

INTERNAL ASSESSMENT EXAMINATION, 2020

DSE-1B (CHEMISTRY GENERAL)

Pick up the **correct alternative** from the options given in each question:

Full Marks: 10 (1 marks per MCQ)

- Number of carbon and nitrogen atoms in the product obtained from the reaction between ammonia and formaldehyde –  
(a) 4, 6      (b) 6,4      (c) 6.6      (d) 4.4
- Select the correct combination of three reactions that are arranged sequentially featuring (i) a reaction in which a sacrificial alcohol is employed, (ii) a disproportionation reaction and (iii) a reaction in which the same kind of reagent is used as in (i) & (ii) -  
(a) (i) Aldol condensation, (ii) Cannizzaro reaction and (iii) Perkin reaction  
(b) (i) Oppenauer oxidation, (ii) Tischenko reaction and (iii) Meerwein-Ponndorf –Verley reduction  
(c) (i) Benzoin condensation, (ii) Reaction of carbonyl compounds with HCN and (iii) Stephen reduction  
(d) (i) Meerwein-Ponndorf –Verley reduction, (ii) Tischenko reaction and (iii) Oppenauer oxidation
- Select the correct combination of three reactions that are arranged sequentially featuring (i) hydride shift occurs, (ii) a reagent short of octet is formed *in situ* and (iii) nucleophilic substitution reaction -  
(a) (i) Haloform reaction (ii) Friedel Craft acylation and (iii) Side chain halogenations of toluene  
(b) (i) Mannich reaction (ii) Diazotization and (iii) Knoevenagel reaction  
(c) (i) Cannizzaro reaction, (b) Reimer-Tiemann reaction and (iii) Hydroxylation of nitrobenzene  
(d) (i) Tollens' reaction, (ii) Fries rearrangement and (iii) Libermann reaction
- Reaction between monochloroethane and sodium 2-methylpropan-2-olate furnishes-  
(a) 2-ethoxy-2-methylpropane  
(b) 2-methoxy-2-ethylpropane  
(c) 2-ethoxy-3-methylpropane  
(d) 2-methoxy-3-methylpropane
- What are the monomers that are used for the synthesis of Nylon-66?  
(a) adipic acid & hexamethylenediamine  
(b) adipic acid & ethylenediamine  
(c) adipic acid & tetramethylethylenediamine  
(d) adipic acid & hexamethylenetetramine
- Which of the followings is a triphenylmethane based dye?  
(a) Methyl orange  
(b) Congo red  
(c) Crystal violet  
(d) Bismarck brown

7. Metronidazole belongs to the family of
  - (a) anti-bacterial drugs
  - (b) anti-protozoal drugs
  - (c) anti-depressant drugs
  - (d) anti-tubercular drugs
8. Which of the following is a characteristics of the soap molecule
  - (a) Hydrophilic end
  - (b) Hydrophobic end
  - (c) Both a. and b.
  - (d) None of the above
9. What is the full form of DDT
  - (a) Dichlorodiphenyltrichlorbutane
  - (b) Dichlorodiphenyltrichloromethane
  - (c) Dichlorodiphenyltrichloroethane
  - (d) Dichlorodiphenyltetrachloroethane
10. Which of the following is an artificial sweetener
  - (a) Potassium glutamate
  - (b) Potassium saccharin
  - (c) Sodium saccharin
  - (d) Sodium glutamate

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SEC-4 (CHEMISTRY GENERAL)

Pick up the *correct alternative* from the options given in each question:

Full Marks: 10 (1 marks per MCQ)

- Ziegler-Natta catalyst and butyl lithium are used respectively in the syntheses of-
  - HDPE and LDPE
  - NOVALAC and PTFE
  - HDPE and Polyacrylo nitrile
  - LDPE and Orlon
- PLEXIGLAS IS-
  - Polymethyl acrylate
  - Polymonochlorotrifluoroethylene
  - Polyethyl acrylate
  - Polymethylmethacrylate
- In a polymer sample 20 molecules have molar mass 5000, 30 have 10,000 and 40 have 20,000. Numer average, weigt average molar mass and polydispersity indexrespectively are-
  - 13333, 16250 and 1.22
  - 12667, 14750 and 1.16
  - 16250, 13333 and 0.82
  - 14750, 12667 and 0.86
- Calculate the degree of polymerization when 99% of the monomer undergoes polymerization reaction-
  - 10
  - 5
  - 100
  - 1000
- The plot  $(-d[M]/dt)$  vs.  $[M]^{3/2}$  of an addition polymerization reaction gives a straight line.  $[M]$  is the concentration of the monomer. The type of free radical polymerization process is-
  - unimolecular (uncatalysed)
  - bimolecular (catalysed)
  - unimolecular (catalysed)
  - bimolecular (uncatalysed)
- What kind of polymer is 'Rayon'?
  - Natural
  - Synthetic
  - Semi-synthetic
  - None of the above
- What kind of molecular force is present in 'Kevlar'?
  - van der Waals force
  - Hydrogen Bonding
  - Coulombic force
  - Dipole-Dipole interaction

8. Thermocol Sheet is made from
- (a) PVC
  - (b) PVA
  - (c) PAN
  - (d) Polystyrene
9. Novalac is made from
- (a) Phenol & Formaldehyde
  - (b) Phenol & Acetaldehyde
  - (c) Phenol & Acraldehyde
  - (d) Phenol & Crotonaldehyde
10. Polyacetylene is a
- (a) Unsaturated polymer
  - (b) Conjugated polymer
  - (c) Conducting polymer
  - (d) All of the above