

Time : 2 Hrs.

Marks : 40

Q.1 A) Multiple choice Questions.

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- Which of the following is the correct observation while viewing onion roots tips cells in the metaphase of the cell cycle?
 - Cytokinesis begins
 - Chromosomes are arranged parallel to equatorial plane of the cell
 - Chromosomes are pulled apart to opposite poles
 - Spindle fibers disappear completely
- Select the necessary accessory sex gland NOT present in human male?
 - Seminal vesicle
 - Cowper's gland
 - Prostate gland
 - Bartholin's gland
- _____ prepares the 'Red list' that contains the names of endangered species from different countries.
 - IUCN
 - WWF
 - IPCC
 - UNEP
- Fish is _____ blooded animals.
 - Mix
 - Cold
 - Warm
 - None of the above
- Which of the following factor(s) is important while considering organ transplantation?
 - Blood group of the recipient
 - Disorder of the donor
 - Age of the donor
 - All of the above

B) Name the following.

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- Types of twins?
- The forest conserved in the name of god.
- Elements whose atoms are used for nuclear fission in nuclear power plant.
- Bacterial species which can decompose PET or plastic bottles.
- The method of illegally obtaining confidential information about government from internet with the help of computer programs and misusing it.

Q.2 A) Give scientific reasons. (Any 2)

4

- Forelimb of bat and flipper of whale have different functions but indicate common ancestry.
- Hydroelectric energy, solar energy and wind energy are called renewable energies.
- Human disasters increased after the World War-II.

B) Answer the Following. (Any 3)

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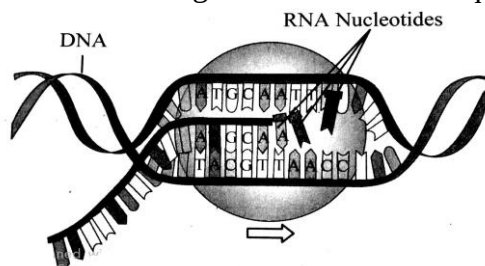
- What are the steps involved in fragmentation of Spirogyra?
- Match the following.

Column I	Column II
i) Pigeon	a) Mammalia
ii) Tortoise	b) Aves
iii) Kangaroo	c) Amphibia
iv) Petromyzon	d) Reptilia
	e) Cyclostomata

- Give uses of organic acids produced by given microbes in a tabular format.
Aspergillus niger, Lactobacillus delbrueckii, Aspergillus itaconius.
- Define stem cells? Mention two types of Stem cells.
- List the physical effects of various addictions on human.

Q.3 Answer the following. (Any 5)

- 1) Observe the diagram and answer the questions given below it.



- i) Identify the cellular process depicted in the diagram.
 - ii) Which enzyme is required for this process?
 - iii) In which part of the cell does this process occur?
- 2) Explain the concept of IVF.
 - 3) With the help of a flow chart, explain the working of a hydroelectric power plant.
 - 4) Explain in detail the characteristics of phylum Mollusca.
 - 5) Explain the process of Vinegar production.
 - 6) Explain the meaning of vaccination.
 - 7) What are the effects of television and video games on children?
 - 8) Write the objectives of disaster management?

Q.4 Answer the following. (Any 1)

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- 1) Cellular respiration is the oxidation of foodstuffs for the production of energy. During aerobic respiration, complete oxidation of glucose takes place. Contradictory to this, glucose is incompletely oxidized during anaerobic respiration. Many microbes are capable of surviving anaerobically in environments that lack oxygen. Anaerobic respiration occurs via two steps, namely glycolysis and fermentation. The pyruvic acid formed during glycolysis is converted to organic acids or alcohols during anaerobic process. Higher animals and plants, or seeds submerged in soil under water are capable of performing anaerobic respiration, when the oxygen levels are depleted. Even body cells like erythrocytes and muscle cells perform anaerobic respiration. Based on the given paragraph answer the questions given below.
 - a) Considering that only glycolysis is generating energy currency, how many ATP would be formed during anaerobic respiration?
 - b) How does anaerobic respiration occur in yeast?
 - c) Give any two example of products formed by fermentation.
 - d) Why do we feel tired after exercise?
 - e) Seeds sown in soil in marshy lands having high water content would perform which type of cellular respiration during germination?
- 2) Students were taken on a field trip to a national park. They were curious to observe the threatened wild species. They noted down their spotting and discussed the same observation with their teacher. A group of students observed lion tailed macaque and musk deer, but the other group could only spot Lesser florican. Based on the given paragraph answer the following questions.
 - a) Mention any two categories of threatened species.
 - b) The animal's lion tailed macaque and Lesser florican are classified under which category?
 - c) What must be the reason that these species are not commonly observed outside the national park?
 - d) Mention any two other examples of threatened species.
 - e) What would be the reasons would be the reason for decline in number of animal species?