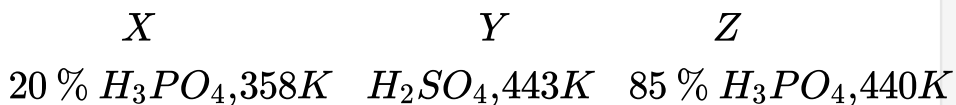
A.



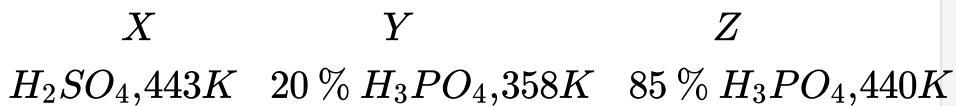
B.



C.



D.

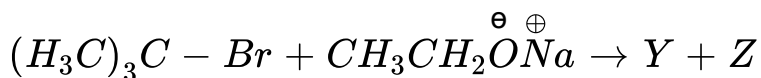
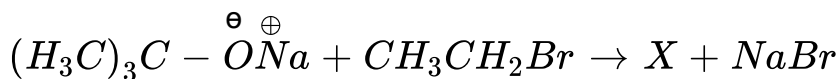


**Answer: B**



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36. What are X, Y and Z in the following reactions ?

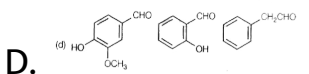
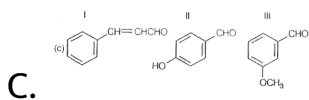
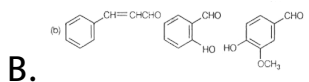
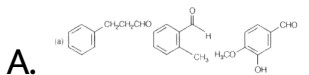


X	Y	Z
(a) $(H_3C)_3C - Br$	$(H_3C)_3C - OH$	$CH_3CH_2Br$
(b) $CH_3 - \underset{\substack{  \\ CH_3}}{C} = CH_2$	$(H_3C)_3C - OCH_2CH_3$	NaBr
(c) $(H_3C)_3C - OCH_2CH_3$	$CH_3 - \underset{\substack{  \\ CH_3}}{C} = CH_2$	$CH_3CH_2OH$
(d) $CH_3 - \underset{\substack{  \\ CH_3}}{C}H - CH_2OH$	$CH_3 - \underset{\substack{  \\ CH_3}}{C}H - OCH_2CH_3$	NaBr



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37. Structure of cinnamaldehyde (I), salicylaldehyde (II) and vanillin (III) are



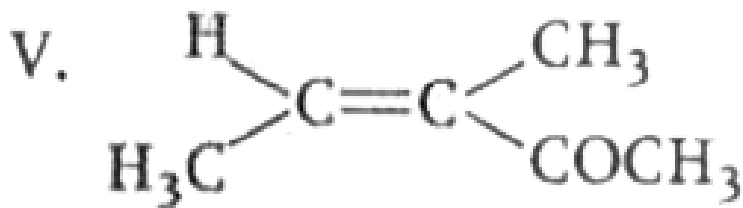
Answer: B

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38. Which of the following are oxidised by NaOCl ?



III.  $R - COCH_3$  IV.  $CH_3CHO$



A. I, III, IV, V

B. I, II, III

C. II, IV, V

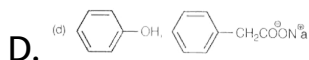
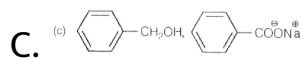
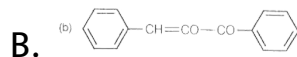
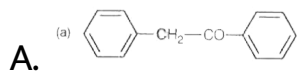
D. II, III, IV

**Answer: A**



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**39.** Benzaldehyde on heating with concentrated NaOH gives



**Answer: C**

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**40.** The reaction



as

A. Swarts reaction

B. Gatterman reaction

C. Sandmeyer reaction

D. Stephen reaction

**Answer: B**



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