

Maharashtra State Board
Class X Science and Technology Part-II
Model Answer Paper Set-2

Que1 A) Attempt the following.

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- i. Survival of fittest : Darwin :: Acquired characters :

Answer: Lamarck

- ii. Why the bryophytes are called as amphibians of kingdom plantae?

Ans: Bryophytes grow on the moist soil but need water for sexual reproduction. Hence, they are called as amphibians of kingdom plantae.

- iii. Identify the odd. Stigma, Style, Pollen, Ovary.

Ans: Pollen (Remaining are parts of gynaecium)

- iv. What are stem cells?

Ans: Stem cells- Such cells in the body of multicellular animals, which give rise to other various types of cells are stem cells.

- v. State whether true or false– Flow of nutrients in an ecosystem is unidirectional.

Ans: Statement is wrong.

Que 1. B) Write the correct option from the given multiple options to each question. 5

- i. We getenergy from carbohydrates.

a) 9 kcal / gm b) 9 cal / gm c) 4cal / gm d) 4 kcal / gm

Ans: d) 4Kcal/gm

- ii. Which of the following is not the source of green energy?

a) Wind. b) Natural gas. c) Sunlight. d) Fossil fuel.

Ans: d) Fossil fuel

- iii. Vegetative propagation is performed with the help ofin sweet potato.

a) root b) stem c) leaf d) flower.

Ans: a) Root

- iv. Which of the following vitamin is necessary for synthesis of NADH₂?

a) Vitamin B₂ b) Vitamin B₅ c) Vitamin C d) Vitamin K

Ans: b) Vitamin B₅

- v. Maximum effect of alcohol occurs on system.

- a) nervous b) excretory c) respiratory d) muscular

Ans: a) Nervous

Que 2. Attempt the following (Any five)

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1. Write the forms to which following food materials are converted after digestion.

1. Milk 2. Potato. 3. Oil. 4. Chapati

Ans: 1. Milk- Amino acids, sugar, fatty acids.

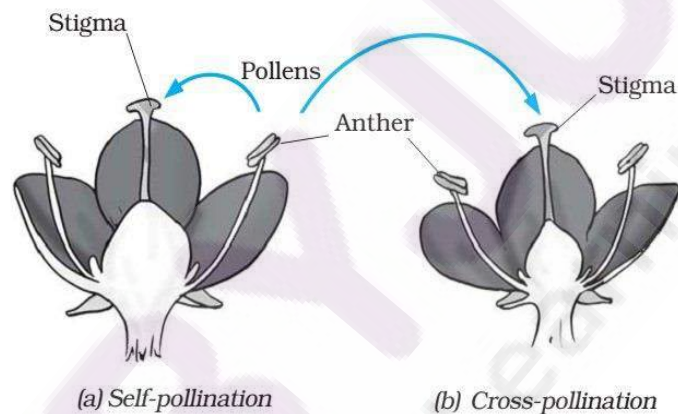
2. Potato- Glucose.

3. Oil- Fatty acids

4. Chapati- Glucose

2. Sketch and label the diagram showing self- and cross-pollination.

Ans:



3. If a piece of bread is kept in a container in moist place for 2 – 3 days,

1. What will you see? 2. Write scientific name and a character of the organism you may observe.

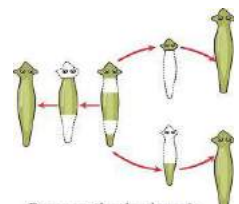
Ans: 1. White fibres will be seen growing on piece of bread.

2. Scientific name – A fungus- 'Mucor', It is saprotrophic / devoid of chloroplast / It has fibrous body.

4. Observe the following picture and describe the type of reproduction shown in.

Ans: Regeneration in Planaria is shown in picture.

Under certain circumstances, its body cuts in to two parts. Each part regenerates the cut part and thereby two planaria are formed.



5. Write any two points of differences between flat worms and round worms.

Ans:–

Flat worms	Round worms
1. Leaf-like flat body.	1. Thread-like, cylindrical body.
2. No coelom.	2. False coelom is present

6. Explain the meanings of 'symbols A' & 'B'.



Ans: A) Green energy– Eco-friendly and inexhaustible source of energy.

B) Save water– It is very important to use water judiciously due to ever-increasing water-scarcity.

7. Which businesses will you start near the agro-tourism center?

Ans: Hotel, plant-nursery, fruit and vegetable stall, ayurvedic medicine stall, production and sales of pickle-papad-jam & jelly, fruit juice, etc., bullock-cart ferry, etc. can be started near the agro-tourism center.

Que 3. Attempt the following (Any five)

15

1. Observe the picture and answer the following questions.

- A) Which evidence of evolution is shown in the picture?
- B) What can be proven with this proof?
- C) Give one more example of evidence of evolution



Ans:

A) Embryological evidence of evolution has been shown in the picture.

B) Similarities between all embryos in early stages indicates that all those animals may have common ancestor.

C) Vestigial organs, Connecting link, etc.

2. Write six strategies implemented by you for conservation of environment.

Ans: Strategies implemented for environmental conservation - Conservation, Control, Production, Preservation, Prevention, and Awareness.

3. What is shown in the picture? Write name and trophic level of each component.

Ans: Food chain is shown in the picture.

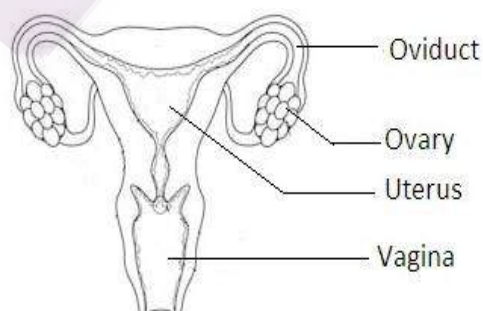
Green plant– Producer, Grasshopper– Primary consumer, Small bird– Secondary consumer, Snake– Tertiary consumer, Owl– Top consumer.



4. Sketch and label human female reproductive system.

Is the woman responsible for sex-determination of child? Justify your answer.

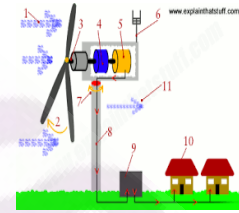
Ans:



Woman is not responsible for sex-determination. Man produces two types of sperms as 22+X or 22+Y, whereas woman produces only 22+X types of ova. Female embryo is produced by union of 22+X sperm and 22+X ovum. Male embryo is produced by union of 22+Y sperm and 22+X ovum. Thus, sex of the embryo depends upon sperms of man.

5. Answer the questions with the help of picture.

- A) Which type of energy is produced?
- B) This power plant is based on which energy source?
- C) Is this power plant eco-friendly? How?



**Ans: A) Electric energy is produced.
 B) It is based on wind power.
 C) This power plant is eco-friendly as it is pollution-free, and wind is inexhaustible source of energy.**

6. How the excessive use of social media and technology is proving harmful?

Ans: – misuse of time, developing habit of watching obscene material on internet, increase in cyber crimes, persons become self-centred and autistic, people are becoming more violent due to wrong cartoons and games, people are becoming more dependent on machines, self-reliance is on the decline.

7. Where and in which forms the amino acids formed after digestion of food are used in the body?

Ans:

Amino acids formed after digestion of food are used in our body as follows–

Blood– Haemoglobin, Antibodies.

Skin– Melanin pigment, Keratin

Bones– Ossien

Cells– Enzymes & proteins

Pancreas– Insulin, Trypsin

Pituitary gland– Various hormones

Muscles– Flexible proteins- Myosin & Actin.

Que. 4. Attempt the following. (Any one)

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1.



A) Which process is shown in the above figure?

B) Describe in brief the steps- I , II , III & IV.

Ans:

A) Production of edible vaccines is shown in the figure.

B) Steps-

I) Isolation of desired gene from human pathogen and transfer of it to plant virus.

II) Infection of the pieces of leaves of potato by the transgenic virus.

III) Development of new potato plant from the infected leaves of potato which will contain the gene from human pathogen.

IV) Consumption of such raw potato gives immunity against the pathogen.

2. Observe the images 'A' & 'B' and answer the following questions.



i) Which disasters are shown in the images?

ii) Which primary precautions will you take in case of disaster shown in 'A'?

iii) Which type of first-aid is offered to the injured peoples in disaster 'B'?

ANS:

i) Earthquake is shown in the image 'A' whereas fire is shown in 'B'.

ii) Precautions to be taken during earthquake- Do not helter-skelter, be calm, hide below the table / cot, switch-off the power supply, use torch if necessary instead of lamps burning fossil fuels. Stay in the vehicle if in journey; do not stop near building / trees / electric poles.

iii) If fire is caught by clothing of victim, douse it with water, wash the burn-wounds with clean water, offer water to drink, clean the wounds with antiseptic solution, cover it with clean, dry bandage, contact the doctor.