

KCSE revision question

Biology paper

231/2

Section A (40 marks)

Answer all questions in this section in the spaces provided

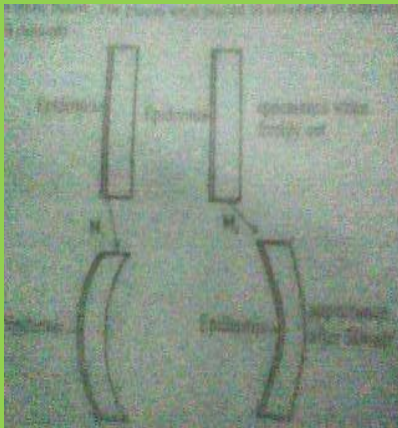
1. In a species of mediterranean wasps, the wings have either Red or Orange markings. A cross between red marked wasps with Orange marked wasps produce offsprings with yellow marks only. When the F1 generation are selfed, they produce F2 generation in the ratio 1 red : 2 yellow: 1 Orange

a) Explain the absence of red orange marks in F1 offsprings (1 mk)

b) Using letter R to represent gene for red marks and N to represent gene responsible for Orange marks carry out a genetic cross to show how the F2 was obtained (4 mks)

c) Give two traits linked to y chromosome (2 mks)

2. A freshly obtained tradescantia stem measuring 4 cm long was split lengthwise to obtain two similar pieces as shown below. The pieces were placed in solutions of different concentration in petridishes for 30 minutes



a) State the physiological process taking place in the experiment above (1mk)

b) Account for the experiment of piece M2 (5mks)

c) State the significance of the biological process being investigated above in plant nutrition (1mk)

3. State what happens to a rhesus negative person if transfused with

a) Rhesus positive blood for the first time (1mk)

b) Rhesus positive blood for the second time (3 mks)

c) Distinguish between

i) Vaccination and immunization (2 mks)

ii) Pathogens and allergens (2 mks)

4. The diagram represents a food web in a terrestrial ecosystem



a) From the web above construct a food chain with five organisms (2 mks)

b) State the level occupied by

i) Toads (1mk)

ii) Hawks (1mk)

c) What would happen if leopards were introduced into the ecosystem (2 mks)

d) State three methods that can be used to determine the type of food eaten by animals (3 mks)

5. The diagram below represents a bone obtained from a certain region of a mammalian body



- a) Identify bone M (1mk)
- b) Name the part of the body from where the bone was taken from (1mk)
- c) How is bone M adapted to its functions (3mks)
- d) Identify the part labeled x (1mk)
- e) Name the facts in bone M that articulates with the ribs (2mks)

**SECTION B (40 MKS)**

*Answer question 6 (compulsory) and either question 7 or question 8 after the space after the question 8*

Two persons x and y drunk volume of concentrated solutions of glucose. The amount of glucose in their blood was determined at intervals. The results are shown below .

Time (minutes)	Glucose level in blood Mg/100cm <sup>3</sup> of blood	
	x	y
0	90	85
20	115	125
30	140	170
50	120	190
60	100	210
90	95	200
110	90	145
120	85	125

- a) on a grid, plot graphs of glucose level in blood against time on the same axes (7mks)
  - b) What was the concentration of glucose level in blood of x and y at the 70<sup>th</sup> minutes (2 mks)
  - c) Suggest why glucose level in person x stopped rising after 30 minutes while it continued rising in y (2mks)
  - d) Account for the decrease in glucose level in person x after 30 minutes and person y after 60 minutes (4mks)
  - e) Name the compound that stores energy released during oxidation of glucose (1mk)
  - f) Explain what happens to excess amino acids in the body (4mks)
- 7.a) Describe how geotropism occurs in root of a seedling placed horizontally on the ground surface (6mks)
- b) Describe the adaptations of a mammalian eye to its functions (14mks)

8.a) Explain how pollen grains are adapted to pollination (6mks)

b). Describe the role of hormones in menstrual cycle (14mks)