S5 BIOLOGY 1 TOPICAL TEST 5/JULY/2021

ATTEMPT ALL QUESTIONS

SECTION B(60 MARKS)

41. a) Define an allosteric enzyme 1mark.

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b) An enzyme such as rennin has a 3-dimensional shape.

Explain how DNA structure determines the specific shape of enzymes. 4marks

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c) Give three differences between starch molecules and cellulose molecules 3marks

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d) Explain two biological importance of water 2marks

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42. (a) Distinguish between chemoheterotrophic and chemo-autotrophic Bacteria.

(03 marks)

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b) Give ecological significance of Bacteria. (04 marks)

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(c) State any three characteristic features of a group bacteria belong to, (03 marks)

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43. a) i) What is DNA replication? 2marks

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ii) Compare the leading strand and the lagging strand of DNA 4marks

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b) i) Explain the fate of the product of transcription after translation is complete. 2marks.

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ii) Explain why synthesis of a particular protein can still occur even after deletion of a base in DNA during mutation. 2marks

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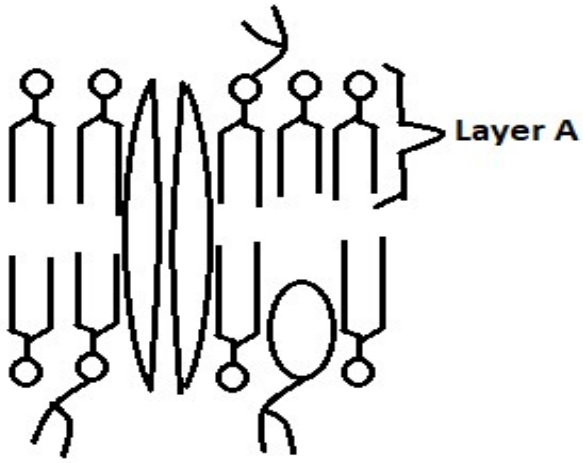
44. Figure below shows the structure of a fluid mosaic membrane model. Use it to answer questions that follow.



a) Describe how the lipid in layer A is formed. 3 marks

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b) Briefly state the adaptations of the membrane shown above to movement of ions and polar molecules in and out of the cell. 2marks

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d) i) State four differences in the structure and function of fluid mosaic model of cell membrane and sandwich model. 4 marks

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ii) State one significance of membranes in eukaryotes? 1mark

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45. a) i) Distinguish between water potential and solute potential.

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ii) Explain why the water potential in the roots is higher than the water potential in the leaves of plants. 2 marks

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b) Describe how the;

i) Root pressure contributes to the transport of water in plants. 3 marks

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ii) structure of cells of the endodermis is adapted for their role of transport of water in a plant. 3marks

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46. a) Define the following terms

i) Pleiotropic genes 1mark

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ii) sex linkage 1mark

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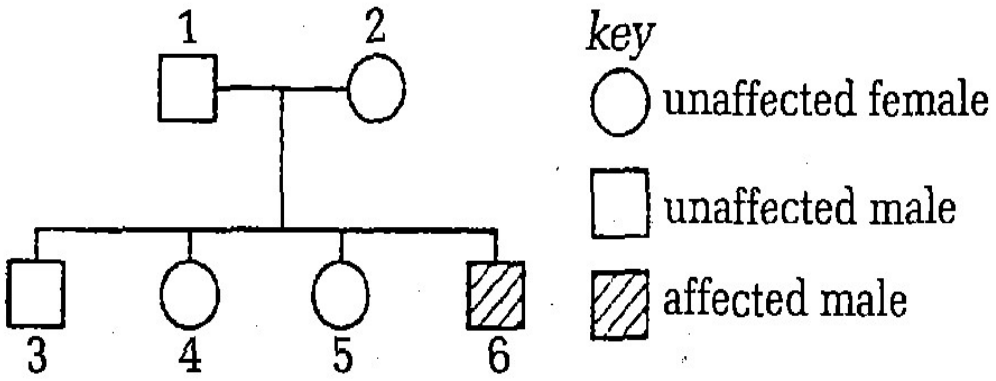
b) Give two examples that involve pleiotropy and sex linkage. 2marks

Pleiotropy …… ……

Sex linkage…… ……

c) The diagram shows the inheritance of haemophilia in a family



Work out the possible genotypes of the off springs in the family. 03 marks

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If daughter 4 married a normal male. What is the probability that their first child would suffer from haemophilia? 03 marks

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END