

Question 1.

A Senior three student lost the key for his suit case in which he had kept his loaf of bread after visitation. A week later, he broke the suit case and found the bread covered by structures as shown in the figure below. Use the photograph to answer the question that follow.

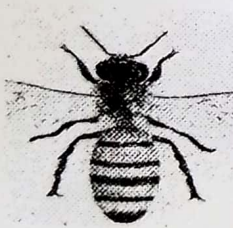


Write an article that can be used to sensitize the community about the organisms and its contributions to society.

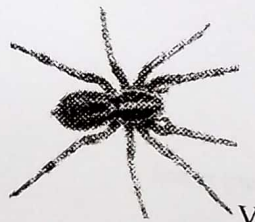
(19 scores)

Question 2.

Arthropods are some of the most successful organisms in nature. The animals below were collected for a biology practical lesson. Use the photograph to answer the question that follow.



U



V



W



X



Y

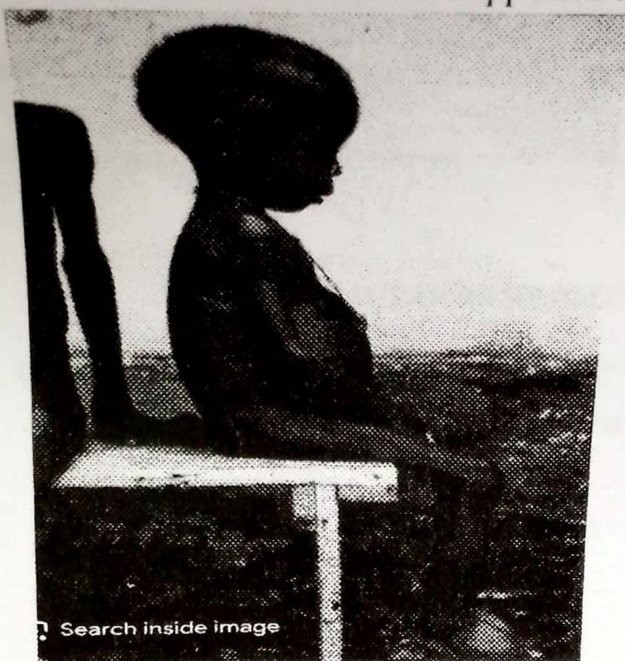
Write a practical report that you would submit to your teacher of biology on how you would identify the organisms.

(19scores)



Question 3.

A mother weaned (stopped breast feeding) her child after realizing that she was pregnant before the right time. Within three months the child appeared as shown in the figure.



Explain the cause of the appearance of the child and how it could be overcome (19 scores)

Question 4.

A doctor in health Centre III in central region obtained a sample of blood and urine from a patient for analysis. The table below shows the substances found in  $100\text{cm}^3$  of blood plasma and urine of the patient.

Substance	Blood plasma (mg)	Urine (mg)
Plasma proteins	7.6	0
Glucose	0.15	0.1
Sodium ions	0.33	0.35
Chloride ions	0.38	0.60
Urea	0.004	2.0
Water	92	95

Write a message you would give on your school assembly for the difference between the concentration of the substances in blood plasma and urine.  
(19 scores)

END

**SESEMAT**  
**PROPOSED MARKING GUIDE**

**S.3 BIOLOGY PAPER 1, 2023.**

Question 1.

Bread mould/ Rhizopus/mucor;

- Possess sporangia/ capsule of spores;
- They are eukaryotic/ possess membrane bound organelles;
- they are multicellular organisms;
- Cell wall is made of chitin;
- Have a mycelium;

; 1scores @

**(b) Positive effects**

- Source of food to man eg mushrooms;
- Recycle nutrients;
- For fermentation process. e.g. making alcohol;
- They are used in the food processing industry.eg bread making, Yoghurt making;
- For manufacture of medicine.ie penicillin;
- Source of income when sold;
- For making hay, silage and other animal feeds;
- For making biogas;

**Negative effects**

- Cause disease eg ring worm, candida etc;
- Some are poisonous to man;
- Cause food spoilage;
- Damage plants;
- Damage agricultural products like vegetable;



-Damage wooden structures e.g. houses;

2

Organism	Observable characteristics				
	Number of legs	Antenna	wings	Body divisions	eyes
U	6	2 short	4	3	2 compound
V	8	None	None	2	8 simple
W	6	2 long	4	3	2 compound
X	6	2 short	None	3	None
Y	6	2 short	2	3	2 compound and 3 simple

1(a) Specimen with 4 pairs of legs ..... V

(b) Specimen with 3 pairs of legs ..... 2

2 (a) Specimen without eyes ..... X 1 score @

(b) Specimen with eyes ..... 3

3 (a) Specimen with two wings ..... Y

(b) Specimen with four wings ..... 4

4 (a) Specimen with long antenna ..... W

(b) Specimen with short antenna ..... U

3. The child has a swollen belly, small hands, brown hair, big cheeks; therefore he is suffering from kwashiorkor; due to lack of proteins; So, to improve on his health, the child should be fed on a balanced diet; The above healthy condition can be overcome by feeding on proper ratios of Carbo hydrates; for Provision of energy; Proteins; to build the body tissues and repair worn out tissues; lipids; for Provision of energy; vitamins; to boost the body's immunity; regulating growth, making the blood cells, mineral salts; which activate enzymes; water; is a universal solvent; and roughages/fibres; that aid in the digestion process;

1 score @

#### Question 4

- . Blood Plasma has much plasma protein while urine has no plasma proteins; because the plasma proteins are large in size; hence cannot be filtered out of the glomerulus;
- Blood plasma has much glucose while urine has less amount of glucose; because some glucose was not reabsorbed from the kidney nephron back to the blood; due to failure of the body to secrete sufficient amount of insulin; from the pancreas; a condition called diabetes mellitus;
- Sodium ions are less in blood plasma while more in urine; because they are actively secreted from the blood capillaries to the renal tubules/ tubular secretion;
- Chloride ions are less in blood plasma while more in urine; because kidney tubules are permeable to chloride ions; hence passively diffuse from the blood capillaries to the renal tubules;
- Urea is less in blood plasma while much in the urine; because reabsorption of water and other substances from blood makes the filtrate more concentrated; since its urea is not reabsorbed back to blood;
- Urine has more water than blood plasma; because water is osmotically absorbed into the renal tubules; and some glucose have been reabsorbed back to blood; leaving a dilute solution hence increasing the concentration of water;

1 score @

**END**