2. LIFE CYCLE OF SILK WORM (Solutions)

Teaching Task (Page 18 – 21)

Multiple Choice Questions

1) What is the primary food source for silkworms during their larval stage?
Answer: b) Mulberry leaves
Solution: Silkworms (Bombyx mori) primarily feed on mulberry leaves during their larval stage to grow and produce silk.

2) How long does it typically take for silkworm eggs to hatch?
Answer: c) 7-14 days
Solution: Silkworm eggs typically hatch into larvae within 7-14 days, depending on environmental conditions like temperature.

3) Which stage of the silkworm life cycle involves the formation of a protective cocoon?
Answer: c) Pupal stage
Solution: During the pupal stage, silkworms spin a protective cocoon around themselves to undergo metamorphosis.

4) What is the primary purpose of adult silkworm moths?
Answer: c) Mating and reproducing
Solution: Adult silkworm moths do not eat or build cocoons; their primary role is to mate and lay eggs for the next generation.

5) How long does the pupal stage of a silkworm typically last?
Answer: b) 2-3 weeks
Solution: The pupal stage, during which the silkworm is inside the cocoon undergoing metamorphosis, typically lasts 2-3 weeks.

6) What process is used to align wool fibers in the same direction?
Answer: c) Carding
Solution: Carding aligns wool fibers and removes remaining impurities, preparing them for spinning into yarn.

7) How is the quality of wool determined during sorting and grading?
Answer: b) By length and diameter of fibers
Solution: Wool quality is assessed based on fiber length, diameter, and other factors like cleanliness and color, but length and diameter are primary.

8) What is the primary purpose of dyeing in the wool production process?
Answer: c) To add color to the yarn
Solution: Dyeing is used to impart color to wool yarn or fabric, not to remove impurities or align fibers.

9) What is the characteristic texture of woolen fabric compared to other types of fabric?
Answer: b) Loose and bulky
Solution: Woolen fabric is known for its warmth, softness, and bulky texture, unlike smooth, thin, or stiff fabrics.

10) What is the purpose of weaving in the production of silk fabric?
Answer: d) To create fabric from silk thread
Solution: Weaving interlaces silk threads to produce fabric, unlike reeling or spinning, which prepare the threads.

Advanced Level

More than One Answer Type

11) What are the primary purposes of shearing sheep?
Answer: D) A and B
Solution: Shearing harvests wool (A) and promotes sheep health (B) by

preventing overheating and parasite buildup. It does not control population (C).

12) Which stages of the silkworm life cycle involve feeding?
Answer: B) Larval Stage
Solution: Only the larval stage involves feeding, as silkworms consume mulberry leaves. Eggs, pupae, and adult moths do not feed.

13) What processes are not involved in the finishing of silk fabric?
Answer: None (All are involved)
Solution: Washing, dyeing, and printing are all part of silk fabric finishing to enhance appearance and texture. The question may expect a different interpretation, but based on standard processes, all are involved.

Reason and Assertion Type

14) Reason: The pupal stage of silkworms involves the formation of a protective cocoon.
Assertion: Silkworms produce silk threads secreted from their salivary glands to form cocoons.
Answer: A) Both A and R are true, and R is the correct explanation of A.
Solution: The pupal stage involves cocoon formation (R), and the assertion explains that silkworms secrete silk from salivary glands to form these cocoons.

15) Reason: Sheep are typically sheared once a year to harvest wool.
Assertion: Shearing helps maintain the health of sheep and obtain their fleece for wool production.
Answer: A) Both A and R are true, and R is the correct explanation of A.
Solution: Shearing annually (R) harvests wool and maintains sheep health by preventing overheating and parasites, as stated in the assertion.

16) Reason: Quality control is crucial in both silk and wool production processes.
Assertion: Each stage of silk and wool production requires attention to detail to ensure the final product meets desired standards.
Answer: A) Both A and R are true, and R is the correct explanation of A.

Solution: Quality control (R) ensures high standards in silk and wool production, as detailed attention at each stage (A) is necessary for quality output.

Matrix Matching Type

17) Match the steps in the production of silk from silkworms with their descriptions:
Answer:
i) Silkworm Rearing – B. The process begins with the cultivation of silkworms (Bombyx mori) indoors in controlled environments.
ii) Cocoon Formation – D. The silkworms start to produce silk to form a protective cocoon around themselves, spinning the silk in a continuous thread.
iii) Harvesting the Cocoons – C. Once the cocoons are complete and the silkworms have stopped moving inside them, they are ready to be harvested.
iv) Spinning – A. Involves soaking the cocoons in hot water to soften the sericin and make the filaments easier to unwind.
Solution: Each step matches its description based on the silk production process: rearing involves cultivation, cocoon formation is silk spinning, harvesting occurs post-cocoon completion, and spinning (reeling) involves unwinding filaments.

Comprehension Type

18) The production of woolen fabric involves several meticulous steps... Questions:

i. **What is the purpose of sorting and grading wool after shearing?**
Answer: To assess and categorize wool based on fiber length, diameter, color, and cleanliness to ensure quality.
Solution: Sorting and grading evaluate wool quality to determine its suitability for different uses.

ii. **Why is scouring an essential step in the production of woolen fabric?**
Answer: To remove impurities like dirt, grease, and sweat from raw wool.
Solution: Scouring cleans wool, ensuring it is free of contaminants before further processing.

iii. **How does carding contribute to the wool production process?**
Answer: Carding aligns wool fibers and removes remaining impurities, preparing them for spinning.
Solution: Carding ensures fibers are uniform and clean, facilitating smooth yarn production.

LEARNERS TASK (Page 21 -23)

Multiple Choice Questions

1)Which substance is secreted by silkworms to form their cocoons?
Answer: c) Silk
Solution: Silkworms secrete silk (fibroin) from their salivary glands to form cocoons, with sericin acting as a binding agent.

2) How is the silk filament softened during the process of reeling the cocoons?
Answer: b) Boiling
Solution: Cocoons are boiled in hot water to soften sericin, allowing silk filaments to be unwound during reeling.

3) What is the primary material used for producing silk?
Answer: d) Silkworm cocoons
Solution: Silk is derived from the cocoons of silkworms (Bombyx mori), not synthetic materials like polyester or natural fibers like cotton.

4) What is the purpose of carding in the production of woolen fabric?
Answer: c) Aligning the wool fibers
Solution: Carding aligns wool fibers and removes impurities, preparing them for spinning into yarn.

5) Which stage of wool production involves washing the raw wool to remove impurities?
Answer: c) Scouring
Solution: Scouring washes raw wool to remove dirt, grease (lanolin), and sweat.

6) How often are sheep typically sheared to harvest their wool?
Answer: b) Once a year
Solution: Sheep are typically sheared annually to harvest wool and maintain their health.

7) What is lanolin?
Answer: c) Grease extracted from wool during processing
Solution: Lanolin is a natural grease in wool, removed during scouring and used in cosmetics.

8) Which stage of silk production involves the weaving of silk thread into fabric?
Answer: d) Weaving
Solution: Weaving interlaces silk threads to create fabric, following reeling and spinning.

9) How are the silk filaments reeled from the cocoons?
Answer: d) By machine
Solution: Modern silk production uses machines to reel silk filaments from boiled cocoons, though hand-reeling is traditional in some contexts.

10) Which of the following is NOT a type of silk fabric?
Answer: b) Wool
Solution: Chiffon, satin, and organza are silk fabrics; wool is a distinct fiber type.

Advanced Level

More than One Answer Type

11) What stages of silk production involve the formation of a cocoon?
Answer: A) Cocoon Formation
Solution: Cocoon formation is the specific stage where silkworms spin silk. Harvesting and reeling occur post-formation.

12) Which stages of the silkworm life cycle involve the consumption of mulberry leaves?
Answer: B) Larval Stage
Solution: Only the larval stage involves feeding on mulberry leaves; other stages do not involve consumption.

13) What are the main factors considered during the sorting and grading of wool?
Answer: D) All of the above
Solution: Fiber length, diameter, and color are all critical factors in sorting and grading wool for quality.

Reason and Assertion Type

14) Reason: The larval stage of silkworms is characterized by voracious eating.
Assertion: Silkworms consume large amounts of mulberry leaves during their larval stage.
Answer: A) Both A and R are true, and R is the correct explanation of A.
Solution: The larval stage involves heavy feeding (R), specifically on mulberry leaves, as stated in the assertion.

15) Reason: Silk fabric undergoes various finishing processes to achieve desired characteristics.
Assertion: Finishing processes may include washing, dyeing, and printing silk fabric.
Answer: A) Both A and R are true, and R is the correct explanation of A.
Solution: Finishing processes (R) like washing, dyeing, and printing enhance silk fabric's characteristics, as the assertion describes.

16) Reason: Wool fibers are carded to align them in the same direction.
Assertion: Carding helps remove impurities and separates wool fibers for easier spinning.
Answer: A) Both A and R are true, and R is the correct explanation of A.
Solution: Carding aligns fibers (R) and removes impurities, facilitating spinning, as the assertion explains.

Matrix Matching Type

17) Match the stages in the life cycle of a silkworm with their descriptions:
Answer:
i) Egg Stage – C. It all starts with the female silkworm moth laying eggs, which take about 7 to 14 days to hatch.
ii) Larval Stage (Silkworm Caterpillar) – D. Once the eggs hatch, they release larvae or caterpillars, which consume large amounts of mulberry leaves.
iii) Pupal Stage – A. This stage typically lasts around 2-3 weeks, during which the silkworm spins a protective cocoon.
iv) Adult Stage – B. During this stage, the silkworm moth emerges from the cocoon, having completed metamorphosis.
Solution: Each stage matches its description: eggs hatch in 7-14 days, larvae feed, pupae form cocoons, and adults emerge to mate.

Comprehension Type

18) The life cycle of a silkworm is a fascinating process...
Questions:

i. **What is the primary food source for silkworms during their larval stage?**
Answer: Mulberry leaves
Solution: The passage states silkworms consume mulberry leaves during the larval stage.

ii. **How long does the pupal stage of a silkworm typically last?**
Answer: 2-3 weeks
Solution: The passage implies the pupal stage, involving cocoon formation and metamorphosis, lasts about 2-3 weeks.

iii. **What is the purpose of the adult stage in the life cycle of a silkworm?**
Answer: To mate and reproduce
Solution: The passage notes that adult silkworm moths emerge to mate and reproduce.