CLASS 10 SCIENCE EXTRA QUESTIONS

Extra Questions (HOTS) Class 10 Science Chapter 7 – How do Organisms Reproduce?

Q1 (Compare/contrast). Distinguish between fragmentation (as in Spirogyra) and regeneration (as in Hydra/Planaria) — are they the same process?
Answer: No. Fragmentation is a mode of reproduction: a simple organism's body breaks into pieces that each grow into a whole new individual, and this is how the organism n...

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Q1 (Compare/contrast). Distinguish between fragmentation (as in Spirogyra) and regeneration (as in Hydra/Planaria) — are they the same process?
Answer: No. Fragmentation is a mode of reproduction: a simple organism's body breaks into pieces that each grow into a whole new individual, and this is how the organism normally multiplies. Regeneration is a repair capability: a piece cut off an organism like Hydra or Planaria can regrow into a complete new organism, but this happens only when the body is damaged/cut — it is not the organism's routine reproductive strategy. All organisms capable of fragmentation-based reproduction show regeneration ability, but regeneration ability alone (e.g. in higher animals that can regrow small parts) does not mean the organism reproduces by fragmentation. These Class 10 Science Chapter 7 important questions are handy for last-minute exam practice.

Q2 (HOTS — underlying mechanism). DNA copying during reproduction is never perfectly identical. Why is this actually essential rather than a flaw?
Answer: Small variations created during DNA copying are the raw material of evolution. A population that produced perfectly identical copies every generation would have no diversity to draw on if the environment changed — a single new disease or climate shift could wipe out the entire population at once. Because copying introduces small, heritable variations, some individuals in each generation are better suited to new conditions, and natural selection can act on that variation, letting the species adapt over time. So variation-through-imperfect-copying is what makes long-term survival of a species (not just of individuals) possible.

Q3 (Applied). Hibiscus flowers are bisexual while papaya flowers are unisexual. What does this mean for how each plant is pollinated?
Answer: A bisexual (hibiscus) flower carries both stamen and pistil in the same flower, so self-pollination within the same flower is structurally possible (though cross-pollination can still occur via pollinators). A unisexual (papaya) plant/flower carries only male or only female parts on a given flower, so pollen must physically travel from a male flower to a separate female flower — self-pollination within one flower is impossible, making the plant dependent on an external pollen-transfer agent (wind, insects) between separate flowers or even separate plants.

Q4 (Assertion-Reason). Assertion (A): Vegetative propagation produces offspring that are genetically identical to the parent.
Reason (R): Vegetative propagation is a form of asexual reproduction involving only one parent, with no fusion of gametes.
Answer: Both A and R are true, and R correctly explains A — since only one parent's cells are copied (mitotic division) with no mixing of DNA from a second parent, the offspring's DNA is a direct copy, hence genetically identical (barring rare mutation).

Part of the Class 10 Science Chapter 7 cluster: Solutions | Extra Questions (HOTS) | Revision Notes | Formulas Handbook | Class 10 Science book page.

Class 10 Science Chapter 7 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the Class 10 Science Chapter 7 Solutions and Class 10 Science Chapter 7 Revision Notes.