UNEB P530/1 MARKING GUIDE 2020

SECTION A

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1D | 2B | 3C | 4C | 5A | 6A | 7A | 8D | 9C | 10D |
| 11C | 12A | 13C | 14B | 15D | 16A | 17C | 18D | 19A/B | 20B |
| 21C | 22A | 23A | 24C | 25A | 26D | 27B | 28D | 29C | 30A |
| 31A | 32D | 33D | 34A | 35A | 36C | 37B | 38A | 39D | 40C |

SECTION B

41. (a) (i) Tissue fluid/interstitial fluid/intercellular fluid; accept extracellular fluid

(ii) at the arterial end of the capillary pressure is high; due to pumping action of the heart and narrowness of the capillaries; the hydrostatic pressure forces the fluid part of the blood through the capillary walls; into the intercellular space by ultrafiltration ;

(b) at the venous end of the capillary bed hydrostatic pressure is low; increased OP of the plasma proteins in blood; causes tissue fluid to be drawn back into the capillaries; excess tissue fluid is drawn into the lymph vessels;

(c) Plasma proteins; blood cells;

42.(a)(i) loss of alleles from one population and gain by another ;alters allele frequency for both; which leads to increased genetic variation; in both populations; continued/regular gene flow makes gene pools Similar; **(BS 914)**

(ii) this makes certain individuals within the population have an increased reproductive potential; while others have decreased reproductive potential ;altering their allele frequency in subsequent generations

(b) (i) p+q =1; q = 0.07/ p+0.07=1; p =1-0.07; p=0.93; **NB ½ marks**

(ii) Diabetic =q2; q2= (0.07x0.07); = 0.0049; **NB ½ marks**

(ii) Heterozygous/carriers = 2pq; = 2(0.93x0.07) = 0.13; **NB ½ marks**

**43. (a) brings about decay; and recycling of nutrients;**

**(b) (i) lower oxygen content of the soil; promoting denitrification; which lowers nitrogen content of the soil;**

**(ii) Reduces the moisture content of the soil; reducing the rate of decomposition; lowering nitrogen content of soil;**

**(c) – causes decline in root growth/reduces plant growth;**

**-kills organisms; /kills microorganisms/mycorrhiza;**

**Lowers PH. of soil and water;**

**-promotes leaching of spoil minerals**

**-corrodes rocks;**

**Increases soSO4 and NO3 are deficient;**

44. (a) (i) the rate of photosynthesis increases rapidly up to 3 arbitrary units+/- 0.5 of light intensity; and then remains constant up to 10 arbitrary units;

(b) Rate of photosynthesis attains maximum at lower light intensity for curve A; because carbon dioxide becomes a limiting factor; /Rate of photosynthesis attains a higher maximum for curve B because carbon dioxide is no longer a limiting factor;

Photosynthesis has attained the highest possible rate;

(c) Carbondioxide; and temperature; become limiting factors Accept low temperature, low carbon dioxide

(d) –excites electrons from chlorophyll for ATP formation;

- provides energy for photolysis of water; which releases H+ for reduction of NADP; providing electrons to stabilize PSII;

45. (a) (i) the potential difference across the membrane of a nerve cell at rest; where the inside is negatively charged relative to the outside;

(ii) This is a synapse between a motor neurone and a muscle; where the axon of a motor neurone divides to form fine branches ending in a synaptic knob;

(iii) Action potentials only form at nodes of Ranvier in myelinated nerves; hence impulses jump from one node to another;

(b) (i) the active pumping of sodium ions out of axon and potassium ions into the axon; making the inside more negative relative to the outside;

(ii) Schwann cell; /neurilemma cell;

46. (a) (i) increases rapidly to a maximum; due to reabsorption of water/diffusion of ions; then decreases rapidly; due to active reabsorption of solutes into the interstitial fluid;

(ii) The concentration of solutes increases rapidly; due to increased osmotic reabsorption of water;

(b) Mammals are able to excrete hypertonic urine; and conserve water in the body;

(c) Insufficient production of ADH; resulting into little reabsorption of water from the collecting duct;

**END**