

Time: 3 Hrs

Total Marks: 80

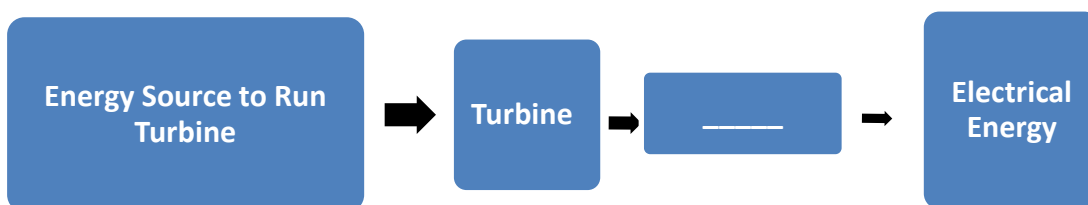
General Instructions:

- (i) The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.
- (ii) All questions are compulsory.
- (iii) Internal choice is given in sections B, C, D and E.
- (iv) Question numbers 1 and 2 in Section-A are one mark questions. They are to be answered in one word or in one sentence.
- (v) Question numbers 3 to 5 in Section- B are two marks questions. These are to be answered in about 30 words each.
- (vi) Question numbers 6 to 15 in Section-C are three marks questions. These are to be answered in about 50 words each.
- (vii) Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.
- (viii) Question numbers 22 to 27 in Section- E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

SECTION – A

1. Mention any one difference between pseudocoelomates and eucoelomates. [1]

2. Complete the process flow to generate electricity based on the principle of electromagnetic induction. [1]

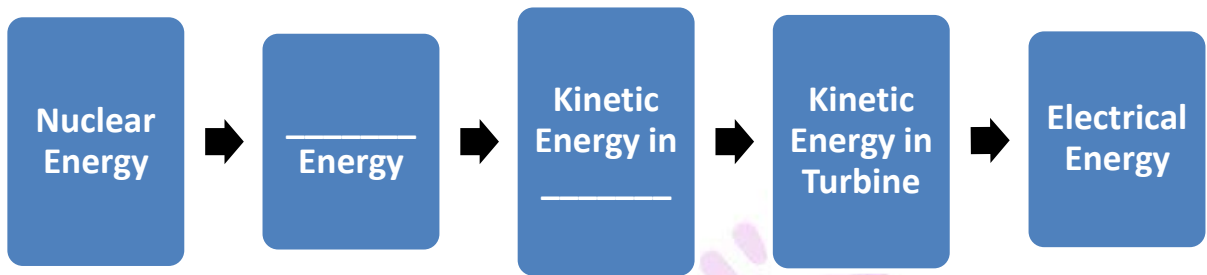


SECTION – B

3. [2]
 - a. During the process of translation in protein synthesis, mRNA carries the _____ and tRNA carries the _____.

b. What is mutation and give one example of a disease caused due to genetic mutation?

4. [2]
- a. Mention two elements that are used as fuel in a nuclear reactor for the production of electricity in a nuclear plant.
- b. Complete the following process which describes the conversion of energy from one form to another during the production of electricity in a nuclear power plant.



5. [2]
- a. Mention any two sources of adult stem cell.
- b. Stem cell therapy is an advanced therapy that can be used to regenerate blood cells in blood-related conditions like _____ and _____.

OR

Fill in the blanks by interlinking the artificially-produced proteins using biotechnology with the diseases that they treat. (Dwarfism, Factor VIII, Interleukin, Anaemia)

- a. Erythropoietin: _____; _____: Haemophilia
- b. Somatostatin: _____; _____: Cancer

SECTION – C

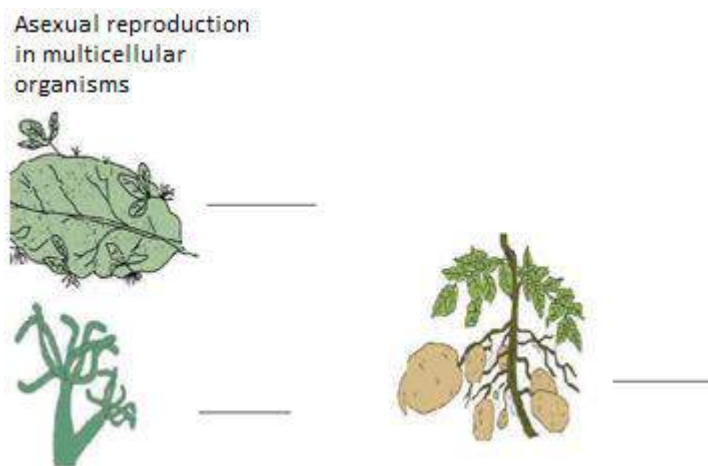
6. Write a short note on Blue Revolution undertaken by the Government of India. [3]

7. Mention the physical and psychological problems that arise in children due to constant use of cell phones. [3]

OR

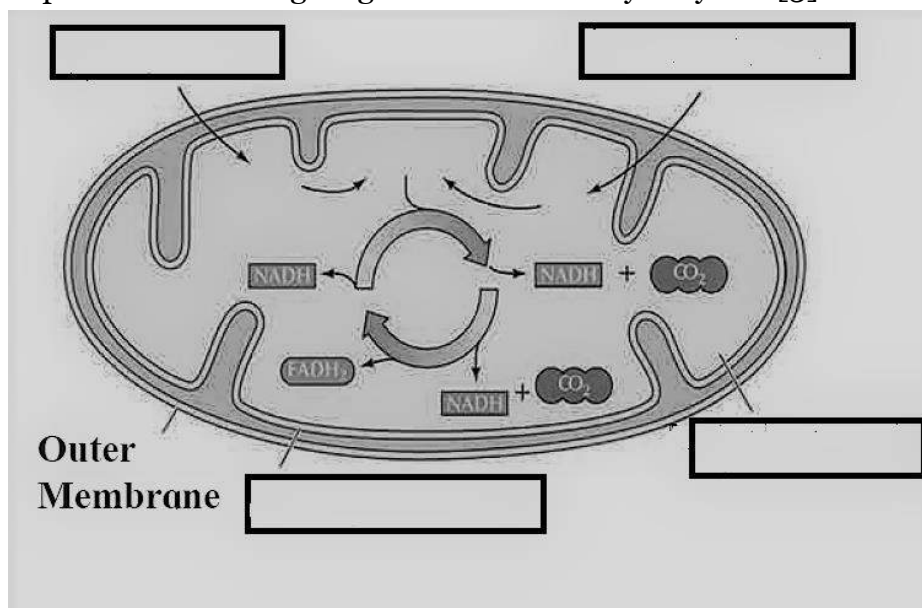
Mention the role of hormones in menstrual cycle.

8. Draw and name the sequence of cell division in meiosis part 1. [3]
9. Mention and explain any three Acts enacted by the Indian Government in order to protect environment. [3]
10. Mention any three methods to prevent cyber-crime. [3]
11. [3]
- Explain any one method of asexual reproduction with examples.
 - In the figure given below, identify the type of asexual reproduction that takes place and also name the species accordingly.



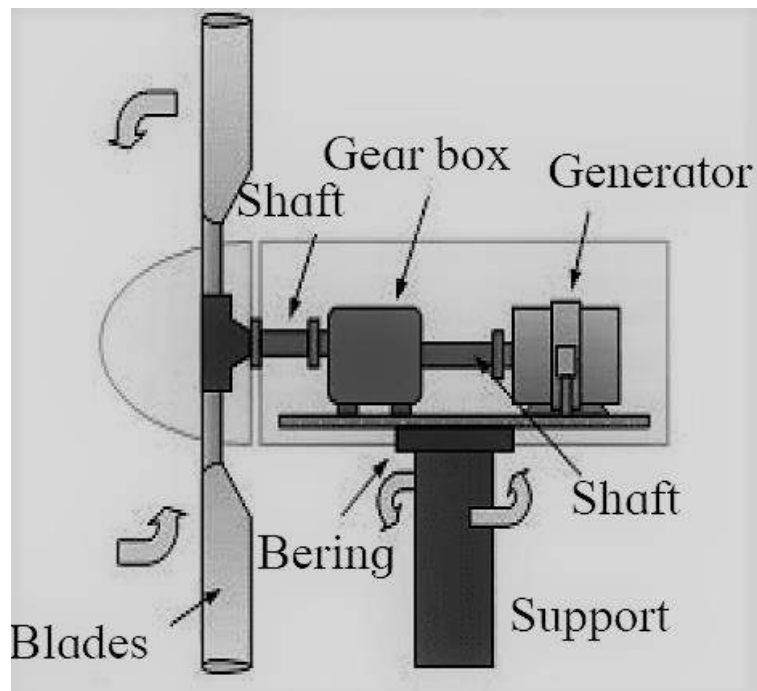
12. What is biodiversity? What are different levels of biodiversity? State 4 measures to conserve biodiversity. [3]

13. Label and explain the following diagram of Tri-carboxylic cycle. [3]



OR

Answer the questions based on the following diagram.

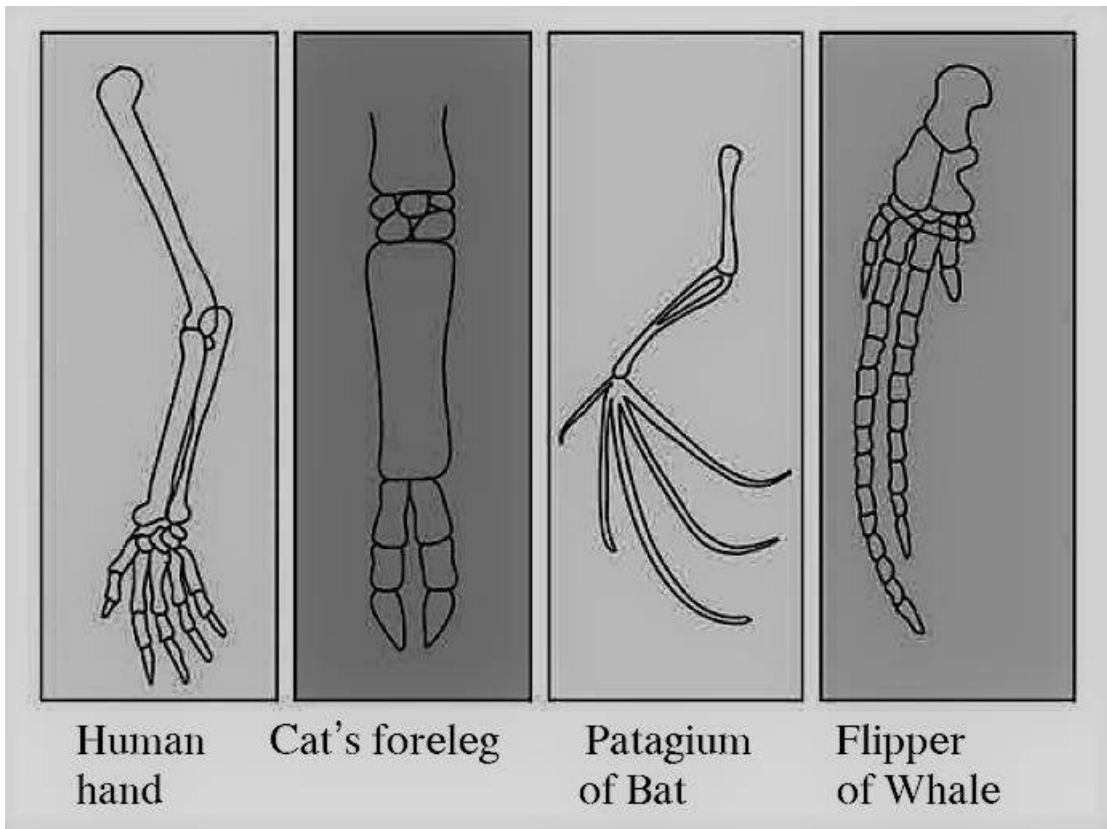


- a. Which energy is produced?
- b. How does it work?
- c. Why is it a renewable source of energy?

14. Complete the following chart of production of beverages. [3]

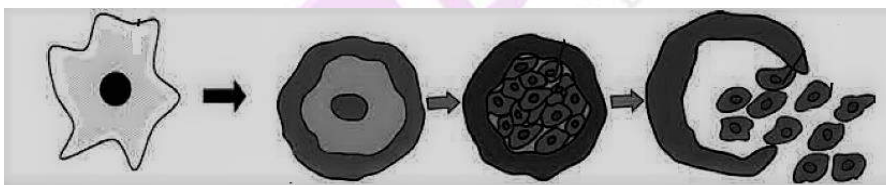
S. No	Fruit	Microbe used	Role of microbe	Name of beverage
1	Caffea arabica	_____	Separating Seeds from Fruit	Coffee
2	Theobroma cacao	Candida, Hansenula, Pichia, Saccharomyces	Separating Seeds from Fruit	_____
3	Grapes	_____	Fermentation of Juice	_____
4	Apple	_____	Fermentation of Juice	_____

15. Name two evidences of evolution. What does the following figure indicate? What inference can be drawn from the explanation of the figure? [3]



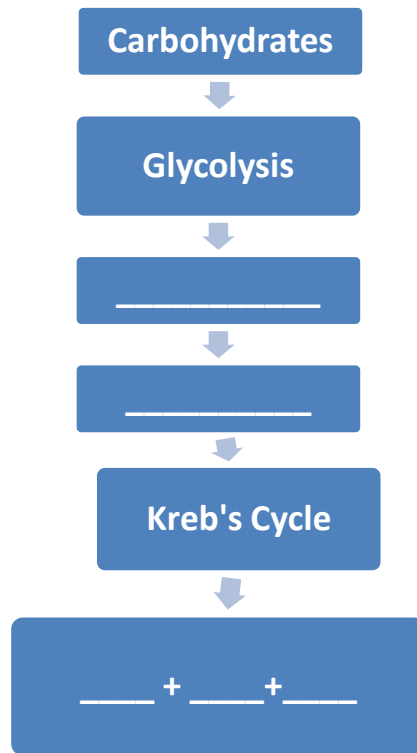
OR

What does the following figure indicate? Which creature adopts this method of reproduction? Explain the process.



SECTION – D

16. [5]
- a. What is aerobic respiration, mention and explain briefly the three steps involved in aerobic respiration?
 - b. Complete the missing elements in the flow of products formed during oxidation of carbohydrates through aerobic respiration.



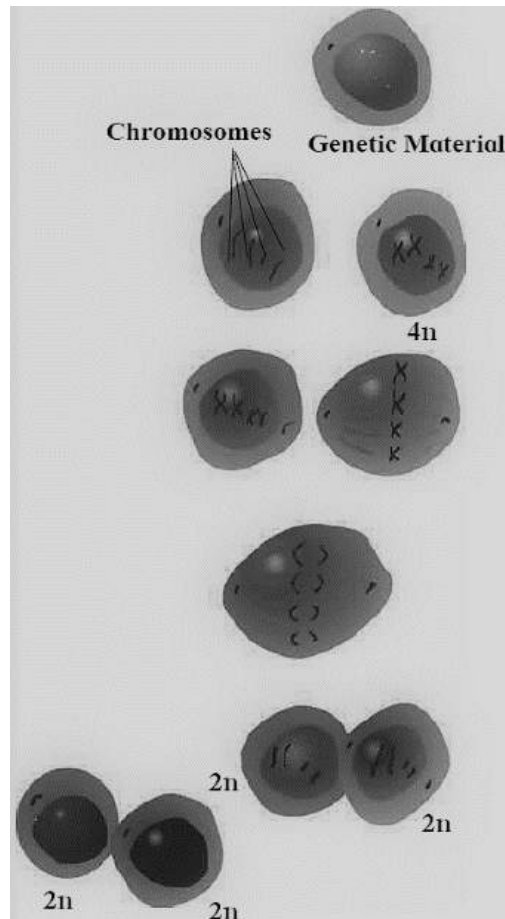
17. [5]

- a. Draw a schematic representation of a solar photovoltaic station.
- b. Explain the energy conversion that takes place in a photovoltaic cell.

18. Answer the following questions. [5]

- a. Draw and label the working of the modern landfill site and explain following questions.
- b. How are the landfill sites formed?
- c. Explain the functioning of the landfill site.
- d. How are these landfill sites useful?

19. Observe the following figure, label it neatly and answer the questions. [5]



- What are the types of cell division?
- Which type is described in the figure?
- Which type of cells divide by this type?
- What are the different steps involved in this process?
- Why is this type of cell division necessary?

20. [5]

- Which properties of metal helps in molding it into different shapes?
- What is the natural form of copper? How it can be converted to copper?

21. Can we group elements based on their physical properties alone? If not, explain with examples. [5]

SECTION – E

22. Take Calcium Carbonate in a beaker. Add water to it. When you touch the external portion of the beaker, what do you feel? [2]

23. What happens when external heat energy is applied to Silver Bromide? What type of reaction does it represent? [2]

24. Take Sodium sulphate in a beaker and Barium chloride in another beaker. Make aqueous solution of both the elements. What will happen when you mix both the solutions? [2]
25. Take a ribbon of Magnesium of length 3-4 cm. Rub it with Sandpaper and then burn it using candle. What is the observation? [2]
26. Rani while working in kitchen mistakenly took a hot pot unknowingly. What happens if Rani's body took this situation as a normal action than reflex action? [2]
27. Take a plant of Jasmine. Take one of the branches and cut the leaves of it and with the help of knife, remove the outer layer of the stem of the branch and fold it. Now sow the folded portion under the earth. What will you observe after a month? What is this process called? [2]

