

**Note :** 1. All questions are compulsory.

2. Wherever necessary scientifically correct diagrams and correct labelling should drawn.
3. The numbers to the right of the questions indicate full marks.
4. The answer to every MCQ should be written as shown - Example 1) A. There is no need to write the entire sentence or the words from the option chosen.
5. Answer should be written in blue or black ink.

**Q.1. (A) Choose the correct answer and write the letter of the alphabet of it : 5**

- 1) We get ..... energy per gram of carbohydrates.  
A) 4 Kcal B) 8 Kcal C) 16 Kcal D) 40 Kcal
- 2) During fermentation, ..... sugar of the milk is converted into lactic acid.  
A) glucose B) fructose C) sucrose D) lactose
- 3) Paddy fields are frequently attacked by ..... insect.  
A) bees B) grasshoppers C) locusts D) beetles
- 4) Length of the sperm is about ..... micrometres.  
A) 5 B) 100 C) 60 D) 600
- 5) Presently only ..... of earth's surface comprises of hotspots of biodiversity.  
A) 4.2% B) 2.4% C) 2.3% D) 3.2%

**B) Answer the following : 5**

1) Match the following :

**Column A**

- 1) Morphological evidences
- 2) Paleontological evidences

**Column B**

- a) Tail-bone or wisdom teeth
- b) Leaf venation
- c) Fossils

2) Find an odd one out :

Prostate glands, Bartholin glands, Cowper's gland, Seminal vesicle

3) Complete the analogy :

Insulin : Diabetes :: Interleukin : .....

4) Name the following :

Radical symmetric animal having ability of regeneration -

- 5) State whether the following statement is True or False.  
We obtain fibers from leafy vegetables, fruits and cereals, etc.

**Q. 2 (A) Give scientific reason : (any TWO)**

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- 1) It is absolutely necessary to control the fission reaction in nuclear power plants.
- 2) Fibers are one of the important nutrients.
- 3) Use of mutant strains has been increased in industrial microbiology.

**Q. 2 (B) Answer the following : (any THREE)**

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- 1) Write practical uses of biotechnology.

Sr. No.	Field	Uses
A	Crop Biotechnology	
B	Hybrid seeds	

- 2) Write any four harmful effects of consumption of alcoholic drinks on human body.
- 3) What is the use of antibiotics to human and other animals?
- 4) Which precautions will you take during spraying of pesticides?
- 5) Explain the following symbol :



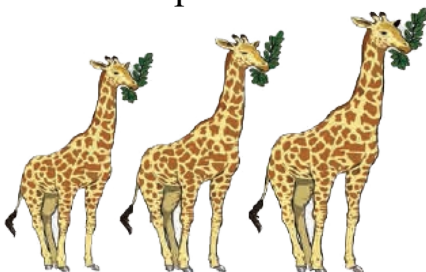
**Q. 3 Answer the following : (any FIVE)**

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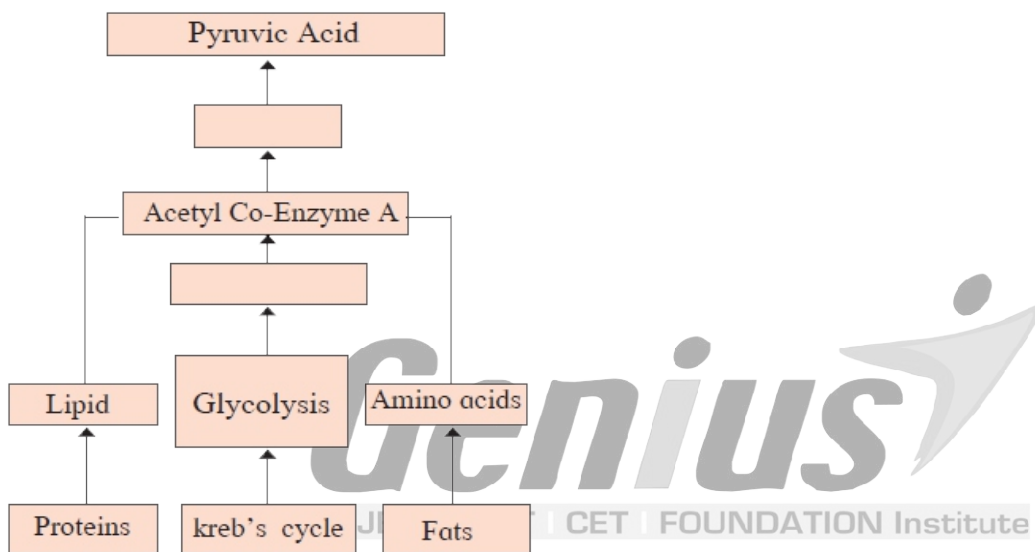
- 1) Answer the following questions :
  - a) What is likely to happen when children watch too much of cartoon films?
  - b) What is the effect of playing games like virtual war or car race?
  - c) Give two negative effects of computer or mobile games that you know.
- 2) How will you justify that overcoming the pollution is a powerful way of environmental management?
- 3) What are the meanings of following symbols? Write your role accordingly?



- 4) Observe the picture and answer the following questions.



- a) The given picture indicates which principle?
  - b) Explain that principle in your language.
  - c) What is the meaning of acquired characteristics?
- 5) What is first aid kit? Name the things present in first-aid kit.
- 6) Complete the paragraph with the help of words given in the bracket :  
 (Luteinizing hormone, endometrium of uterus, follicle stimulating hormone, estrogen, progesterone, corpus luteum)  
 Growth of follicles present in the ovary occurs under the effect of ..... This follicle secretes estrogen. .... grows / regenerates under the effect of estrogen. Under the effect of ....., fully grown up follicle bursts, ovulation occurs and ..... is formed from remaining part of follicle. It secretes ..... under the effect of these hormones, glands of ..... are activated and it becomes ready for implantation.
- 7) Correct the diagram given below.



- 8) Answer the following sub-questions.
- a) What are probiotic?
  - b) What are the uses of microbes resent in probiotics?
  - c) Name the probiotic foodstuffs.

**Q. 4 Answer the following : (any ONE)**

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- 1) Answer the questions based on the given paragraph.

**Lady Bug Beetle**

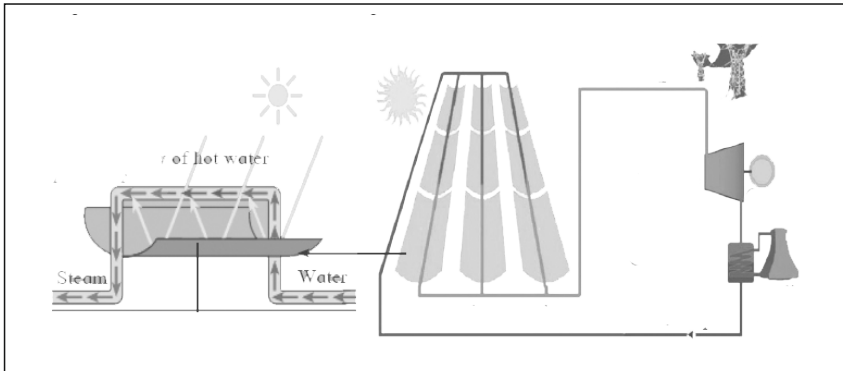
Lady bug beetles are friends of farmers as they destroy harmful insects. It is a predatory insect, which lives on biting worm, white fly worm, white moth, flower insects and bread worms. It acts as a natural insecticide for crops like maize, jawar, cotton, sugarcane, cereals, vegetables, fruit trees, etc. These are attractive red or yellow or gray colored insects. Many species of this insect are found in our farms. The lifecycle of this insect follows eggs, larvae, cocoon & moth stages. The eggs are found in flutter. The larvae are gray in colour. Larvae & adults both live on sucking insects.

**Questions :**

- a) How does the lady bug beetle live?

- b) Of which colour the lady bug beetles are?
- c) State the stages of its lifecycle.
- d) How does it help the farmers?
- e) Who live on sucking insects?

2) Observe the figure and label it properly and answer the following questions :



**Questions :**

- a) What is the figure related to ?
- b) Why are reflectors used ?
- c) Draw a flow chart showing different stages in such process.
- d) How is the process used to generate electricity?
- e) What other method can be used to generate electricity using same energy source ?

