By WASSWA ENOCK – 0762867639

1. a) Compare oxidative phosphorylation and photophosphorylation (10 mks)
   b) What happens to ē end pdt of glycolysis in anaerobic conditions (10mks)
2. a) How is glucose converted to pyruvate in a cell (10mks)
   b) Compare glycolysis and Kreb's cycle (10 mks)
3. a) How is glycerol metabolised in a cell (10mks)
   b) How is ē hydrogen atoms from glycolysis used in making ATP in Electron transport chain (10mks)
4. a) Distinguish btn RQ and BMR (2mks)
   b) Explain why ē RQ is above 1.0 during onset of germination (4mks)
5. Describe ē sequency of events that take place wēn pyruvate is formed in for presence of oxygen (16 mks)
6. a) Distinguish btn autotrophic lake and auligotrophic lake (10mks)
   b) What are ē effects of applying fertilizers in farms near a water body (10mks)
   What is meant by ē term foodchain (2mks)
   a) Describe how energy flows in an ecosystem (10mks)
   b) How does temp and light affect distribution of organisms (10mks)
   a) Compare cyclic and non-cyclic photophosphorylation (10mks)
   b) Describe how light is used to make ATP in plants (10mks)
   Describe how ē pdts from light reactions is utilised to make triglyceride in C3 plants (10mks)
   a) How is digestion controlled in man? (6 mks)
   b) How is a termite able to feed on wood (6mks)
   c) What is meant by ē term mutualism? (4mks)
   b) Compare parasitism and mutualism (10mks)
   a) Discuss different interactions btn organisms in ē environment (10mks)
   b) Discuss how abiotic and biotic factors interact to create a self sustaining ecosystem (10mks)
   a) Describe how an action potential is fired across a neurone tissue (10mks)
   b) Explain trichromatic theory of vision (6mks)
   Describe how retinal convergency increases sensitivity (10mks)
   How is sound of high pitch perceived in ē ear (10mks)
   Describe ē process of photo perception during day (10mks)
   Describe how ē osmoregulatory challenges are solved in ē following:

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i) Fresh water fish (10mks)
ii) Marine teleosts (10mks)
Compare counter current multiplier and counter current exchanger as applied in mammal (8mks)
Account for ē pthn of hyperlonic urine (12mks)
How is heart rate initiated and controlled? (10mks)
Describe how
Describe ē structure of stomata (8mks)
Briefly discuss how ō following theories explain stomatal opening and closure.
(i) Starch-sugar conversion theory (5mks)
(ii) Photosynthetic theory (5mks)
(iii) Potassium up-take (05mks)
Describe how ē following are adapted to stay in ēir envts.
a) Xerophytes (10mks)
b) Halophytes (10mks)
c) Mesophytes (10 mks
(i) Describe ē control of thyroxine hormone (8mks)
(ii) Blood glucose 8mks
(iii) Sodium ions (10mks)
a) Describe how endotherms are adapted to live in
(i) Very cold temps (10mks)
(ii) Very hot temps (10mks)
b) Describe how ē hypothalamus acts as a thermostat (10mks)
Compare C3 & C4 plants (6mks)
Discuss how C4 are photosynthetically adapted and advantaged than C3 plants (7mks)
What are ē dangers of photo respiration (5mks)
Define what is meant by ō term CAM (5mks)
Describe how CO_2 is mixed in;
(i) C3 plants (10 mks)
(ii) C4 plants (10 mks)
Describe ē structure and distribution of different epithelial tissues in animals (10mks)