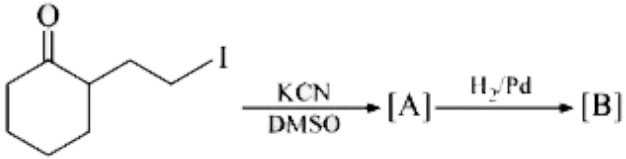
CHEMISTRY

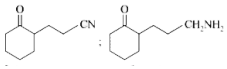
VMC MODULES ENGLISH

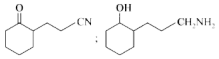
JEE MAIN REVISION TEST 11 (2020)

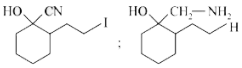
Chemistry Section 1

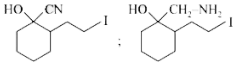
1. The major products A and B for the following reactions are, respectively.



A. 

B. 

C. 

D. 

Answer: B

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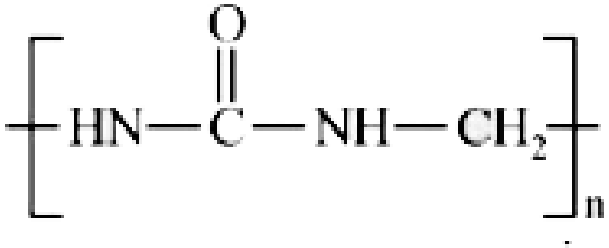
2. Which of the following compounds is a constituent of the polymer



?

1. Ammonia

2. N-Methyl urea

3. Formaldehyde

4. Methylamine

A. Ammonia

B. N-Methyl urea

C. Formaldehyde

D. Methylamine

Answer: C

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3. Noradrenaline is a/an

A. Neurotransmitter

B. Antihistamine

C. Antidepresent

D. Antacid

Answer: A

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4. Assertion : For the extraction of iron, haematite are is used.

Reason : Haematite is a carbonate ore

A. Only the assertion is correct

B. Both the assertion and reason are correct and the reason is the correct explanation for the assertion

C. Only the reason is correct

D. both the assertion and reason are correct, but the reason is not the correct explanation for the assertion

Answer: A

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5. The maximum number of possible oxidation states of actinoides are shown by:

A. neptunium (Np) plutonium (Pu)

B. actinium (Ac) and thorium (Th)

C. nobelium (No) and lawrencium (Lr)

D. berkelium (Bk) and californium (Cf)

Answer: A

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6. The correct statement among I to III are:

(I) Valence bond theory cannot explain the color exhibited by transition metal complexes

(II) Valence bond theory can predict quantitatively the magnetic properties of transition metal complexes

(III) Valence bond theory cannot distinguish ligands as weak and strong field ones

A. (I),(II) and (III)

B. (I) and (II) only

C. (I) and (III) only

D. (II) and (III) only

Answer: C

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7. At a constant temperature Ne, Ar, Kr and Xe devite from ideal behaviro according to equation

$$P = \frac{RT}{V_m - b}$$

A. Xe

B. Ne

C. Kr

D. Ar

Answer: A

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8. The correct statement among I to III regarding group 13 element oxides, are

(I) Boron trioxide is acidic (II) Oxides of

aluminium and gallium are amphoteric (III) Oxides of indium and thallium are basic

A. I, II and III

B. I and II only

C. II and III only

D. I and III only

Answer: A

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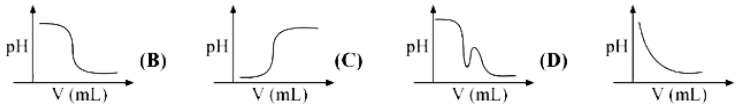
9. In an acid base titration, 0.1 M HCI solution was added to the NaOH solution of unknown strength. Which of the following correctly shows the change of pH of the titration mixture in this experiment?



A. c

B. a

C. d

D. b

Answer: B

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10. HF has highest boiling point among hydrogen halides, because it has:

A. strongest hydrogen bonding

B. lowest ionic character

C. strongest van der Waal's interactions

D. lowest dissociation enthalpy

Answer: A

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11. Which one of the following about an electron occupying the 1s orbital in a hydrogen atom is incorrect ? (The Bohr radius is represented by a_0).

A. The electron can be found at a distance $2a_0$ from the nucleus

B. The magnitude of the potential energy is double that of its kinetic energy on an average

C. The total energy of the electron is maximum when it is at a distance a_0 from the nucleus

D. The probability density of finding the electron is maximum at the nucleus

Answer: C

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12. Hinsberg's reagent is:

A. $C_6H_5SO_2CI$

B. $SOCI_2$

C. C_6H_5COCI

D. $(COCI)_2$

Answer: A

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13. The peptide that gives positive ceric ammonium nitrate and carbylamines tests is:

A. Lys - Asp

B. Ser – Lys

C. Asp - Gln

D. Gln - Asp

Answer: B

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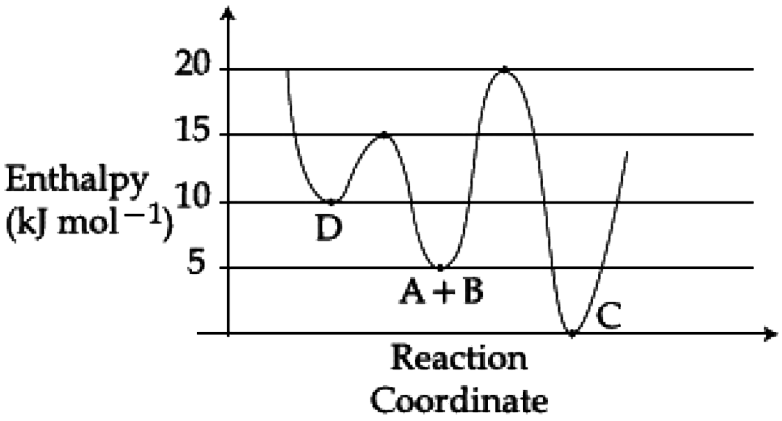
14. Consider the given plot of enthalpy of the following reaction between A and B. $A + B \rightarrow C + D$. Identify the incorrect statements



A. C is the thermodynamically stable product

B. Activation enthalpy to form C is 5 kj mol^{-1} less than that to form D

C. Formation of A and B from C has highest enthalpy of activation

D. D is kinetically stable product

Answer: D

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15. The one that is not a carbonate ore is:

A. bauxite

B. malachite

C. siderite

D. calamine

Answer: A

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16. The layer of atmosphere between 10 km to 50 km above the sea level is called as:

A. mesosphere

B. thermosphere

C. stratosphere

D. troposphere

Answer: C

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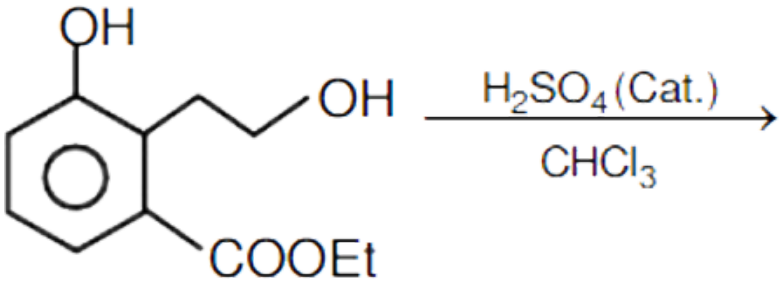
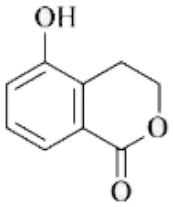
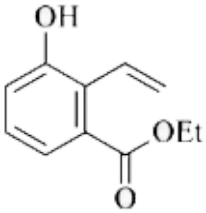
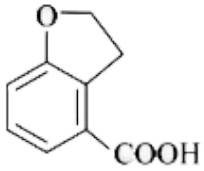
17. The product of following reaction is:



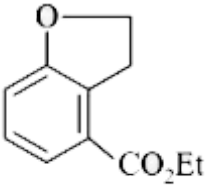
$$\xrightarrow[CHCl_3]{H_2SO_4\,(\text{Cat.})}$$

A. 

B. 



C.



D.

Answer: A

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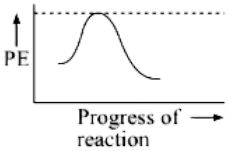
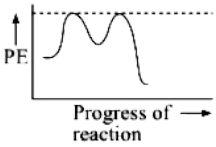
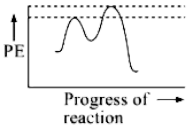
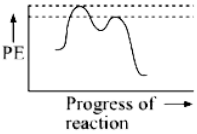
18. Which of the following is potential energy diagram for S_N1 reaction?

A. 

B. 

C. 

D. 

Answer: D

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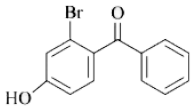
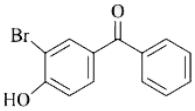
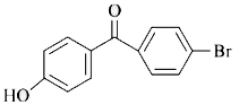
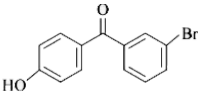
19. p-Hydroxybenzophenone upon reaction with bromine in carbon tetrachloride gives:

A. 

B. 

C. 

D. 

Answer: B

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20. The structures of beryllium chloride in the solid state and vapur phase, respectively, are:

A. dimeric and chain

B. dimeric and dimeric

C. chain and chain

D. chain and dimeric

Answer: D

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Chemistry Section 2

1. What would be the molality of 60% (mass/mass) aqueous solution of CH_3COOH ? (Molar mass of $CH_3COOH = 60gmol^{-1}$)

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2. During compression of a spring the work done is 10 kJ and 2 kJ escaped to the surroundings as heat. The change in internal energy, ΔU (in kJ) is _____ .

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3. Molal depression constant for a solvent is 4.0 K kg mol^{-1}. The depression in the freezing point of the solvent for 0.5 mol kg^{-1} solution of KI (Assume complete dissociation of the electrolyte) is _____ .

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4. Molecules from $10mL$ of $1mM$ surfactant solution are adsorbed on $0.24cm^2$ area forming unimolecular layer. Assuming surfactant molecules to be cube in shape, determine the edge length of the cube.

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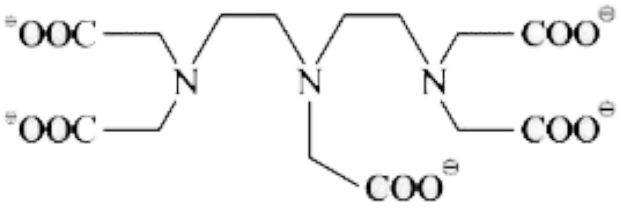
5. The maximum possible denticities of a ligand given below towards inner-transition

metal ion, is____.



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