CASE STUDY PRACTICE QUESTION (SET-1)

Class 10 Science

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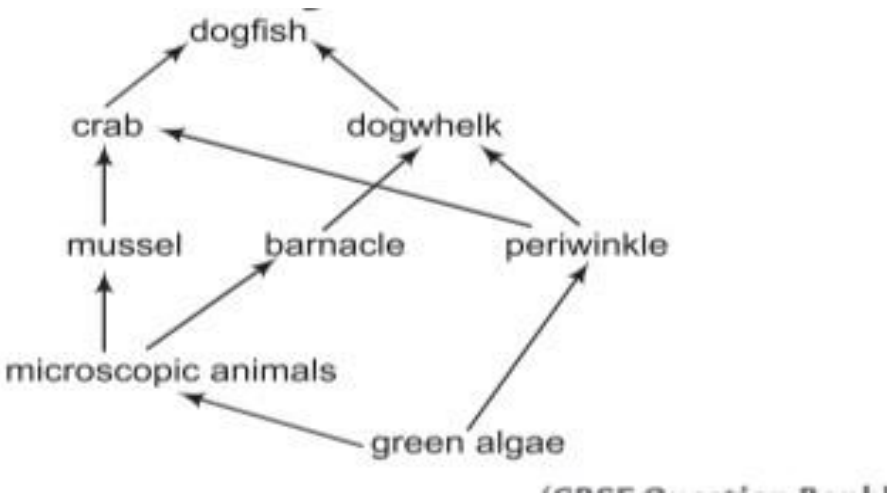
<u>Our Environment</u>

Case Study 1

Observe the food web given below:



Study the above diagram carefully and give the answer of the following questions:

Q1. The mussel can be described as: a. producer

b. **primary consumer**

c. **secondary consumer**

d. **decomposer**

Q2. Which trophic level is incorrectly defined?

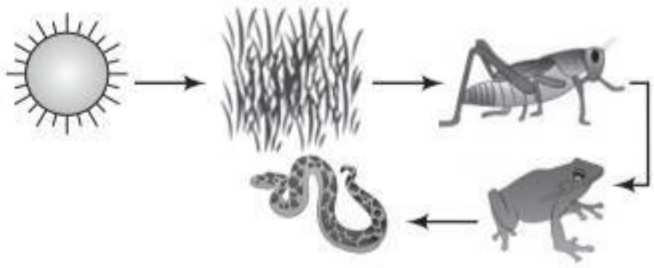
a. **Carnivores - secondary or tertiary consumers**

b. **Decomposers - microbial heterotroph**

c. **Herbivores - primary consumers**

d. **Omnivores - moulds, yeast and mushrooms**

Q3. The given figure best represents:



a. grassland food chain

b. parasitic food chain

c. forest food chain

d. aquatic food chain

Q4. Why do all food chains start with plants?

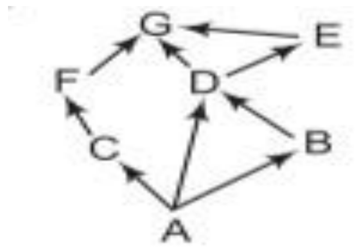
a. Because plants are easily grown.

b. Because plants are nutritious.

c. Because plants can produce their own energy.

d. Because plants do not require energy.

Q5. In the food web, which two organisms are competing for food?



a. A and B

b. A and C

c. D and F

d. B and D

Answers

1. (c) secondary consumer

2. (d) Omnivores - moulds, yeast and mushrooms

3. **(a) grassland food chain**

4. **(c) Because plants can produce their own energy.**

5. **(d) B and D**

Case Study 2

A compound microscope is an instrument which consists of two lenses L1 and L2+ The lens L_1 called objective, forms a real, inverted and magnified image of the given object. This serves as the object for the second lens L2+ the eye piece. The eye piece functions like a simple microscope or magnifier. It produces the final, image, which is inverted with respect to the original object, enlarged and virtual.

(CBSE 2021 Term-1)

Read the above passage carefully and give the answer of the following questions:

Q1. What types of lenses must be L1 and L2?

a. Both concave

b. Both convex

c. L1-concave and L_2-convex

d. L1-convex and L_2-concave

Q2. What is the value and sign of magnification (according to the new Cartesian sign convention) of the image formed by L_1?

a. Value = Less than 1 and Sign = Positive

b. Value = More than 1 and Sign = Positive

c. Value Less than 1 and Sign = Negative

d. Value More than 1 and Sign= Negative

Q3. What is the value and sign of (according to new Cartesian sign convention) magnification of the image formed by L_2?

a. Value Less than 1 and Sign Positive = Positive

b. Value = More than 1 and Sign = Positive

c. Value Less than 1 and Sign = Negative

d. Value More than 1 and Sign= Negative

Q4. If power of the eyepiece (L2) is 5 diopters and it forms an image at a distance of 80 cm from its optical centre, at what distance should the object be? Light-Reflection and Refraction

a. 12 cm

b. 16 cm

c. 18 cm

d. 20 cm

Answers

1. (b) Both convex

2. (d) Value = More than 1 and Sign = Negative

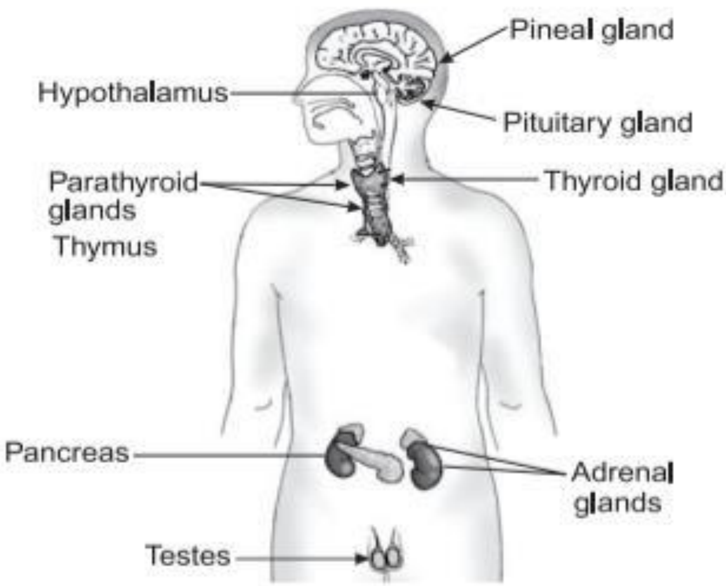
3. (b) Value = More than 1 and Sign = Positive

4. (b) 16 cm

Case Study 3

Endocrine glands are ductless glands of the endocrine system that secrete their products, hormones, directly into the blood. The major glands of the endocrine system include the pineal gland, pituitary gland, pancreas, ovaries, testes, thyroid gland, hypothalamus and adrenal glands

Glands	Hormones
Pituitary gland	Growth hormone
Thyroid gland	Thyroxine
Pancreas	Insulin
Testes	Testosterone
Adrenal gland	Adrenaline



Endocrine glands in male

Read the above passage carefully and give the answer of the following questions:

Q1. Dwarfism results due to:

a. excess secretion of thyroxine

b. less secretion of growth hormone

c. less secretion of adrenaline

d. excess secretion of growth hormone

Q2. Which of the following endocrine glands is not present in males?

a. Adrenal b. Testes c. Pituitary d. Ovary

Q3. Which of the following endocrine glands secretes digestive enzyme as well as hormones?

a. Pancreas b. Thyroxine c. Adrenaline d. Insulin

Q4. Which of the following statements are true about the endocrine glands?

(i) They are ductless glands.

(ii) They release their hormones into a duct.

(iii) They produce chemical messengers called hormones.

(iv) They release their hormones directly into the bloodstream.

a. (i) and (iii) b. (i), (iii) and (iv)

c. (i), (ii) and (iii) d. (i) and (iv)

Q5. Which of the following hormone is responsible for regulation of blood pressure?

a. Thyroxine b. Insulin c. Testosterone d. Adrenaline

Answers

1. (b) less secretion of growth hormone

2. (d) Ovary

3. (a) Pancreas

4. (b) (i), (iii) and (iv)

5. (d) Adrenaline

Case Study 4

The teacher while conducting practical's in the laboratory divided the students into three groups and gave them various solutions to find out their pH and classify them into acidic, basic and neutral solutions.

Group A - Lemon juice, vinegar, colourless aerated drink.

Group B - Tomato juice, coffee, ginger juice.

Group C - Sodium hydroxide, sodium chloride, lime water.

Read the above passage carefully and give the answer of the following questions:

Q1. For the solutions provided, which group is/ are likely to have pH value
(i) less than 7, (ii) greater than 7?

Q2. List two ways of determining pH of a solution.

Q3. Explain, why the sour substances such as lemon juice are effective in cleaning the tarnished copper vessels?

Or

"pH has great importance in our daily life." Justify

this statement by giving two examples.

(CBSE 2023)

Answers

(ii) Group C

1. (1) Group A

2. (i) using litmus paper

(ii) using universal indicator

3. Copper reacts with moist carbon dioxide in air to form copper carbonate and as a result, copper vessel loses its shiny brown surface forming a green layer of copper carbonate.

The citric acid present in the lemon juice neutralises the basic copper carbonate and dissolves the layer. That is why, tarnished copper vessels

are cleaned with sour substances like lemon juice to give the surface of the copper vessel its characteristic lustre.

OR

(i) Tooth decay starts when the pH of the mouth is lower than 5.5.

(ii) Our body works within the pH range of 7.0 to 7.8.