

22241

21718

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Figures to the right indicate full marks.

Marks

1. Answer any FIVE :

5 × 2 = 10

- (a) State 'general characteristics' of 'organic compounds'.
- (b) Define 'functional group'. Represent functional groups :
 - (i) ether
 - (ii) thiol
- (c) Define a 'diene'. Name and write structural formula of simplest diene. Write its 'physical state'.
- (d) Write 'oxidation reaction' of 'simplest alkyne'. Name products formed.
- (e) Define :
 - (i) Methylated spirit
 - (ii) Absolute alcohol
- (f) Define :
 - (i) Formalin
 - (ii) Paraform

Write typical formaldehyde content in them.
- (g) Write 'haloform reaction' State its use.
- (h) A 'carboxylic acid' is heated with thionyl chloride. Write its 'balanced equation'. Name the product formed and gases liberated.

2. Answer any THREE :

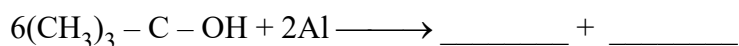
3 × 4 = 12

- (a) Describe 'Lassaigne test'.
- (b) Describe with an example, 'elimination reaction'.
- (c) (i) Illustrate by reaction only :
 - (1) Markownikoff's rule
 - (2) Anti-Markownikoff's rule
- (ii) State in general, 'commercial uses' of 'alkynes'.
- (d) Write typical composition of 'Fehling's solution'. Explain with reaction, its use.

3. Answer any THREE :

3 × 4 = 12

- (a) Describe with examples, 'heterolytic fission'.
- (b) Describe with an example and reaction, 'Kolbe's synthesis'.
- (c) Write distinguishing features between 'thermal cracking' and 'catalytic cracking'.
- (d) (i) Explain 'hydrogen bonding' in 'alcohol'.
- (ii) Consider the reaction,



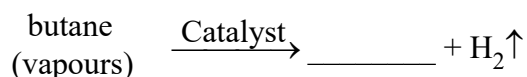
Name the reactants and products. Stoichiometrically balance the equation. Name the type of reaction.

4. Answer any THREE :

3 × 4 = 12

- (a) Define 'S_N2 reaction'. Draw and explain 'energy profile diagram'.

- (b) For the reaction



Identify the product. Write the 'balanced equation' and name typical catalyst. Name the type of reaction.

- (c) Write 'Dieles Alder' reaction between butadiene and ethylene, stating reaction temperature. Name the product formed. Is the reaction endothermic or exothermic ?
- (d) (i) Write representative structural formula of sorbitol. State its theoretical 'functionality'. In which form is it available ?
- (ii) Compare typical boiling point and water miscibility of methanol, ethanol and n-butanol.
- (e) Describe the procedure to choose a relevant carboxylic compound for a given textile wet processing.

5. Answer any TWO :

2 × 6 = 12

- (a) (i) Describe with examples, mechanism of 'Beckmann's rearrangement'. **4**
- (ii) Define homologs. Name first two homologs of alkane series. **2**
- (b) Write dehydration reaction of (i) ethanol, (ii) i-propanol, (iii) n-butanol.
- Name type of catalyst and reaction conditions used. Identify product(s) formed.
- (c) (i) State boiling point of commercial acetone. Comment on its water miscibility and rate of evaporation. **2**
- (ii) Describe the procedure to select aldehydes and ketones used in finishing of a given textile. **4**

P.T.O.

6. Answer any TWO :**2 × 6 = 12**

- (a) (i) Explain with reaction, use of 'sodium nitroprusside' in qualitative analysis. 2
- (ii) Explain identification of chlorine, bromine, fluorine in an organic compound using 'sodium fusion extract'. 4
- (b) (i) Write synthetic route to prepare glycerol. Indicate reaction conditions. Name industry from which, glycerol is obtained as a byproduct. 4
- (ii) State commercial applications of ethylene glycol. 2
- (c) (i) Describe 'quick vinegar process'.
- (ii) Explain 'Nomenclature' of carboxylic acids.
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