1. SYNTHETIC FIBERS AND PLASTIC
SOLUTIONS
TEACHING TASK

JEE MAINS LEVEL QUESTIONS

1. Which of the following compound is natural fibre

A) Polyester B) Nylon C) Acrylic D) cotton

Answer:D

Solution:cotton is natural fibre because it is obtained from cotton plant

2. Polyester is a

A) Natural fibre B) Synthetic fibre C) both A & B D) None

Answer:B

Solution:Polyester is a synthetic polymer made from petroleum-derived materials, primarily ethylene glycol and terephthalic acid. It is widely used in textiles, packaging, and plastic products.

3. Synthetic fibre are obtained from

A) Plants B) animals C) petrolium D) All

Answer:C

Solution:Synthetic fibre are obtained from petrolium

4. Synthetic fibre are made of...

A) Polymers B) Monomers C) Dimers D) All

Answer:A

Solution:Synthetic fibers (like polyester, nylon, acrylic) are made of polymers, which are long chains of repeating molecular units.

5. Polymer means

A)Many monomers B) Monomer C) Only dimer D) None

Answer:A

Solution:A polymer is a large molecule made up of many repeating monomer units bonded together.

6. Synthetic fibres are

A) Exhaustible B) In Exhaustible C) Non bio degradable D) Both A & C

Answer:D

Solution: synthetic fibers are indeed non-biodegradable, they are also exhaustible since their production depends on limited fossil fuels.

7. Nylon is made up of

A) Hexamethylenediamine B) Adipic acid C) Both A & B D) Citric acid

Answer:C

Solution:Nylon is a polyamide formed by the reaction of hexamethylenediamine and adipic acid.

8. Chemical units present in nylon

A) Polypeptidess B) Polyamides   C) Polyhalides D) Polyesters

Answer:B

Solution: Nylon contains amide linkages (–CONH–), classifying it as a polyamide.

9. If the yarn melts in the flame it is called

A) Synthetic fibre B) Cotton   C) Silk D) All

Answer:A

Solution: Synthetic fibers (like polyester, nylon) melt when burned, unlike natural fibers (cotton/silk) that burn or char.

10. Which of the following is used in making parachutes

A) Wool B) Nylon C) Polyethylene D) None

Answer:B

Solution:Nylon's high strength, elasticity, and lightweight properties make it ideal for parachutes.

11. Natural silk is obtained from

A) Silk worm B) Earth worms C) both A & B D) none

Answer:A

Solution:Silk is produced by the larvae of the silkworm (Bombyx mori).

12. Rayon is a ....

A) natural fibre B) Synthetic fibre C) Both A & B D) None

Answer:C

Solution:Rayon is not a natural fibre (like cotton or silk) because it is man-made using chemical processing of cellulose (from wood pulp).

However, it is also not fully synthetic (like nylon or polyester) because it is derived from natural raw materials.

It is classified as a "semi-synthetic" or "regenerated cellulose fibre", but in most standard classifications, it is grouped under synthetic fibres due to its artificial production process.

13. The first commercial production of artificial silk is

A) rayon B) Polyamide C) Polyester D) Polystyrene

Answer:A

Solution:Rayon was the first artificial silk, introduced in the late 19th century

14. The cellulose dissolves in chemicals added to it and gives a syrup

A) Viscose B) Starch C) Both A & B D) None

Answer:A

Solution: Viscose is the syrupy liquid formed when cellulose is dissolved in chemicals (e.g., $NaOH + CS_2$).

15. Rayon is a

A) Artificial silk B) Man made silk C) Both A & B D) None

Answer:C

Solution:Rayon mimics silk but is chemically manufactured, hence called artificial/man-made silk.

16. Which of the following is used in making of carpets

A) Rayon + wool B) Rayon + cotton C) nylon D) None

Answer:A

Solution:Rayon is a semi-synthetic fiber often blended with wool to create carpets

17. The process of the combining of synthetic fibre with 2 or more fibres is called

A) Fake fur B) Blending C) Acrylic D) None

Answer:B

Solution: Blending (e.g., polyester + cotton) improves fabric properties

18. All the winter wears now a days is made up of

A) Acrylic B) Polyester C) Plastic D) All

Answer:A

Solution:Acrylic is a synthetic wool substitute used in sweaters, scarves, etc.

19. Clothes made from Acrylic are relatively

A) More expensive B) Cheap C) Can'tsay D) Both A & B

Answer:B

Solution: Acrylic is affordable compared to natural wool.

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JEE ADVANCED LEVEL QUESTIONS
Multi Correct Answer Type
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20. Nylon fibre is a

A) Strong B) Elastic C) Light weight D) Absorb water

Answer:A,B,C

Solution: Nylon is known for its high strength, elasticity, and lightweight properties

21. Example for nylon materials

A) Tooth brush bristles B) Ropes C) Fishing nets D) Sarees & socks

Answer:A,B,C,D

Solution: Nylon is widely used in all these products due to its durability, flexibility, and resistance to wear.

22. Nylon is used in making of

A) swim suits B) Shere hosiery   C) umbrella cloth D) Car tyres
Answer:A,B,C,D
Solution:Hosiery Application: Nylon's strength and elasticity make it suitable for use in tights and stockings (hosiery).
Other Uses: While nylon is also used in swimwear, umbrella cloth, and car tires, its most common use for sheer hosiery is due to its strength and elasticity.

Assertion and Reason Type:

23. Assertion : Cotton is prefered as summer wears
Reason : Cotton absorbs moisture
Answer:A
Solution:Cotton absorbs sweat (moisture) and allows it to evaporate, providing comfort in hot weather.

24. Assertion : Most synthetoc fibres required very careful ironing becuase
Reason : Synthetic fibres react with iron
Answer:C
Solution:Assertion (True): Synthetic fibres (e.g., polyester, nylon) require low-heat ironing because they melt or deform at high temperatures.
Reason (False): Synthetic fibres do not chemically react with iron. The issue is their heat sensitivity, not a reaction.

Matching Type

25. 1) Polyester   a) Artificial string
    2) PET   b) Fishing nets
     3) Rayon   c) Code 1
     4) Nylon   d) Easily catches fire
A) 1-a 2-c 3-d 4-b B) 1-a 2-c 3-b 4-d
C) 1-d 2-c 3-A 4-b D) 1-c 2-a 3-d 4-b
Answer:C
Solution:
    1) Polyester   d) Easily catches fire
    2) PET   c) Code 1
     3) Rayon   a) Artificial string
     4) Nylon   b) Fishing nets

Comprehension Type

26. Polymer is made up of
A) dimer B) monomer C) trimer D) tetramer
Answer:B
Solution:Polymers are chains of repeating monomers.

27. The first fully synthetic fiber is

A) nylon B) Ryon   C) Polyester D) poly vinyl chloride

Answer:A

Solution:Nylon (invented in 1935) was the first fully synthetic fiber, meaning it had no natural raw materials.

28. Example for thermosetting polymers

A) bakelight B) nylon C) PVC D) polyester

Answer:A

Solution:Thermosetting polymers (e.g., bakelite) cannot be remolded once set. They are rigid and heat-resistant.

Nylon, polyester, and PVC are thermoplastics (can be reheated and reshaped).

LEARNERS TASK

JEE MAINS LEVEL QUESTIONS

1. Cotton is preffered as summer wear. Because

A) Its lustre is attractive   B) It absorbs moisture

C) It is shiny and can be coloured   D) It does not require any ironing

Answer:B

Solution:Cotton absorbs sweat (moisture) and allows it to evaporate, keeping the body cool in summer.

2. The process used to prepare rayon is

A) Habers process B) Viscose process C) Electrolysis D)Solvays process

Answer:B

Solution:Rayon is made by dissolving cellulose in $NaOH$ and CS_2 to form viscose, which is then extruded into fibers.

3. Which of the following fibres do not burn easily and shrink when burnt, forming bready residue

A) Silk B) Rayon C) Cotton D) Nylon

Answer:A

Solution:Silk burns slowly, self-extinguishes, and leaves a brittle, black bead (unlike cotton/rayon that burn readily or nylon that melts).

4. ....was the first artificial synthetic fibre synthesized by human being

A) Nylon B) Rayon C) polyster D) acrylic

Answer:B

Solution:Rayon (1890s) was the first man-made fiber (semi-synthetic).

(Note: Nylon was the first fully synthetic fiber, but rayon predates it.)

5. The most elastic synthetic fibre ....

A)Nylon B) Rayon C) polyster D) acrylic

Answer:A

Solution:Nylon has high elasticity, making it ideal for hosiery, ropes, and stretchable fabrics.

6. ....has tendency to absorb moisture

A) Nylon B) Rayon C) polyster D) acrylic

Answer:B

Solution:Rayon, derived from cellulose, absorbs moisture similarly to cotton. Synthetic fibers (nylon, polyester, acrylic) are hydrophobic.

7. The liquid obtained when a paper strip is dipped in NaOH followed by carbondisulphide

A) Nylon B) Rayon C) Cellulose D) acrylic

Answer:B

Solution:This process creates viscose, the liquid precursor to rayon.

8. Fibres synthesized by human beings are called.......

A) Jute fibre   B) Natural fibre   C) Synthetic fibre   D) None

Answer:C

Solution: Fibers synthesized by humans are called Synthetic fibre

9. Spandex is also known as ....

A) Nylon B) Rayon C) polyster D) Lycra

Answer:D

Solution:Spandex (brand name: Lycra) is highly elastic.

10. ....is also known as orlon

A) Nylon B) Rayon C) polyster D) acrylic

Answer:D

Solution:Orlon is a trade name for acrylic fiber.

11. Terrycot is a blended fibre made from

A) Nylon & Rayon B) Terrylene & cotton C) Terrylene & wool D) Terrylene & nylon

Answer:B

Solution:Terrycot = Terrylene (polyester) + cotton.

12. The synthetic fibre used for coating fabrics of cotton to make them water proof is

A) Nylon B) Rayon C) polyster D) Koroseal

Answer:D

Solution:Koroseal (PVC-based) is used for waterproof coatings.

13. Which of the following synthetic fibres resembles wool in texture

A) Nylon B) Acrylic C) polyster D) Koroseal

Answer:B

Solution:Acrylic fibers mimic wool's warmth and softness.

14. Terrycot and terrywool are a type of ....

A) Nylon   B) Rayon   C) polyester D) Koroseal

Answer:C

Solution:Terrycot = Polyester + cotton.

Terrywool = Polyester + wool.

JEE ADVANCED LEVEL QUESTIONS
Multi Correct Answer Type

15. Rayon is used to make

A) Bed sheets B) Swimsuits C) Carpets D) Shere hosiery

Answer:A,C

Solution:Rayon is commonly used for bed sheets, carpets, and upholstery due to its softness and draping quality.

16. Which type of clothes wear in winter

A) Cotton B) Silk C) Sweaters D) Blankets

Answer:C,D

Solution:Sweaters (made of wool or acrylic) are specifically designed winter clothing

Blankets (often wool or fleece) are essential winter wear for warmth

Cotton and silk are lightweight and not ideal for winter

17. Fake fur is made from

A) Coal B) Air C) Water D) Lime stone

Answer:A,B,C

Soution:Fake fur is primarily made from acrylic fibers

Acrylic is synthesized from:

• Coal (primary raw material)

• Air (source of nitrogen)

• Water (hydrogen/oxygen source)

Limestone is not used in acrylic production

18. Which of the following is correct

A) Syyntheric fibre are highly lustrous & Do not become yellow with age

B) Synthetic fibre can absorbs water or sweat

C) Synthetic fibre are non biodegradable

D) Synthetc fibres are less expensive than natural fibres

Answer:C,D

Solution:C) Correct - Most synthetics (polyester, nylon) don't decompose naturally

D) Correct - Synthetics are cheaper than cotton/silk/wool

A) Incorrect - Some synthetics yellow with age (e.g., white polyester)

B) Incorrect - Most synthetics are hydrophobic (don't absorb sweat well)

Assertion and Reason Type:

19 Assertion : Nylon threads are used to make fishing nets & climbing ropes

Reason : Nylon threads have high strength and elasticity

Answer:A

Solution:Assertion (True): Nylon is indeed used for fishing nets and climbing ropes.
Reason (True & Correct Explanation): These applications specifically exploit nylon's high tensile strength and elasticity (ability to stretch without breaking).

20. Assertion : Ropes made of nylon & polyester are commanly used in cranes &
 Elevators

Reason : Nylon and polyester have high elasticity & tensile strength

Answer:A

Solution:Assertion (True): These synthetic fibers are standard materials for load-bearing applications.
Reason (True & Correct Explanation): The exceptional tensile strength (resistance to breaking under tension) and elasticity of these polymers directly justify their use in safety-critical applications.

21. Assertion : Polyester is a lighter polymer

Reason : It is a super cooled liquid

Answer:C

Solution:Assertion (True): Polyester is relatively lightweight compared to many materials (density ~1.38 g/cm³).
Reason (False): Polyester is a solid polymer, not a supercooled liquid (a property of amorphous solids like glass). The weight of polyester stems from its molecular structure, not its physical state.

Matching Type

22. 1) Rayon + wool a) Bed sheet
2) Rayon + cotton b) Carpets
3) Nylon c) Parachutes
4) Acrylic d) Sweaters
A) 1-b 2-a 3-c 4-d B) 1-a 2-b 3-d 4-c
C) 1-d 2-a 3-c 4-b D) 1-d 2-c 3-B 4-a

Answer:A

Solution: 1) Rayon + wool   b) Carpets

2) Rayon + cotton   a) Bed sheet

3) Nylon   c) Parachutes

4) Acrylic   d) Sweaters

23. 1) Vinyl rubber a) Electrical switches

2) Polythene b) many monomers

3) Bakelite c) Disposable cups

4) Polystyrene d) Erasers

A) 1-a 2-c 3-d 4-b B) 1-d 2-b 3-a 4-c

C) 1-c 2-a 3-b 4-d D) 1-b 2-d 3-a 4-c

Answer:B

Solution:

1) Vinyl rubber   d) Erasers

2) Polythene   b) many monomers

3) Bakelite   a) Electrical switches

4) Polystyrene   c) Disposable cups

Comprehension Type

As a responsible citizen remember the 4R principle. Reduce, Reuse, Recycle, and Recover.Develop habits which are environment friendly.

24. The 4R principal includes?

A) reduce,recycle,recover,reuse.B) recycle,reduce,repeat,resend.

C) Both A & B.   D) None

Answer:A

Solution:4R principle-Reduce, Reuse, Recycle, Recover.

25. The material which get decomposed by microorganisms is called as.

A)Non biodegradable. B)Bio degradable   C) Decomposition D)None

Answer:B

Solution:Biodegradable = naturally decomposable.

26. The first fully synthtic fiber is?

A)Nylon B)Rayon

Answer:A

Solution:Nylon was fully synthetic; rayon is semi-synthetic

KEY

				TEACHING TASK					
				JEE MAINS LEVEL QUESTIONS					
1	2	3	4	5	6	7	8	9	10
D	B	C	A	A	D	C	B	A	B
11	12	13	14	15	16	17	18	19	
A	C	A	A	C	A	B	A	B	
				JEE ADVANCED LEVEL QUESTIONS					
20	21	22	23	24	25	26	27	28	
A,B,C	A,B,C,D	A,B,C,D	A	C	C	B	A	A	
				LEARNERS TASK					
				JEE MAINS LEVEL QUESTIONS					
1	2	3	4	5	6	7	8	9	10
B	B	A	B	A	B	B	C	D	D
11	12	13	14						
B	D	B	C						
				JEE ADVANCED LEVEL QUESTIONS					
15	16	17	18	19	20	21	22	23	24
A,C	C,D	A,B,C	C,D	A	A	C	A	B	A
25	26								
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