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Olympiads
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CREST Science Olympiad (CSO) **Worksheet** *for* **Class 8**



Topic

Synthetic Fibres and Plastics



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Worksheet on Synthetic Fibres and Plastics

1. Identify the following plastics:

X: I am a type of plastic that can be easily moulded and shaped upon heating. I am commonly used for making water bottles and food containers.

Y: I am a type of plastic that once moulded, cannot be softened by heating. I am used to make electrical switches and handles of utensils.

- a. X: Polyethylene, Y: Bakelite
- b. X: Melamine, Q: Melamine
- c. X: Polystyrene, Y: PET
- d. X: Polypropylene, Y: Polycarbonate

2. To compare the absorbency of different fabrics, a student conducted an experiment with 4 different types: cotton, rayon, polyester, and nylon. The student poured an equal amount of water on each fabric sample and measured the time it took for the water to be fully absorbed. The results are as follows:

Fabric	Rate of Absorption
Cotton	5 seconds
Rayon	10 seconds
Polyester	15 seconds
Nylon	20 seconds

Arrange the fabrics in ascending order of their absorbency:

- a. Rayon < Polyester < Cotton < Nylon
- b. Polyester < Rayon < Cotton < Nylon
- c. Nylon < Polyester < Rayon < Cotton
- d. Cotton < Rayon < Nylon < Polyester

3. Consider the following statements and choose the correct option:

Statement 1: Synthetic fibres are generally more durable than natural fibres.

Statement 2: Synthetic fibres can be easily degraded by bacteria and natural processes.

- a. Statement 1 is correct but statement 2 is incorrect.
- b. Statement 1 is incorrect but statement 2 is correct.
- c. Both statements are correct.
- d. Both statements are incorrect.

4. In the following question, you will find an assertion and a reason. Select the appropriate option that applies.

Assertion: Plastics are widely used in the healthcare industry for making various medical instruments.

Reason: Plastics are used in the healthcare industry because they are non-reactive, biodegradable and eco-friendly, making them suitable for medical instruments and equipment.

- a. Both the assertion and reason are correct, and the reason explains the assertion.
 - b. Both the assertion and reason are correct, but the reason does not explain the assertion.
 - c. The assertion is correct, but the reason is incorrect.
 - d. The assertion is incorrect, but the reason is correct.
5. In an experiment to compare the strength of different fibres, which fibre is expected to require the highest weight to break it?
- a. Nylon
 - b. Cotton
 - c. Rayon
 - d. Wool

Answer Key

- 1. a - Polyethylene is a thermoplastic that can be easily moulded and shaped upon heating, making it suitable for water bottles and food containers. Bakelite is a thermosetting plastic that once moulded, cannot be softened by heating, making it ideal for electrical switches and handles of utensils.
- 2. c - Nylon is the least absorbent, while Cotton is the most absorbent fabric among the four.
- 3. a - Statement 1 is correct as synthetic fibres are generally more durable than natural fibres due to their chemical composition and manufacturing process. However, statement 2 is incorrect because synthetic fibres are non-biodegradable and not easily degraded by bacteria or natural processes.
- 4. c - The assertion is correct as plastics are indeed widely used in the healthcare industry for making various medical instruments. However, the reason given is incorrect. Plastics are non-reactive and durable, but they are not biodegradable and eco-friendly, which contradicts the reason provided. Plastics are known for their non-biodegradable nature, which is one of the major environmental concerns associated with their use.
- 5. a - Nylon is expected to require the highest weight to break it among the given options. Nylon is known for its high strength and durability, making it one of the strongest synthetic fibres. On the other hand, cotton, rayon, and wool are natural fibres and are generally not as strong as nylon.

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