



CHEMISTRY

BOOKS - PEARSON IIT JEE

FOUNDATION

SYNTHETIC FIBRES AND PLASTICS

Solved Example

1. What do you understand by polymers?



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2. From the given fibres below, pick out the natural and animal fibres.

Wool, Silk, Camel hair, Angora, Cotton, Flax, Hemp, Jute



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3. What are natural and synthetic fibres? Also give examples for both



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4. Discuss if prolonged exposure of synthetic fibres is actually bad for human skin.



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5. Explain why cotton is known as natural fibre.



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6. What do you understand by the process of polymerization?



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7. State the characteristic difference between linear polymers and cross-linked polymers.



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8. How monomer units repeat themselves to form polymers? Explain with the help of an example.



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9. Explain why some fabrics are called synthetics.



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10. Why rayon is not considered a synthetic fibre?



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11. Why rayon is considered good for use in warm weather?



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12. Why rayon is called artificial silk?



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13. Why synthetic fibres are not suitable in hot climates and summer seasons?



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14. Explain why we need to be extra cautious while ironing synthetic clothes.



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15. Explain why nylon is called fully synthetic fibre.



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16. Nylon fibre is so strong that we can use it to make parachutes. Explain.



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17. Why synthetic fibres burn different from natural fibres?



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18. Why mothers always buy PET bottles and PET jars for storing rice and sugar?



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19. What do you understand by blended fibres?



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20. Discuss how rayon is different from synthetic fibres.



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21. Rana wants to buy shirts for summer. Should he buy cotton shirts or shirts made from synthetic material? Give reasons for your suggestion.





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22. Why is acrylic more popular than wool?



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23. Name the strongest synthetic fibres in the world.



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24. State true (T) or false (F).

Synthetic fibres are better suited for the winters than the summers. _____



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25. State true (T) or false (F).

Acrylic is warmer than pure wool _____



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26. State true (T) or false (F).

Ropes made of nylon have high tensile strength. _____



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27. State true (T) or false (F).

Terrycot is a type of acrylic fibre



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28. Why thermosetting plastics are harder than thermoplastics?



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29. Give some examples of thermosetting plastics.



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30. Discuss why melamine is a versatile material.



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31. Why plastics are used to store various kinds of materials including chemicals?



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32. What are the advantages of using a plastic container?



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33. Why plastics are never used for making utensils which used for cooking food on gas stoves?



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34. Why plastics are used to make the handles of cooking utensils and electric irons?



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35. How the uniforms of firemen are made flame resistant?



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36. Give examples to show that plastics are non-corrosive in nature.



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37. Describe an activity to show that thermoplastic is a poor conductor of electricity.



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38. Why teflon is used for making non-stick coating on cookwares?



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39. Why plastics are considered over metals in aircrafts and spacecrafts?



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40. What kind of pollution can plastic wastes lead to?



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41. What are the 4Rs of waste management?



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42. You have two garbage bins of different colours at your home. In which bin-the green

bin or the blue bin-will you dispose off plastic items?



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43. What are bioplastics? Also, give examples.



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44. What is biodegradable and non-biodegradable plastic?



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45. What is 4R principle ?



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46. Which country uses most plastic?



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47. Which state is the largest producer of plastic waste in India?



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48. What products are non-biodegradable?



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49. What is e-wastes ?



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50. How does plastic pose a serious threat to sewage disposal systems?



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51. What do you understand by bioplastics?



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52. Discuss the three colour distribution for dustbins suggested by government.



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Track Your Learning I

1. _____ is a fibre obtained from the husk of coconuts.

A. Jute

B. Cotton

C. Coir

D. Wool

Answer: C



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2. Silk is obtained from the _____ spun by silkworms.

A. Coccon

B. Husk of coconuts

C. Seed of worm

D. None of the above

Answer: A



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3. Synthetic fibres are made up of large molecules known as _____

- A. Polymers
- B. Monomers
- C. Petrochemicals
- D. Hydrocarbons

Answer: A



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4. The monomer of polythene is _____

A. Ethylene

B. Ethene

C. Ethane

D. Polyene

Answer: A



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5. _____ when burnt, gives the smell of burning paper.

A. Nylon

B. Rayon

C. Jute

D. Cotton

Answer: D



6. _____ materials are made by modifying raw materials such as coal and petroleum through chemical reactions to obtain new materials.

A. Man-made

B. Artificial

C. Natural

D. Both (a) and (b)

Answer: D



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7. _____ is made from fibres obtained from natural or artificial sources.

A. Cloth

B. Fabric

C. Yawn

D. Polyester

Answer: B



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8. _____ burn(s) with a yellow flame with a smell of burning hair.

- A. Silk and wool
- B. Cotton and rayon
- C. Nylon and polyester
- D. Acrylic

Answer: A



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9. Fabrics such as _____ does not catch fire easily, instead it melts.

A. Nylon and polyester

B. Silk and wool

C. Cotton and rayon

D. Acrylic

Answer: A



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10. _____, the most common plastic used by man, is a polymer made from a monomer called ethylene.

A. Ethylene

B. Polythene

C. Ethane

D. Methylene

Answer: B



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Track Your Learning li

1. Which of the following is an advantage of synthetic fibres over natural fibres?

- A. Durability
- B. Burns readily
- C. Non-biodegradable

D. Sensitivity

Answer: A



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2. _____ fibres are very strong so they are used for making parachutes and ropes for rock-climbing

A. Rayon

B. Nylon

C. Acrylic

D. Jute

Answer: B



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3. _____ is prepared by using wood pulp.

A. Rayon

B. Nylon

C. Acrylic

D. Jute

Answer: A



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4. _____ is a blended fibre, obtained by mixing polyester and cotton. Shirts made of polycot are more crease-resistant than shirts made from hundred per cent cotton.

A. Terrycot

B. Polycot

C. Terrywool

D. Terylene

Answer: B



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5. _____ , which is a terylene and wool blend, is also used as a substitute for woollen clothes.

A. Terrycot

B. Polycot

C. Terrywool

D. Terylene

Answer: C



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6. _____ is cheaper than silk and can be woven like silk fibres.

A. Nylon

B. Rayon

C. Polyester

D. Jute

Answer: B



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7. _____ is cheaper than wool and is easy to maintain but not as warm as wool.

A. Jute

B. Acrylic

C. Nylon

D. Polyester

Answer: B



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8. _____ was the first fully-synthetic fibre that was made using no natural materials.

A. Nylon

B. Rayon

C. Polyester

D. Acrylic

Answer: A



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9. _____ is made from a polymer that contains monomers of a chemical called ester.

A. Polyester

B. Acrylic

C. Nylon

D. Rayon

Answer: A



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10. _____ is a semi-synthetic fibre made from a naturally-occurring fibre called cellulose.

A. Rayon

B. Polyester

C. Nylon

D. Silk

Answer: A



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Track Your Learning

1. _____ is used for non-stick coating on cookwares.

A. Teflon

B. Polyester

C. PET

D. PVC

Answer: A



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2. _____ a kind of thermosetting plastic, is used for making electrical fittings.

A. Teflon

B. Bakelite

C. Polyester

D. PVC

Answer: B



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3. _____ is a plastic used for making electronic items.

A. Teflon

B. Bakelite

C. Polyester

D. Polystyrene

Answer: D



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4. _____ a thermoplastic, is used as a packaging material for food products and liquids such as milk.

A. Bakelite

B. Polyester

C. Polystyrene

D. Polythene

Answer: D



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5. _____ is used in electrical fittings, handles of utensils and crockery are made of thermosetting plastics.

A. Melamine

B. PVC

C. Polythene

D. Teflon

Answer: A



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6. Many plastics, such as _____ are poor conductors of both heat and electricity.

A. Melamine

B. PVC

C. Polythene

D. Bakelite

Answer: D



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7. Some plastics, such as _____ melt and burn easily when they come in contact with fire.

A. Polythene

B. Bakelite

C. Melamine

D. PVC

Answer: A



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8. _____ is a special material used for making microwave safe containers and bottles used for packaging mineral water and medicines.

A. Polythene

B. Bakelite

C. Melamine

D. PET

Answer: D



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9. _____ becomes soft when they are heated and harden on cooling.

A. Polythene

B. PVC

C. Bakelite

D. Thermoplastics

Answer: D



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10. _____ is used for making polythene bags.

A. Polythene

B. PVC

C. Bakelite

D. Thermoplastics

Answer: A



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1. _____ refers to the disposal of broken or obsolete electronic components and materials.

A. Biodegradable waste

B. Electronic waste

C. Non-biodegradable waste

D. Biowaste

Answer: B



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2. _____ are plastic materials produced from renewable biomass sources, such as vegetable fats and oils, corn starch, straw, woodchips, sawdust, recycled food waste.

- A. Biodegradable waste
- B. Electronic waste
- C. Non-biodegradable waste
- D. Bioplastics

Answer: D



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3. Since plastics are _____ we should always try to send them for recycling. This helps new items to be made from the plastics that we throw away.

A. Biodegradable waste

B. Electronic waste

C. Non-biodegradable

D. Both (a) and (b)

Answer: B



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4. _____ are used for collection of toxic waste.

A. Red-coloured bins

B. Green-coloured bins

C. Black-coloured bins

D. Blue-coloured bins

Answer: A



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5. The _____ is used to dump biodegradable waste, such as vegetable/fruit peels, egg shell, rotten eggs, chicken/fish bones, tea bags/coffee grinds, etc.

A. Red-coloured bins

B. Green-coloured bins

C. Black-coloured bins

D. Blue-coloured bins

Answer: B



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Hots Higher Order Thinking Skills

1. Is nylon fibre so strong, that we can use it to make parachutes?



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2. Why is melamine used for making kitchenware?



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3. Explain why plastic containers are favored for storing food.



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4. The characteristics of different fibres are listed as:

W: I am strong, elastic, light and burn slowly. I shrink on heating and form hard beads with smell of burning hair.

X: I burn completely leaving no residue.

Y: I can be woven like silk fibres and dyed in a wide variety of colours. I burn quickly with a smell of burning paper.

Z: I do not get wrinkled easily. I burn slowly and produce black smoke. W, X, Y, Z are respectively.

- A. Terylene, rayon, cotton and nylon
- B. Bakelite, nylon, rayon and cotton
- C. Melamine, PVC, nylon and rayon
- D. Nylon, cotton, rayon and polyester

Answer: D



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5. Read the given statements about synthetic fibres and plastics carefully.

I. Polycot is a mixture of two types of fibres,

polyester and cotton

II. Calendar, woollen clothes and cold drink cans are all non-biodegradable.

III. Uniforms of firemen have coating of nylon to make them flame resistant.

IV. Polythene and PVC are the examples of thermosetting plastics.

Which of these statements is/are incorrect?

A. II and IV

B. I and III

C. Only II

D. II, III and IV

Answer: D



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6. Read the following statements carefully.

P. I am extensively used in the healthcare industry, but my one disadvantage is that I am non-biodegradable.

Q. I am very familiar form of polyester and used for making bottles, utensils, films, wires,

etc.

R. I am synthetic fibre, having wool-like feel and cheaper than wool.

S. I am thermosetting plastics and poor conductor of heat and electricity. P, Q, R, and S are respectively

A. PET, rayon, petrochemical and plastics

B. Terylene, acrylic, rayon and melamine

C. PVC, PET, nylon, and Teflon

D. Plastic, PET, acrylic and bakelite

Answer: D



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Classroom Corner Very Short Answer Type
Questions Multiple Choice Questions

1. Which of the following is a man-made material?

A. Plastic

B. Synthetic fibres

C. Coir

D. Both (a) and (b)

Answer: D



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2. Which of these fibres melt away on heating?

A. Rayon

B. Silk

C. Cotton

D. Acrylic

Answer: D



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3. Which of these things is made of thermoplastic?

A. Polythene bag

B. Electric plug

C. Utensil handle

D. Electric switch

Answer: A



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4. What do the 4Rs stand for?

- A. Reduce, Reuse, Recycle and Replace
- B. Reduce, Reuse, Recycle and Recover
- C. Refuse, Reuse, Recycle and Replace
- D. Refuse, Reduce, Recycle and Recover

Answer: B



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5. Which of the following leaves a crushable black bead on burning?

A. Cotton

B. Silk

C. Nylon

D. Acrylic

Answer: B



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6. What should be the colour of the bin in which recyclable waste is thrown?

A. Red

B. Yellow

C. Blue

D. Green

Answer: D



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7. Identify the product based on the given features.

I. It is a man-made product.

II. It has a linear arrangement of monomer units.

III. It is used for making goods like toys, combs, containers, etc.

A. Lycra

B. Rayon

C. Thermosets

D. Thermoplastics

Answer: D



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8. _____ is the first fully synthetic fibre

A. Acrylic

B. Polyester

C. Nylon

D. Rayon

Answer: C



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9. A polymer is a large molecule composed of many repeated units. What is a polyester composed of?

A. Ether

B. Cellulose

C. Amino acids

D. Ester

Answer: D



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10. Which of the following material is a mixture of two fibres?

A. Jute

B. Polywool

C. Polyester

D. Nylon

Answer: B



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11. Identify the synthetic fibre which resembles wool.

A. Rayon

B. Terylene

C. Nylon

D. Acrylic

Answer: D



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12. One of the advantages of nylon over rayon is that nylon:

A. is wrinkle free.

B. has low elasticity

C. is a natural fibre.

D. is a good conductor of electricity.

Answer: A



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13. Firefighters' uniform is coated with a plastic that is fire resistant. Identify the plastic from the given options:

A. Teflon

B. Melamine

C. PET

D. Polyester

Answer: B



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14. Modern non-stick cookware and the flat end of an electric iron has a coating of a polymer. Identify the name of the polymer.

A. PVC

B. Rayon

C. Teflon

D. Polyester

Answer: C



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15. Select the correct option from the given statements.

A. Polymers cannot form fibres

B. Polymers can be both natural and synthetic

C. Polymer is a natural substance

D. Polymer is a synthetic substance

Answer: B



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16. Which of the following groups contain all synthetic substances?

A. Nylon, Terylene, Wool

B. Cotton, Polycot, Rayon

C. PVC, Polythene, Bakelite

D. Acrylic, Silk, Wool

Answer: C



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17. Pickles are stored in plastic bottles mainly because they are:

A. non-biodegradable

B. good insulators

C. durable

D. non-reactive

Answer: B



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18. PET is a familiar form of

A. chemical

B. monomer

C. polyester

D. polyphenyl

Answer: C



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19. Plastics are generally made from

A. coal

B. petroleum

C. plant products

D. kerosene

Answer: B



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20. The plastic used for making water pipes:

A. Melamine

B. PVC

C. Polyester

D. Bakelite

Answer: B



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Classroom Corner Very Short Answer Type Questions Comprehension Based Questions

1. Population explosion, coupled with improved lifestyle of people results in increased generation of solid wastes in urban as well as rural areas of the country. The solid waste from rural areas is more of a biodegradable nature and the same from urban areas contains more non-biodegradable components like plastics and packaging. The various initiatives taken by government, NGOs,

private companies, and local public has drastically brought awareness in the past few decades. There may be different types of waste such as domestic waste, factory waste, waste from oil factory, E-waste, construction waste, agricultural waste, food processing waste, bio-medical waste, nuclear waste, slaughter house waste, etc. Government of India has given colour codes to different types of waste. Read the questions below and try to answer the questions.

Give two examples of wet and dry waste.



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2. Population explosion, coupled with improved lifestyle of people results in increased generation of solid wastes in urban as well as rural areas of the country. The solid waste from rural areas is more of a biodegradable nature and the same from urban areas contains more non-biodegradable components like plastics and packaging. The various initiatives taken by government, NGOs, private companies, and local public has drastically brought awareness in the past few

decades. There may be different types of waste such as domestic waste, factory waste, waste from oil factory, E-waste, construction waste, agricultural waste, food processing waste, bio-medical waste, nuclear waste, slaughter house waste, etc. Government of India has given colour codes to different types of waste. Read the questions below and try to answer the questions.

What is hazardous waste?



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3. Population explosion, coupled with improved lifestyle of people results in increased generation of solid wastes in urban as well as rural areas of the country. The solid waste from rural areas is more of a biodegradable nature and the same from urban areas contains more non-biodegradable components like plastics and packaging. The various initiatives taken by government, NGOs, private companies, and local public has drastically brought awareness in the past few decades. There may be different types of waste such as domestic waste, factory waste, waste

from oil factory, E-waste, construction waste, agricultural waste, food processing waste, bio-medical waste, nuclear waste, slaughter house waste, etc. Government of India has given colour codes to different types of waste. Read the questions below and try to answer the questions.

Discuss 4 basic principles of solid waste management.



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4. Population explosion, coupled with improved lifestyle of people results in increased generation of solid wastes in urban as well as rural areas of the country. The solid waste from rural areas is more of a biodegradable nature and the same from urban areas contains more non-biodegradable components like plastics and packaging. The various initiatives taken by government, NGOs, private companies, and local public has drastically brought awareness in the past few decades. There may be different types of waste

such as domestic waste, factory waste, waste from oil factory, E-waste, construction waste, agricultural waste, food processing waste, bio-medical waste, nuclear waste, slaughter house waste, etc. Government of India has given colour codes to different types of waste. Read the questions below and try to answer the questions.

What types of waste are dumped into green and red coloured bin?



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5. Nylon is the first fully-synthetic fibre that was made using no natural materials. It is one of the most common synthetic fibres in use today. Nylon possesses many properties that make it a very useful fibres in many applications. It is very strong and elastic, easy to wash, and can usually be washed with similar items and does not typically require specialty laundering arrangements. Read the passage and try to answer the questions below.

Give examples which indicate that nylon fibres are very strong?



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6. Nylon is the first fully-synthetic fibre that was made using no natural materials. It is one of the most common synthetic fibres in use today. Nylon possesses many properties that make it a very useful fibres in many applications. It is very strong and elastic, easy to wash, and can usually be washed with similar items and does not typically require specialty laundering arrangements. Read the passage and try to answer the questions

below.

Explain why nylon is called first fully-synthetic fibre?



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7. Nylon is the first fully-synthetic fibre that was made using no natural materials. It is one of the most common synthetic fibres in use today. Nylon possesses many properties that make it a very useful fibres in many applications. It is very strong and elastic, easy

to wash, and can usually be washed with similar items and does not typically require specialty laundering arrangements. Read the passage and try to answer the questions below.

Give name of two articles made of nylon.



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8. Nylon is the first fully-synthetic fibre that was made using no natural materials. It is one of the most common synthetic fibres in use

today. Nylon possesses many properties that make it a very useful fibres in many applications. It is very strong and elastic, easy to wash, and can usually be washed with similar items and does not typically require specialty laundering arrangements. Read the passage and try to answer the questions below.

Name two basic raw materials from which nylon is made.



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Classroom Corner Very Short Answer Type Questions Subjective Type Questions

1. Name the strongest synthetic fibres present in the world.



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2. How many types of synthetic fibre available nowadays?



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3. Name the strongest natural material.



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4. Which is one of the cheapest natural fibre present in the market?



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5. Explain why nylon is called fully synthetic fibre.



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6. Explain from where does polyethylene actually come from.



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7. What is the most common source of synthetic fibre?



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8. Explain why is melamine used for making kitchenware.



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9. Explain why plastic containers are favoured for storing food.



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10. Why do synthetic fabrics soak less or more water than the natural fabrics?



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11. Explain why do synthetic fibres take less time to dry. Comment.



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12. Why does rayon absorb more water than other synthetic fibres?



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13. Is polypropylene a synthetic fibres? Justify your answer.



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14. Have you ever wondered how plastics are available in all the possible shapes and sizes?

Justify your answers.



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15. Explain why plastics are considered good substitutes for glass, metal and wood.



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16. Discuss why are the handles of utensils used for cooking and pliers used for cutting electrical wires made of plastic?



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17. Discuss the striking differences between thermoplastics and thermosetting plastics.



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18. Should the handle and the bristles of the tooth brush be made of the same material?

Explain why?



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**Classroom Corner Very Short Answer Type
Questions Assertion Reason Type Questions**

1. Assertion: PVC is used for making shoes, hand bags and raincoats

Reason: It is a thermosetting polymer.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C



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2. Assertion: Bakelite is used for making electric switches and plugs.

Reason: It is a thermosetting polymer and an insulator.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A



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3. Assertion: Acrylic fabrics are used in making socks and shawls.

Reason: Acrylic fabrics are replacement of wool.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A



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4. Assertion: Plastics are resistant to weather conditions.

Reason: Plastics are quite expensive and strong.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C



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5. Assertion: Teflon is used to coat non-stick cooking pans.

Reason: Teflon is polytetrafluoroethene.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B



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Classroom Corner Short Answer Type Questions

1. How do you think the production of synthetic fibres using raw materials such as petroleum could affect the environment adversely? Comment.



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2. The origin of a certain synthetic fibre is linked to World War II. Discuss which fibre it was and how it was used back then?



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3. Sukanya extracted some fibres that had properties as mentioned below and burned them. Her observations on burning the fibres are also listed.

	Properties	How it burned
Fabric 1	Synthetic fibre, looked like silk	Caught fire easily
Fabric 2	Natural fibre, warm and non-lustrous	Did not catch fire easily
Fabric 3	Synthetic fibre, similar to wool	Melted on heating

Complete the table given below with the name of each fibre Sukanya used and the kind of ash that would have been left behind after each had burned.

	Name of fibre	Ash
Fabric 1		
Fabric 2		
Fabric 3		



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4. What are natural materials? Give any two examples of objects made from natural materials.



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5. Name any three natural fibres. What are the different sources from which natural fibres are obtained?



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6. Explain why is rayon considered a semi-synthetic fibre.



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7. How can you identify a natural and synthetic fibre? Justify your answer.



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8. Discuss why polyester is considered a cancer causing fibre? Comment.



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9. What is the most common synthetic fibres?



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10. Why does synthetic fibres melt but natural fibres do burn? Discuss your answer.



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11. Explain how is nylon made. Comment



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12. Discuss the different characteristics and uses of nylon?



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13. Discuss why acrylic is considered non-safe to wear? Comment



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14. Justify how is polyester used in everyday life? Comment



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15. Explain what is polyethylene terephthalate used for.



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16. Is acrylic considered a natural fibre? Justify your answer.



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17. Give some uses of PET. Discuss in brief.



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18. Manufacturing synthetic fibres is actually a helping conservation of forests. Comment.





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19. Why is acrylic blended with wool? Justify your answer.



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20. Explain why the following are made of thermosetting plastics.

I. Saucepan handles

II. Electric plugs / switches/ switch boards



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21. Answer the below point:

What are the two types of plastics?



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22. Answer the below point:

Give any one example of thermosetting plastics.



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23. Answer the below point:

Name any one plastic that easily melts when heated.



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24. Answer the below point:

Name the plastic that is used for making mineral water bottles.



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25. Explain why is plastic considered an environmental hazard. Justify your answer.



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26. Discuss why is non-biodegradable waste harmful to the environment? Comment.



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27. What should you do with your electronic dis cards? Comment.



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28. Why synthetic fibres are not suitable in hot climates and summer seasons?



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29. Discuss the differences between thermoplastics and thermosetting plastics.



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Classroom Corner Long Answer Type Questions

1. The time that we are living in at present is sometimes called the plastic era. Do you think this is justified? Give reasons for your answer.



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2. Explain how the kinds of polymers used in thermoplastics and thermosetting plastics also determine their properties.



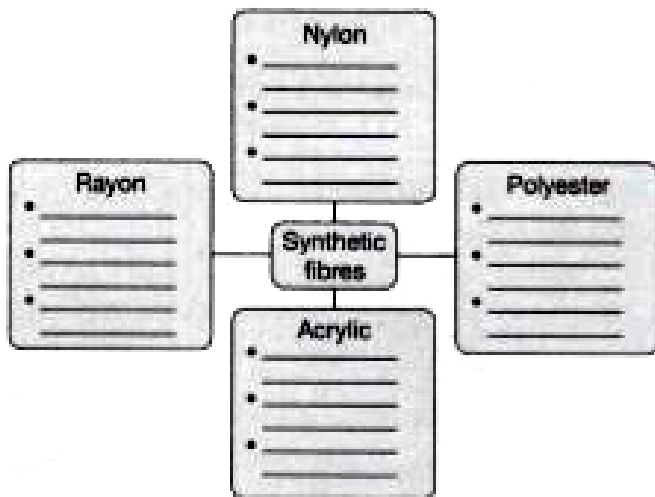
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3. In our homes, black-coloured garbage bags are used to dispose of waste. Is this a good practice? Suggest one way of managing waste, which you can implement at your home, to ensure better disposal.



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4. Fill the chart given below with characteristics of different synthetic fibres.



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5. Draw neat diagrams to show the difference between linear and cross-linked polymers.

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6. Write any two ways each in which you can reduce and reuse plastic items to minimize waste.



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7. State any four differences between the characteristics of natural and synthetic fibres.



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8. Mention any four uses of plastics in our daily life.



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9. What are blended fibres? Give two examples.
What is the advantage of using blended fibres?



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10. Discuss any two types of plastics and also give examples.



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11. How do plastics affect the environment?

Comment.



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12. Sort the objects listed below based on whether they are made of natural or man-made materials.

Clay pot	Nylon umbrella
Plastic bottle	Woollen chair
Woollen sweater	Stone table
Plastic spoon	Iron nail

Objects made of natural materials	Objects made of man-made materials

Name some more objects made of man-made materials based on your classification. Why do you think these materials are important?



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13. Collect small pieces of cloth made of different materials such as Cotton, Jute, Silk, Nylon and Polyester. Sort the cloth pieces into two groups Natural fabric and synthetic fabric

Why do you think fabrics present in the groups are different from each other?



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14. Collect small pieces of cloth made of different materials such as Cotton, Jute, Silk, Nylon and Polyester. Sort the cloth pieces into two groups Natural fabric and synthetic fabric Name the cheapest natural fibre from the given options.



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15. Collect small pieces of cloth made of different materials such as Cotton, Jute, Silk,

Nylon and Polyester. Sort the cloth pieces into two groups Natural fabric and synthetic fabric
Mention two uses of nylon.



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16. Collect small pieces of cloth made of different materials such as Cotton, Jute, Silk, Nylon and Polyester. Sort the cloth pieces into two groups Natural fabric and synthetic fabric
Give two properties of polyester



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17. Collect the following items-a candle, a pair of tongs, a matchbox and samples of cotton, rayon, silk, wool, nylon, polyester and acrylic cloth. Take out a thread from each fabric sample. One by one, hold one end of each thread using the tongs and burn the other end using a candle flame. Note how easily each fabric catches fire, the type of flame you see, the smell given off by the burning sample and the texture of the ash left behind. Record your observations in a table similar to the one

shown below.

Fibre	How easily it catches fire	Type of flame	Smell	Ash



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Competition Corner Choose The Correct Option

1. Why should plastic materials always be recycled?

A. They catch fire easily.

B. They are non-biodegradable

C. They break down into monomers easily

D. They absorb nutrients from the environment

Answer: B



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2. Which of these items are made using teflon due to its high tensile strength?

A. Non-stick pan

B. Plumbing pipe

C. Electrical switch

D. Microwave container

Answer: A



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3. Which of these synthetic fabric types consist of Dacron and Terylene?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: C



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4. Which of these objects is made of thermosetting plastic?

A. PET bottle

B. Garden hose

C. Polythene bag

D. Electrical switch

Answer: D



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5. What does PVC stand for?

A. Petroleum-vinyl chloride

B. Petroleum-vinyl coal

C. Polyvinyl chromium

D. Polyvinyl chloride

Answer: D



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6. Which of these was the first fully-synthetic fibre to be manufactured?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: B



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7. Why does one need to be extra cautious while ironing synthetic fibres?

A. They expand on heating

B. They melt very easily

C. They wrinkle easily

D. They get hardened

Answer: B



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8. Why are synthetic fibres not suitable for the summer season?

A. Do not absorb moisture

B. Highly inflammable

C. High density

D. Wrinkle easily

Answer: A



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9. Which of these is a disadvantage of synthetic fibres?

A. They are very glossy

B. They melt very easily

C. They easily crush.

D. They have a short life span.

Answer: B



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10. Which of these is an advantage of synthetic fibres?

A. Melt easily

B. Fire resistant

C. High tensile strength

D. They have good moisture-absorption capacity

Answer: C



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11. Why should polyester clothes be avoided in chemical laboratories?

A. They tear easily

B. They catch fire easily

C. They get stained easily.

D. They absorb high amounts of water

Answer: B



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12. Which of these monomers are combined to form polythene?

A. Ethane

B. Ethylene

C. Methane

D. Methylene

Answer: B



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13. Why is acrylic often used as a replacement for wool?

A. Does not catch fire

B. Cheaper than wool

C. Dries faster than wool

D. It absorbs more moisture than wool

Answer: B



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14. Which of these synthetic fibres is also known as artificial silk?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: D



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15. Which of these diseases can be caused by using synthetic fabrics?

A. Tonsillitis

B. Migraine

C. Skin cancer

D. Rheumatoid arthritis

Answer: C



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16. Which of these shrinks away from flame and burns with spluttering?

A. Acrylic

B. Cotton

C. Silk

D. Wool

Answer: A



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17. Which of these fibres smells like burning hair on heating?

A. Acrylic

B. Cotton

C. Rayon

D. Silk

Answer: D



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18. Which of these is an example of a blended fibre?

A. Acrylic

B. Polythene

C. Terrycot

D. Wool

Answer: C



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19. Which part of a coconut is used to obtain coir?

A. Flesh

B. Husk

C. Shell

D. Water

Answer: B



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20. Which of these fibres is made from cellulose?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: D



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21. Which of these synthetic fabrics is used in making awnings and boat sails?

A. Acrylic

B. Rayon

C. Terrycot

D. Thermoplastics

Answer: A



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22. Which of these is a man-made material?

A. Acrylic

B. Jute

C. Paper

D. Silk

Answer: A



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23. Which of these is made from a natural material?

A. Bottle

B. Bucket

C. Paper

D. Toothbrush

Answer: C



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24. Which of these is a thermoplastic material?

A. Styrene

B. Bakelite

C. Melamine

D. Polyvinyl chloride

Answer: D



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25. Which of these are modified to make synthetic fibres?

A. Coal and sodium

B. Coal and uranium

C. Coal and petroleum

D. Coal and aluminium

Answer: C



Watch Video Solution

26. Which of these fibres melt away on heating?

A. Acrylic

B. Cotton

C. Rayon

D. Silk

Answer: A



Watch Video Solution

27. Which of these is a man-made material?

A. Coir

B. Jute

C. Nylon

D. Wood

Answer: C



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28. Which of these is not a property of thermoplastics?

A. They are soft

B. They can be stretched easily

C. They are made of cross-linking polymers.

D. They can be remoulded into different shapes.

Answer: C



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29. Rohit used his old pen stands to make some flowerpots. Which principle of the 4 R's of waste management did he practice?

A. Recover

B. Recycle

C. Reduce

D. Reuse

Answer: D



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30. Waste objects made out of which of these materials should be processed to extract the raw materials present in them, to make new products?

A. Bakelite

B. PET

C. PVC

D. Teflon

Answer: A



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31. Which of these actions can directly lead to air pollution?

A. Burning plastic wastes

B. Dumping plastic wastes on land

C. Throwing plastic wastes in water

D. Clogging of drain pipes due to plastic wastes

Answer: A



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32. Which of these is a non-biodegradable material?

A. Wood

B. Plastics

C. Fruit peels

D. Dried leaves

Answer: B



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33. Polyvinyl chloride, a type of thermoplastic, can be used to

- A. Make milk packets
- B. Make water bottles
- C. Make plumbing pipes
- D. Make book covers

Answer: C



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34. A milk factory produces packets of milk every day. Which of these plastics must be used in this factory for packing purposes?

A. Bakelite

B. Polystyrene

C. Polythene

D. Teflon

Answer: C



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35. Which of these items would remain unaffected by air, water or other environmental factors, when stored for a long time?

A. Iron nail

B. Plastic car

C. Copper coin

D. Wooden box

Answer: B



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36. Which of these is an example of thermosetting plastics?

A. Teflon

B. Melamine

C. Polythene

D. Polyvinyl chloride

Answer: B



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37. Which of these things are made using thermoplastics?

A. Crockery

B. Garden hoses

C. Electric switches

D. Handles of utensils

Answer: B



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38. Why must we exercise caution while ironing synthetic clothes?

A. Because they can melt

B. Because they can absorb moisture

C. Because they can have a lot of wrinkles

D. Because they stretch and change in
shape

Answer: A



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39. Which of these characteristics of synthetic fibres is a disadvantage to us?

A. Cost

B. Elasticity

C. Tensile strength

D. High flammability

Answer: D



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40. I am a fibre you use to stay warm, I am half synthetic and half-natural by form, I was made by man, within me two are blended, and due to this process, their properties have been mended. Who am I?

A. Acrylic

B. Rayon

C. Terrywool

D. Nylon

Answer: C



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41. Which of these fibres is a mixture of two or more fibres?

A. Dacron

B. Polycot

C. Rayon

D. Terylene

Answer: B



42. Which of these four dresses should Payal avoid if she plans to burst crackers on Deepavali?

- A. Silk kurta
- B. Rayon salwar
- C. Acrylic t-shirt
- D. Polyester skirt

Answer: D



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43. Dacron and terylene are types of which synthetic fabric?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: C



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44. Clothes made out of which of these fabrics can be comfortably worn during winters, as an alternative to woollen clothes?

A. Acrylic

B. Nylon

C. Polyester

D. Silk

Answer: A



45. Apart from plastic, which other raw material is most important for Nakul's toothbrush manufacturing business?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: B





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46. A polymer consists of

A. Only one monomer molecule

B. Only one type of monomer, repeating
itself

C. Two types of monomers, repeating
themselves

D. A number of different monomers,
connected to each other

Answer: B



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47. A shirt made of which of these fibres can be worn comfortably on a hot summer day?

A. Acrylic

B. Nylon

C. Polyester

D. Rayon

Answer: D



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48. Which of these is a synthetic fibre that readily burns with a bright yellow flame?

A. Acrylic

B. Cotton

C. Nylon

D. Rayon

Answer: D



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49. Shalu observed a strong smell of burning hair during a fire accident in her bedroom. Which of these objects could the fire have started from?

A. Nylon rug

B. Silk curtains

C. Rayon towels

D. Cotton bedsheet

Answer: B



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50. Which of these is a natural fibre?

A. Acrylic

B. Coir

C. Polyester

D. Rayon

Answer: B



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51. Which of these items is made up of artificial materials?

A. Clay pot

B. Jute bag

C. Silk saree

D. Plastic toy

Answer: D



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52. _____ , a thermoplastic with a high melting point, is used for making the non-stick coating in cooking utensils.

A. Teflon

B. Bakelite

C. PVC

D. Polystyrene

Answer: A



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53. _____ was the first artificially made fibre, which is why it is also known as 'the laboratory's first gift to the loom.

A. Rayon

B. Nylon

C. Cotton

D. Silk

Answer: A



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