

Polymers

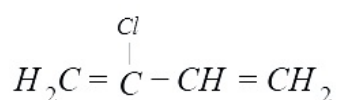
Question1

Which amongst the following molecules on polymerization produces neoprene?

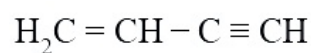
[NEET 2023]

Options:

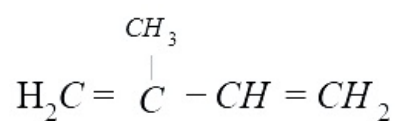
A.



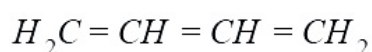
B.



C.



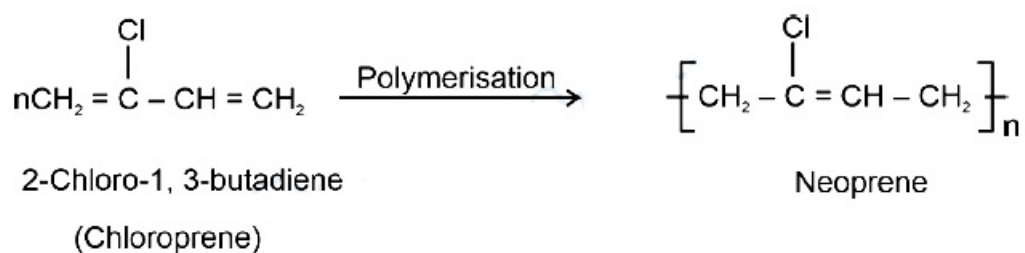
D.



Answer: A

Solution:

Neoprene is formed by free radical polymerisation of chloroprene.



Question2

Given below are two statements:

Statement I :

High density polythene is formed in the presence of catalyst triethylaluminium and titanium tetrachloride.

Statement II :

High density polymers are chemically inert.

In the light of the above statements, choose the correct answer from the options given below :

[NEET 2023 mpr]

Options:

A.

Statement-I is correct but Statement-II is false.

B.

Statement-I is incorrect but Statement-II is true.

C.

Both Statement-I and Statement-II are true.

D.

Both Statement-I and Statement-II are false.

Answer: C

Solution:

NCERT Pg.436 (Polymer)

Question3

Which statement regarding polymers is not correct?

[NEET-2022]

Options:

A. Elastomers have polymer chains held together by weak intermolecular forces

B. Fibers possess high tensile strength

C. Thermoplastic polymers are capable of repeatedly softening and hardening on heating and cooling respectively

D. Thermosetting polymers are reusable

Answer: D

Solution:

- Thermoplastic polymers are the linear or slightly long chain molecules capable of repeatedly softening and hardening on cooling.
 - Thermosetting polymers are cross-linked or heavily branched molecules, which on heating undergo extensive cross-linking in moulds and again become infusible. These cannot be reused.
 - Elastomers have polymer chains held together by weak intermolecular forces.
 - Fibres possess high tensile strength.
-

Question4

**Which among the following is a thermoplastic polymer ?
[NEET Re-2022]**

Options:

- A. Melamine polymer
- B. Bakelite
- C. Polythene
- D. Urea-formaldehyde resin

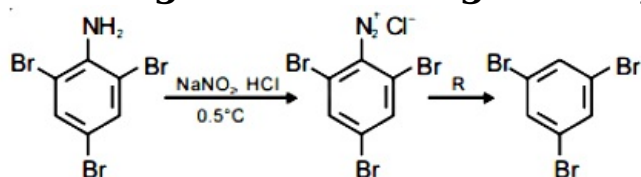
Answer: C

Solution:

Polythene, Polystyrene, polyvinyls etc. are thermoplastic polymers

Question5

The reagent 'R' in the given sequence of chemical reaction is:



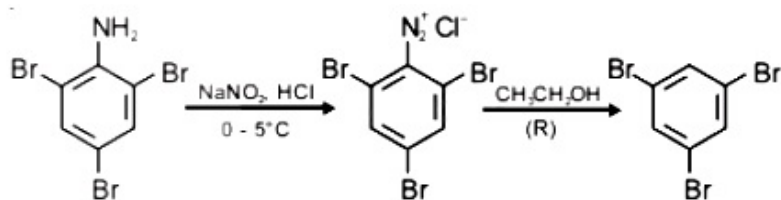
[NEET 2021]

Options:

- A. H_2O
- B. $\text{CH}_3\text{CH}_2\text{OH}$
- C. HI
- D. CuCN / KCN

Answer: B

Solution:



Reagent R is $\text{C}_2\text{H}_5\text{OH}$ with diazonium salt.

Question6

Which of the following is a natural polymer?
[2020]

Options:

- A. poly (Butadiene-styrene)
- B. polybutadiene
- C. poly (Butadiene-acrylonitrile)
- D. cis-1, 4-polyisoprene

Answer: D

Solution:

Solution:

cis-1,4-Polyisoprene is a natural polymer

Question7

The biodegradable polymer is
(NEET 2019)

Options:

- A. buna-S
- B. nylon-6,6
- C. nylon-2-nylon 6
- D. nylon-6

Answer: C

Question8

**The polymer that is used as a substitute for wool in making commercial fibres is
(Odisha NEET 2019)**

Options:

- A. melamine
- B. nylon-6,6
- C. polyacrylonitrile
- D. buna-N

Answer: C

Question9

**Regarding cross-linked or network polymers, which of the following statements is incorrect?
(NEET 2018)**

Options:

- A. They contain covalent bonds between various linear polymer chains.
- B. They are formed from bi- and trifunctional monomers.
- C. Examples are bakelite and melamine.
- D. They contain strong covalent bonds in their polymer chains.

Answer: D

Solution:

Solution:

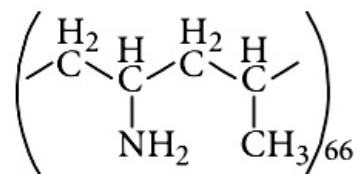
Cross-linked or network polymers are usually formed from bi-functional and tri-functional monomers and contains strong covalent bonds between various linear polymer chains like melamine, bakelite, etc.

Question10

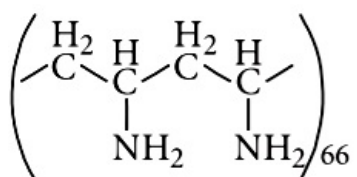
Which one of the following structures represents nylon 6,6 polymer?
(NEET-II 2016)

Options:

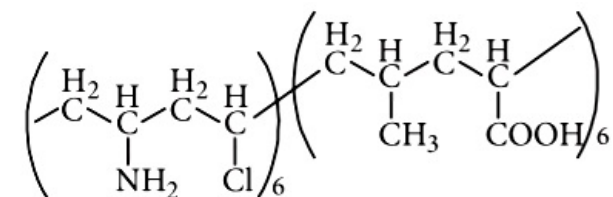
A.



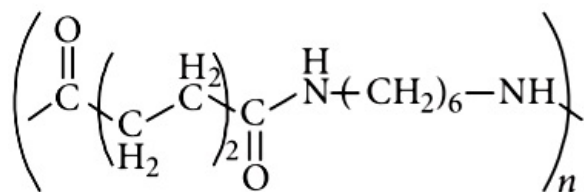
B.



C.



D.



Answer: D

Solution:

Nylon 6,6 is obtained by condensing adipic acid ($\text{HOOC}(\text{CH}_2)_4\text{COOH}$) with hexamethylenediamine ($\text{H}_2\text{N}(\text{CH}_2)_6\text{NH}_2$).

Question11

Natural rubber has
(NEET-I 2016)

Options:

- A. alternate cis- and trans-configuration
- B. random cis- and trans-configuration
- C. all cis-configuration
- D. all trans-configuration.

Answer: C

Solution:

Natural rubber is cis-polyisoprene.

Question12

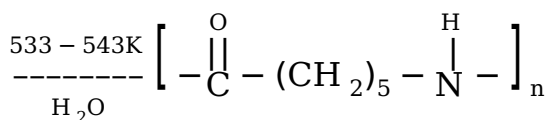
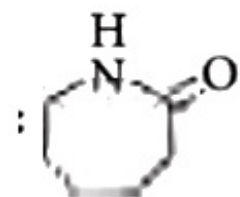
Caprolactam is used for the manufacture of (2015)

Options:

- A. teflon
- B. terylene
- C. nylon 6,6
- D. nylon 6

Answer: D

Solution:



Question13

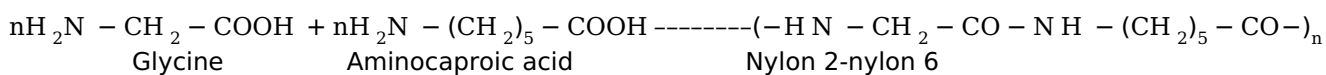
Biodegradable polymer which can be produced from glycine and aminocaproic acid is (2015 Cancelled)

Options:

- A. buna-N
- B. nylon 6,6
- C. nylon 2-nylon 6
- D. PHBV

Answer: C

Solution:

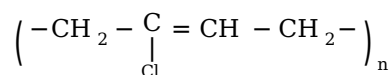


Question14

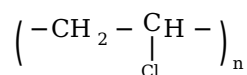
Which one of the following is an example of thermosetting polymer? (2014)

Options:

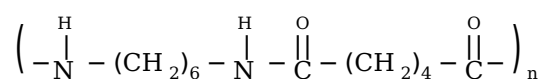
A.



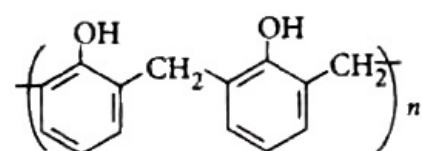
B.



C.



D.



Answer: D

Solution:

- (a) - Neoprene rubber (elastomer)
- (b) - PVC (thermoplastic polymer)
- (c) - Nylon-6,6 (fibre)
- (d) - Novolac which further undergoes cross linking to produce bakelitce (thermosetting polymer).

Question15

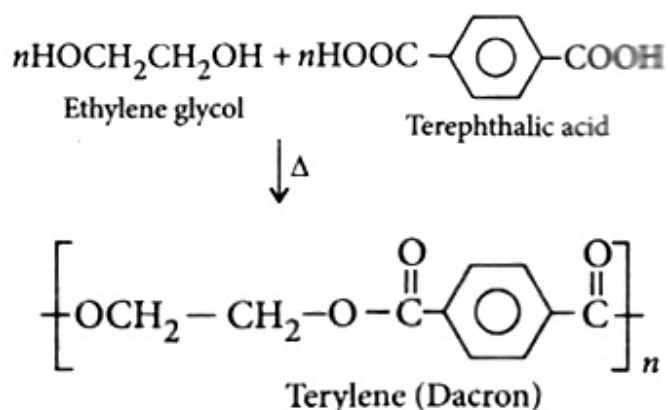
Which of the following organic compounds polymerizes to form the polyester Dacron?
(2014)

Options:

- A. Propylene and para $\text{H O} - (\text{C}_6\text{H}_4) - \text{OH}$
- B. Benzoic acid and ethanol
- C. Terephthalic acid and ethylene glycol
- D. Benzoic acid and para $\text{H O} - (\text{C}_6\text{H}_4) - \text{OH}$

Answer: C

Solution:



Question16

Nylon is an example of
(2013 NEET)

Options:

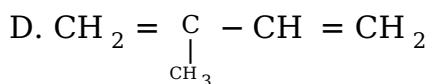
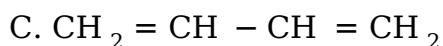
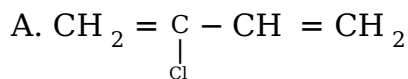
- A. Polyamide
- B. Polythene
- C. Polyester
- D. Polysaccharide

Answer: A

Question17

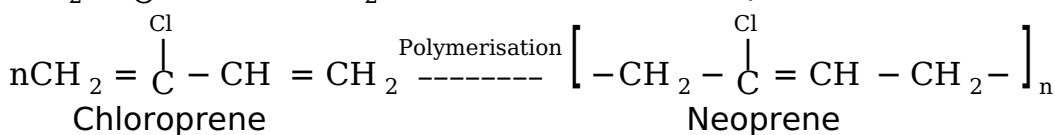
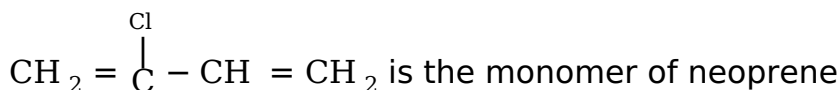
Which is the monomer of Neoprene in the following?
(2013 NEET)

Options:



Answer: A

Solution:



Question18

Which one of the following is not a condensation polymer ?
(2012)

Options:

A. Melamine

B. Glyptal

C. Dacron

D. Neoprene

Answer: D

Solution:

Neoprene is an addition polymer

Question19

Which of the following statements is false?
(2012)

Options:

- A. Artificial silk is derived from cellulose.
- B. Nylon-6, 6 is an example of elastomer.
- C. The repeat unit in natural rubber is isoprene.
- D. Both starch and cellulose are polymers of glucose.

Answer: B

Solution:

Solution:

Nylon 6,6 is an example of fibres

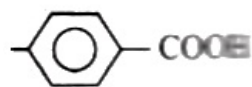
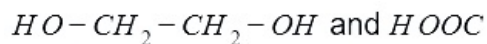
Question20

Which one of the following sets forms the biodegradable polymer?
(2012 Mains)

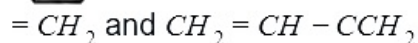
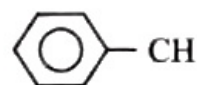
Options:

- A. $\text{CH}_2 = \text{CH} - \text{CN}$ and $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$
- B. $\text{H}_2\text{N} - \text{CH}_2 - \text{COOH}$ and $\text{H}_2\text{N} - (\text{CH}_2)_5 - \text{COOH}$

C.



D.



Answer: B

Question21

Of the following which one is classified as polyester polymer?
(2011)

Options:

- A. Terylene
- B. Bakelite
- C. Melamine
- D. Nylon-6,6

Answer: A

Solution:

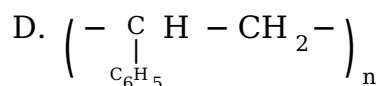
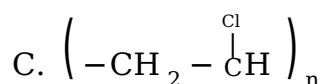
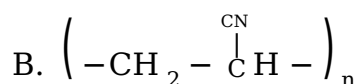
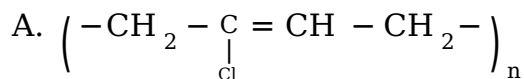
Solution:

Terylene (Dacron) is a polyester polymer because it is made by monomer units ethylene glycol and dimethyl terephthalate.

Question22

Which of the following structures represents neoprene polymer?
(2010)

Options:



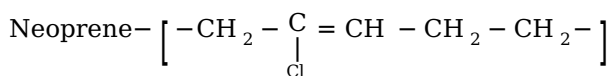
Answer: A

Solution:

It is a polymer of chloroprene i.e., $\text{CH}_2 = \overset{\text{Cl}}{\underset{|}{\text{C}}} - \text{CH} = \text{CH}_2$

**Structures of some common polymers are given. Which one is not correctly presented?
(2009)**

A.



B.

Terylene



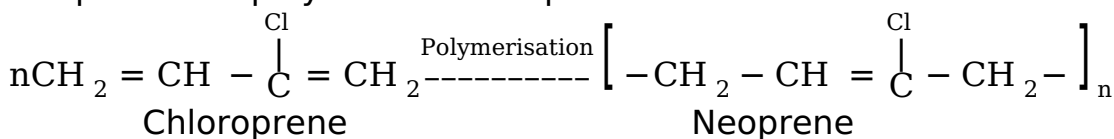
C. Nylon 6,6- $[\text{N H (CH}_2)_6\text{N H CO(CH}_2)_4\text{ - CO-}]_n$

D. Teflon- $[-\text{CF}_2 - \text{CF}_2 -]_n$

Answer: A

Solution:

Neoprene is a polymer of chloroprene.



Rest of the polymers are correctly represented,

**Which one of the following statements is not true?
(2008)**

Options:

A. Buna-S is a copolymer of butadiene and styrene.

B. Natural rubber is a 1,4-polymer of isoprene.

C. In vulcanization, the formation of sulphur bridges between different chains make rubber

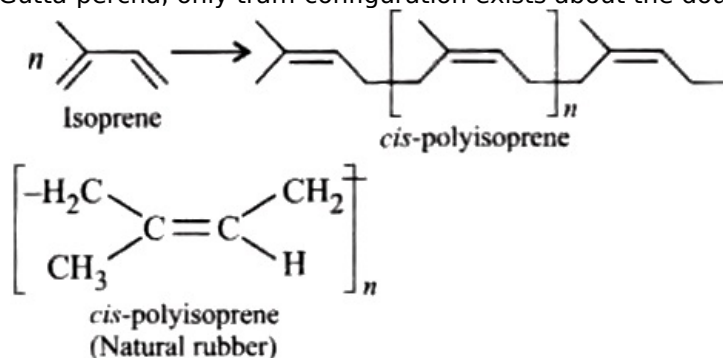
harder and stronger.

D. Natural rubber has the /rans-configuration at every doublebond.

Answer: D

Solution:

Natural rubber is cis - 1,3 polyisoprene and has only cis configuration about the double bond as shown below. whereas in Gutta-percha, only tram-configuration exists about the double bond.



Question25

**Which one of the following polymers is prepared by condensation polymerisation?
(2007)**

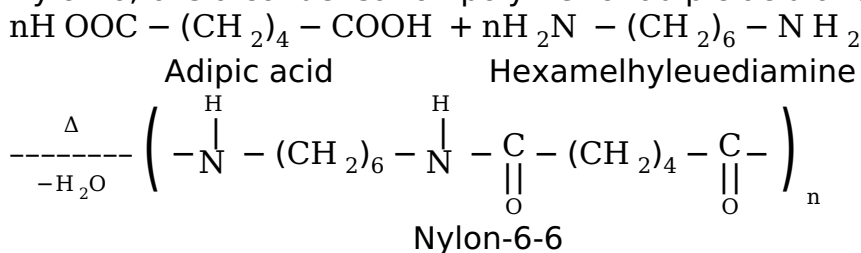
Options:

- A. Teflon
- B. Natural rubber
- C. Styrene
- D. Nylon-6, 6

Answer: D

Solution:

Nylon-6, 6 is a condensation polymer of adipic acid and hexamethylene diamine.



Question26

$[N H (CH_2)N H CO(CH_2)_4CO]_n$ is a
(2006)

Options:

- A. homopolymer
- B. copolymer
- C. addition polymer
- D. thermosetting polymer

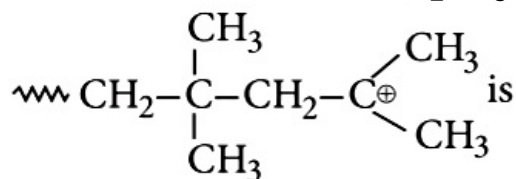
Answer: B

Solution:

$[N H (CH_2)N H CO(CH_2)_4CO]_n$ is formed by the condensation of adipic acid and hexamethylene diamine. It is a copolymer (a polymer made from more than one type of monomer molecules is referred to as copolymer).

Question27

The monomer of the polymer



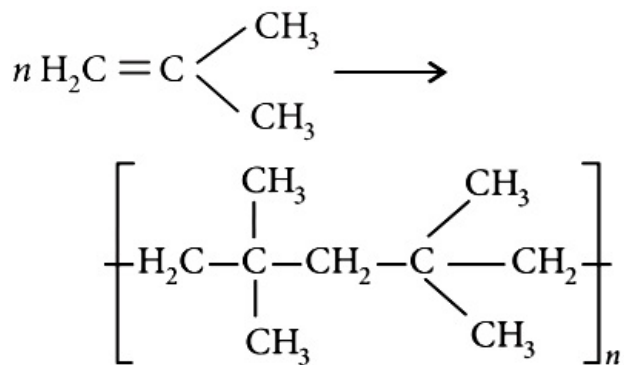
(2005)

Options:

- A. $H_2C = \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}$
- B. $CH_3CHCH = CH_3$
- C. $CH_3CH = CH_2$
- D. $(CH_3)_2C = C(CH_3)_2$

Answer: A

Solution:



Question28

Which one of the following is a chain growth polymer?
(2004)

Options:

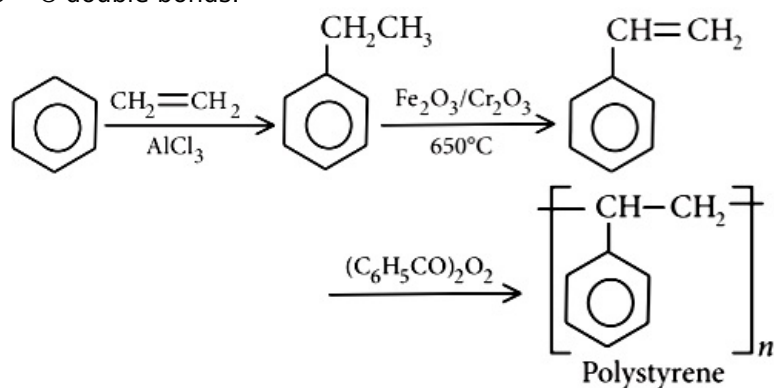
- A. Starch
- B. Nucleic acid
- C. Polystyrene
- D. Protein

Answer: C

Solution:

Solution:

Chain-growth polymers involve a series of reactions each of which consume a reactive particle and produces another similar one. The reactive particles may be free radicals or ions (cation or anion) to which monomers get added by a chain reaction. It is an important reaction of alkenes and conjugated dienes or indeed of all kinds of compounds that contains C – C double bonds.

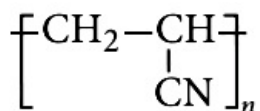


Question29

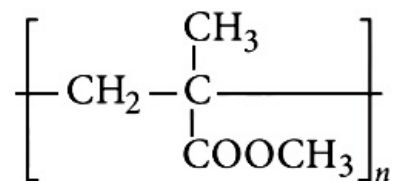
Acrilan is a hard, horny and a high melting material. Which one of the following represents its structure?
(2003)

Options:

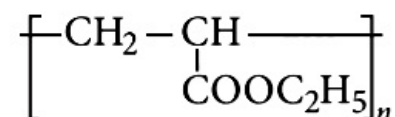
A.



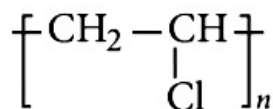
B.



C.



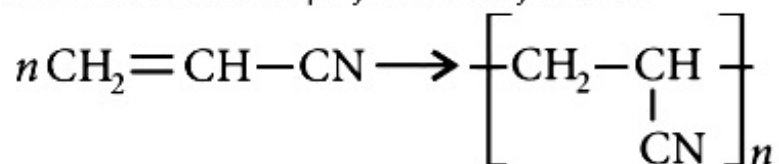
D.



Answer: A

Solution:

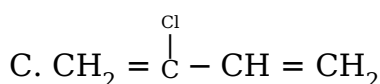
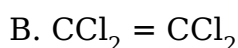
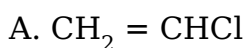
Acrlan is an addition polymer of acrylonitrile.



Question30

**Which one of the following monomers gives the polymer neoprene on polymerization?
(2003)**

Options:



D. $\text{CF}_2 = \text{CF}_2$

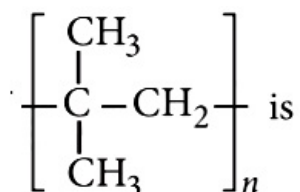
Answer: C

Solution:

Chloroprene or 2-chloro-1,3-butadiene on addition polymerisation gives neoprene.

Question31

Monomer of



(2002)

Options:

A. 2-methylpropene

B. styrene

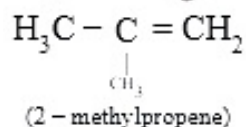
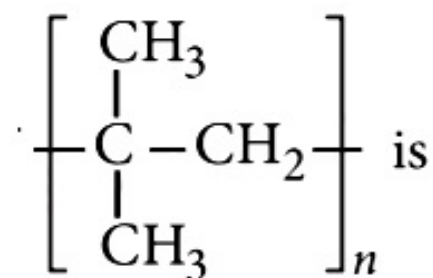
C. propylene

D. ethene.

Answer: A

Solution:

The monomer of



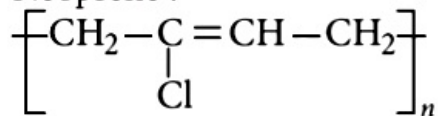
Question32

**Which of the following is not correctly matched?
(2001)**

Options:

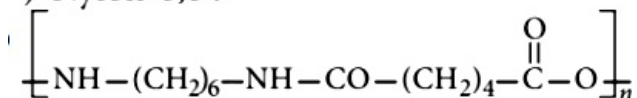
A.

Neoprene :



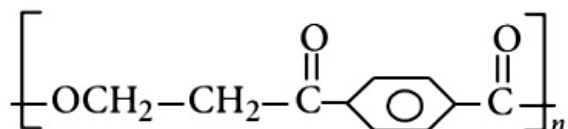
B.

) Nylon-6,6 :

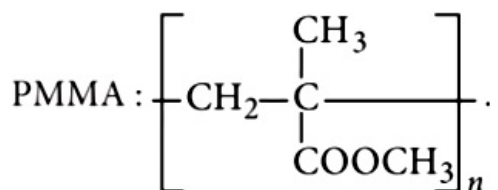


C.

Terylene :



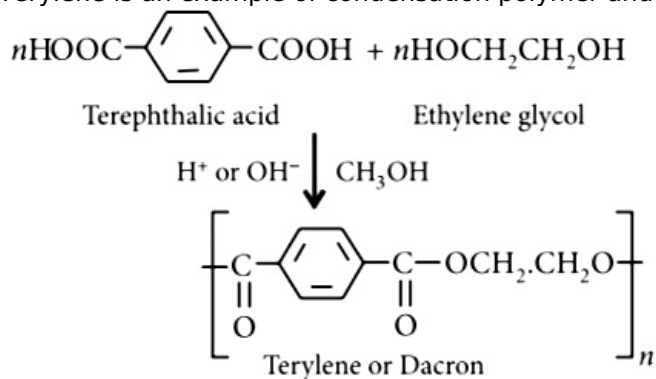
D.



Answer: C

Solution:

Terylene is an example of condensation polymer and formed by the condensation of terephthalic and ethylene glycol.



Question33

$\text{CF}_2 = \text{CF}_2$ is monomer of (2000)

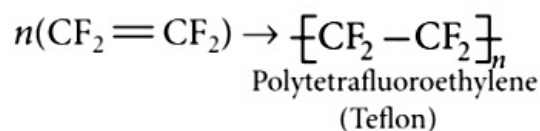
Options:

A. teflon

- B. orlon
- C. polythene
- D. nylon-6.

Answer: A

Solution:



Question34

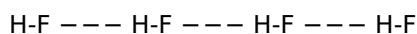
**Which compound forms linear polymer due to H-bond?
(2000)**

Options:

- A. H₂O
- B. NH₃
- C. HF
- D. HCl

Answer: C

Solution:



Dotted lines represent hydrogen bond between HF molecule and hence it is a linear polymer. Due to high electronegativity value of 'F' atom it forms effective hydrogen bonds.

Question35

**Natural rubber is a polymer of
(1999)**

Options:

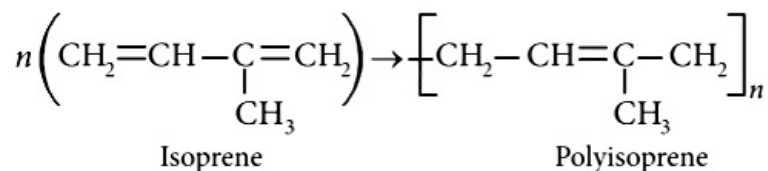
- A. styrene
- B. ethyne

C. butadiene

D. isoprene

Answer: D

Solution:



Polyisoprene is the natural rubber, which is the polymer of isoprene.

Question36

Terylene is a condensation polymer of ethylene glycol and (1999)

Options:

A. salicylic acid

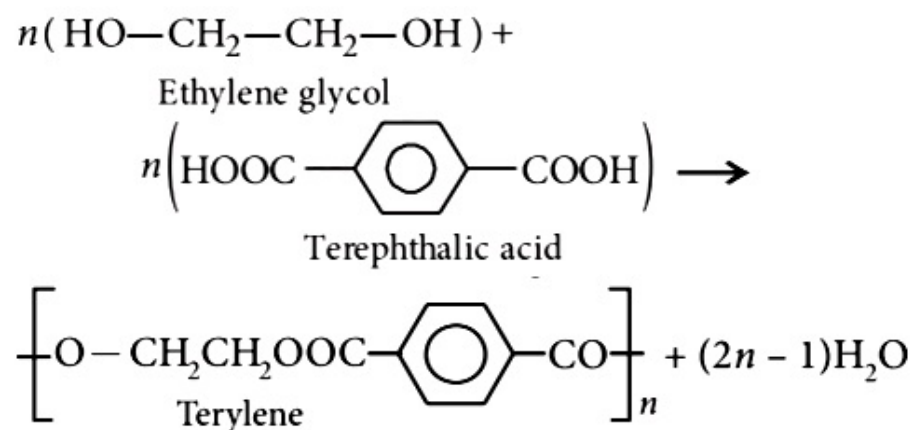
B. phthalic acid

C. benzoic acid

D. terephthalic acid.

Answer: D

Solution:



Terylene is the condensation polymer of ethylene glycol and terephthalic acid.

Question37

**Which one of the following is used to make 'non-stick' cookware?
(1997)**

Options:

- A. Polyethylene terephthalate
- B. Polytetrafluoroethylene
- C. PVC
- D. Polystyrene

Answer: B**Solution:**

Polytetrafluoroethylene or teflon is a tough material, resistance to heat and bad conductor of electricity. It is used for coating the cookware to make them non-sticky.

Question38

The bakelite is prepared by the reaction between (1995)

Options:

- A. phenol and formaldehyde
- B. tetramethylene glycol
- C. urea and formaldehyde
- D. ethylene glycol.

Answer: A**Solution:**

Phenol and formaldehyde undergo condensation polymerisation under two different conditions to give a cross linked polymer called bakelite.