

## मंगलाबाई भागवत फाऊंडेशन

**Time :2 hours**

## Science and Technology – Part II

**Marks:40**

**Q.1. (A) Choose the correct alternative.**

(5)

- i. Which of the following actions are rational ?
  - a) Taking selfie on a crowded road.
  - b) Using mobile phone while eating.
  - c) Spending hours on mobile phone.
  - d) Helping elders to cross a road.
- ii. In ..... stage of mitosis, the daughter chromosomes appear like bunch of bananas.
  - a. Prophase
  - b. Anaphase
  - c. Metaphase
  - d. Telophase
- iii. Which of the following animal can regenerate its broken part ?
  - a) Cockroach      b) Frog      c) Sparrow      d) Starfish
- iv. The disaster management act was passed in India in the year.....
  - a) 2002      b) 2004      c) 2005      d) 2007
- v. Rifamycin is effective against.....
  - a. Cholera                                  b. Typhoid
  - c. Diarrhoea                                d. Tuberculosis

**(B) Answer the following questions.**

(5)

- i. Find the odd one out.  
Lactobacilli, Rhizobium, Clostridium, Yeast
- ii. Name the following.  
The device which converts DC Solar power to AC power.
- iii. Write the co-relation.  
Tiger : Vulnerable : Giant Squirrel : .....

**iv. Match the columns :**

**“A”**

- i) Natural Gas

**“B”**

1. Wind Energy
2. Fossil Fuel
3. Atomic Energy

**v) State whether the following statement is True/False.**

Dizygotic twins are formed from the single embryo.

**Q.2. (A) Give scientific reasons. (Any two) (4)**

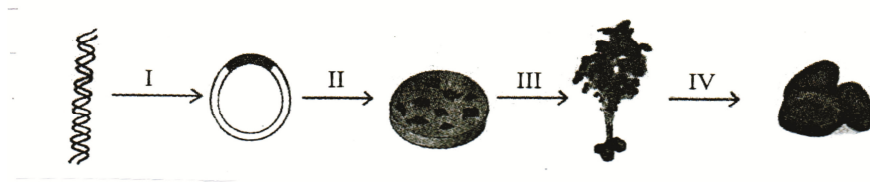
- i) Sometimes higher plants and animals too perform anaerobic respiration.
- ii) Mock drill is useful.
- iii) Enzymes obtained by microbial process are mixed with detergents.

**(B) Answer the following question. (Any three) (6)**

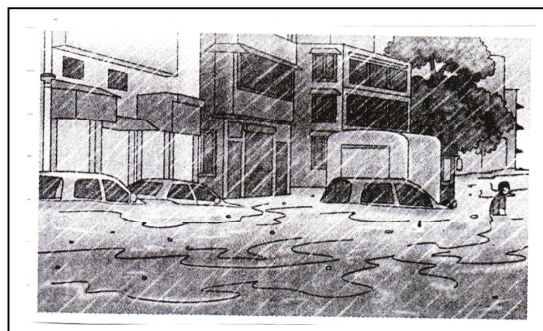
- i. Distinguish between conventional and non-conventional sources of energy.
- ii. Are the gametes diploid or haploid ? Why ?
- iii. Explain the process of fertilization ?
- iv. List four important characteristics of phylum Platyhelminthes.
- v. What is meant by cloning ? Explain its types.

**Q.3. Answer the following questions. (Any five) (15)**

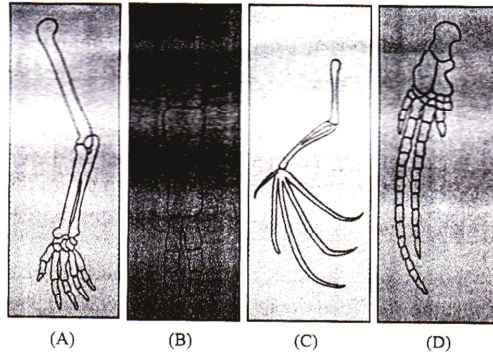
- i) Draw a heat labelled diagram of Hydra and Classify it.



- a) Identify the process given in the above figure.
- b) Briefly describe each of these steps.
- c) Write the importance of above process.
- III) Explain four ways to minimize stress.
- iv) How will be your pre-disaster and post disaster management in case you face this disaster ?



v) Observe the figure answer the questions ?

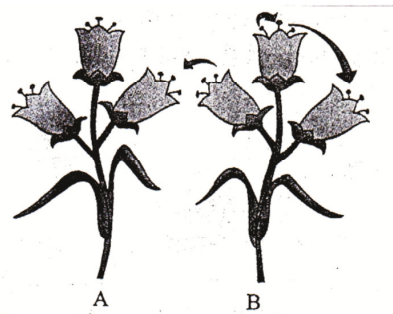


a) Identify the type of evidence.

b) Find A,B,C and D

vi) What do we learn from the story of Jadav Molai Payang ?

vii) Draw the chart of energy production to show complete oxidation of carbohydrates, fats and proteins.



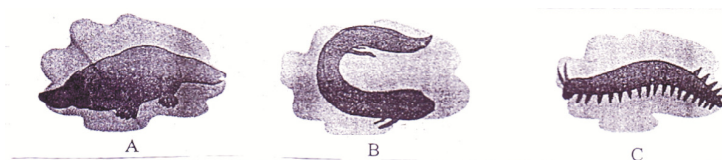
a) What does A and B represent ?

b) Define A and B process.

**Q.4. Answer the following questions. (Any one)**

**(5)**

i) Write the answers to the questions by observing the figure below.



a) Identify the animals shown in the above figure.

b) Which evolutionary evidence is illustrated by this figure.

c) Write the definition of the evidence for evolution.

**ii) Read the following paragraph and write the answers to the questions below.**

Sulphuric acid is present in the acid rain and materials coming out of mines. You know that erosion of metals present in statues, bridges and buildings occurs due to it. Sulphuric acid is a source of energy for some species of bacteria like Acidophilus, SPP and Acid bacillus ferrooxidans. Hence, these bacteria can control the soil pollution occurring due to acid rain. Water soluble salts of uranium are present in the wastes produced during electro plating and in effluent released in the environment from the atomic energy plant. Geobacter convert these salts of uranium into insoluble salts and thereby prevent those salts from mixing with ground water sources.

- a) What causes metal erosion in statues bridges and buildings ?
- b) Sulphuric acid is the source of energy for which bacteria ?
- c) What kind of pollution do these bacteria control ?
- d) What are the water soluble salts in nuclear power plants and in the process of electrolysis ?
- e) Which bacteria prevent these salts from mixing with groundwater by converting them into insoluble salts ?

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