231/2

BIOLOGY

Paper 2

SEPTEMBER-2016

Time:2 Hours

KAPSABET HIGH SCHOOL

POST MOCK 2016

Kenya Certificate of Secondary Education (K.C.S.E)

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BIOLOGY

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September-2016

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SECTION A(40MARKS)

Answer the questions in the spaces provided after each question

1.Two fresh potato cylinders of equal length were placed one in distilled water and the other in concentrated sucrose solution;

(a) Account for the length of the cylinder in;

(i) Distilled water (2mks)

(ii) Sucrose solution (2mks)

(b) (i) What would be the result in terms of length if a boiled potato was used (1mk)

(ii) Explain your answer in (b)(i) Above (1mk)

(c) State two uses of the physiological process being demonstrated in the experiment (2mks)

2.The chart below shows the relationship between concentration of CO2 around the plant and the rate of photosynthesis

Rate of

Photosynthesis F G

E

D

Concentration of CO2

(a) Account for the rate of photosynthesis between D-E (2mks)

(b) Account for the rate of photosynthesis between F-G (2mks)

(c) Briefly describe the reaction during the light stage of photosynthesis (4mks)

3.The apparatus below was used to investigate anaerobic respiration

(a) How would you remove dissolved oxygen from glucose before the experiment commencing (1mk)

(b) State what happens to the lime water as the experiment proceeds to the end (1mk)

(c) Describe the reaction in the experiment (4mks)

(d) Explain what would happen to the temperature of glucose solution and yeast was raised beyond 450C (2mks)

4.In a breeding experiment ,plants with red flowers were crossed .They produced 123 plants with red flowers and 41 with white flowers;

(a)Identify the recessive trait (1mk)

(b) Give reasons for your reason (1mk)

(c) If the white flowered plants were selfed,what would be the genotype of their offspring ?Show your working using the appropriate symbols (R,r) (4mks)

(d) What is a test cross ? (1mk)

5.Name the type of response exhibited by:-

(a)(i) Marine crabs burrowing into the sand to avoid dilution of their body fluids (1mk)

(ii)Chlamy domonas plant moving towards a region of high light intensity (1mk)

(b) Give four differences between reflex action and conditioned reflex action (4mks)

SECCTION B (40MARKS)

Answer Question 6(compulsory) in the spaces provided and either question 7 or 8 in the spaces provided after question 8

6.In an experiment to investigate the effect of heat on germination of seeds,12 bags each containing 60 pea seeds were placed in a water bath maintaining at 850C.

After every two minutes a bag was removed and seed contained in it planted. The number that germinated was recorded .The procedure used for pea seeds was repeated for wattle seeds. The results were as show in the table below :-

Number of seeds that germinated

|  |  |  |
| --- | --- | --- |
| Time (min)  0  2  4  6  8  10  12  14  16  18  20  22 | Pea seeds  60  60  48  42  34  10  2  0  0  0  0  0 | Wattle seed  0  0  0  2  28  36  40  44  46  48  49  47 |

(a) Using a suitable scale and same axis ,draw graphs of number of seeds that germinated against time in hot water for each plant (6mks)

(b) (i) At what tie would the number of seeds germinated for each plant be same (1mk)

(ii) How many wattle seeds would have germinated if the 13th bag was available and was removed and seeds contained in it planted at 24 minutes (1mk)

(c) Explain why the ability of the pea seeds that germinated declined with time of exposure to heat (2mk)

(d) Explain why the ability of the wattle seeds to germinate improved with time of exposure of heat (2mks)

(e)Account for the shape of the graph for the wattle seeds which germinated between 20-24 minutes (2mks)

(f) Some of the pea seeds were allowed to germinated and placed in a large air tight flask and left for four days ;-

(i) Suggest the expected changes in the composition of gases in the flask on the fifth day (2mks)

(ii) Give reasons for your answer in (f)(i) above (1mk)

(g) Name three factors other than those investigated in (a) above which would affect dormancy (3mks)

7.How is the mammalian skin adapted to its fuctions ? (20mks)

8.Describe how fruits and seeds are suited to their mode of dispersal (20mks)