

CHAPTER 15  
POLYMERS  
WORK SHEETS

CONCEPTS:

1. Classification of Polymers
2. Uses of Polymers
3. Preparation of Polymers

1. Classification Of Polymers				
CARD :01		CARD :02		
NO	QUESTIONS	NO	QUESTIONS	
I	Odd One Out	II	Match the following	
1	Buna-s,Buna-N,Neoprene,Polyesters(Mol.Forces)		A	B
2	Protein,Starch,Cellulose,Nylon-6(Sourse of formation)	1	Co-polymers	Bakelite
3	Polythene,Teflone,Poly styrene,Nylon-6(Mode of polymerization)	2	Homo-Polymers	Teflon
4	Polythene,Polystyrene,Polyvinyls,bakelite(Thermoplastic polymers)	3	Thermoplastics	Buna-S
		4	Thermosettings	PVC

CARD:03		CARD:04	
III	Fill in the Blanks	IV	Match the following
1	Linear polymers:PVC ; Cross linked polymers:----	A	B
2	Fibres:Polyesters ; Thermosetting:-----	1	HDPE
3	Addition polymers:-----; Condensation Polymers:Terylene	2	PHBV
4	Poly amides:Nylon-66 ; Polyesters: -----	3	Natural rubber
		4	Poly amides
			Ziegler- Natta Catalyst
CARD:05		CARD:06	
V	True or False	VI	True or False
1	Buna-N is an addition polymers.	1	PHBV is a bio-degradable polymer
2	Polythene is a fibre.	2	Benzoyl peroxide is used as an initiator in polymerisation
3	Orlon is a homopolymer	3	Chlorine is used for vulcanization of rubber.
4	Melamine-formaldehyde is not a condensation polymer.	4	Fibres are having high tensile strength

## 2. Uses of Polymers

CARD:01		CARD :02	
I	Match the following	II	Match the following
	<b>A</b>		<b>A</b>
	<b>B</b>		<b>B</b>
1	Teflon	1	BUNA-S
2	Bakelite	2	Polyethene
3	BUNA-N	3	PVC
4	Melamine-formaldehyde	4	PHBV
	Unbreakable Crockery		Specialty Packaging
	Oil Seals,tank lining		Rain coats,hand bags
	Electrical switches		Insulators
	Non-stick utensils		Automobile tyres.

CARD:03		CARD:04	
I	Fill in the blanks	II	Fill in the blanks
1	----- is used in glass reinforcing material in safety helmets.	1	Heating a mixture of raw rubber with sulphur and appropriate additive is called-----
2	----- is used for making auto tyres,floor tiles,cable insulation,etc.	2	5 % Sulphur is used as a cross linking agent in the manufacture of-----
3	----- is used for making combs,phonograph	3	----- is used for the making of Paints and lacquers.

	records, electrical switches, etc.		
4	----- is used for making conveyor belts, gaskets, etc.	4	----- is used for making ropes, toys, pipes, etc.
<b>CARD:05</b>		<b>CARD:06</b>	
V	<b>True or False</b>	VI	<b>True or False</b>
1	Bakelite is used in the manufacture of unbreakable cups.	1	Polystyrene is a copolymer as well as addition polymers.
2	HDPE is used for manufacturing buckets, dustbins & pipes.	2	HDPE is an addition as well as thermoplastic.
3	PAN is used as a substitute for wool in making commercial fiber as Orlon/acrylon.	3	Condensation polymerization is otherwise called Chain growth polymer.
4	Nylon -6 is not used for making tyre cords & fabrics.	4	Novolac is used in Paints.

**III Preparation of polymers****CARD :01**

Column A Name of the polymer	Column B Monomer of the polymer	Column C Uses of the polymer
Polythene	Tetrafluoroethene $\text{CF}_2=\text{CF}_2$	Oil seals, Tank lining
Teflon (Polytetrafluoroethene)	Ethene $\text{CH}_2=\text{CH}_2$	Automobile tyres and Foot wears
Buna S	Buta-1,3-diene + Acrylonitrile $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2 + \text{CH}_2=\text{CH}-\text{CN}$	Lubricant, Insulator and making non-stick cooking ware.
Buna N	Buta-1,3-diene + Styrene $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2 + \text{C}_6\text{H}_5\text{CH}=\text{CH}_2$	Insulator, Packing material,

**CARD:02**

Name of the Polymer	Name of the Monomers
Nylon 66	Melamine + Methanal
Nylon 6	3-Hydroxybutanoic acid + 3-Hydroxypentanoic acid
Bakelite	Glycine + Amino caproic acid $\text{H}_2\text{N}-\text{CH}_2-\text{COOH} \quad \text{H}_2\text{N}(\text{CH}_2)_5-\text{COOH}$
Melamine	Hexamethylene diamine + Adipic acid $\text{NH}_2(\text{CH}_2)_6\text{NH}_2 \quad \text{HOOC}(\text{CH}_2)_4\text{COOH}$

PHBV (biodegradable)	Caprolactum
Nylon 2 – Nylon 6 (biodegradable)	Phenol + Methanal
Terylene(Dacron)	Ethane-1,2-diol + Benzene-1,4-dicarboxylic acid

CARD:03

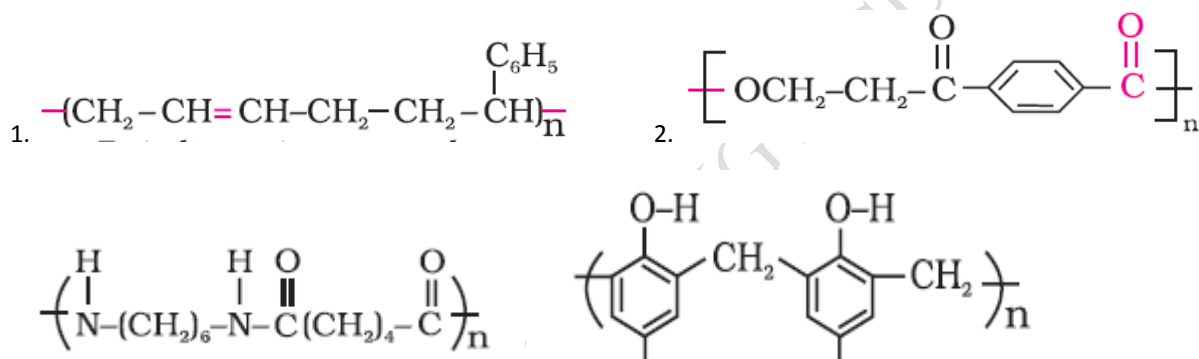
## III.Fill in the blanks

1. Ethene is monomer unit for the preparation of ..... (PVC/polythene)
2. Hexamethylene diamine + ..... are used to prepare Nylon 66. (Adipic acid/ Lactic acid)
3. Ziegler Natta catalyst is used for the synthesis of ..... (HDP/LDP).
4. PHBV is an example of ..... polymer. (Biodegradable/ Non-Biodegradable)
5. Dacron/terylene are the best example of ..... (Polyamides/Polyesters)
6. Phthallic acid and ethylene acid are the monomers of ..... (Glyptal/Dacron)

CARD:04

Write the name of the polymer whose structure is shown below:

Hint: Bakelite/Nylon-66/Buna-S/Terylene/Neoprene



CARD :05

Write the name of the monomers from the polymer whose structure is given below:

