# 

**GAUTENG WEST**

**LIFE SCIENCES**

**GRADE 11**

**PAPER 1 MEMO**

**OCT/NOV 2015**

**TOTAL: 150 marks Time: 2 hours**

Memo Paper 1 November Exam 2015

Section A

1.1.1 A🗸🗸

1.1.2 C🗸🗸

1.1.3 C🗸🗸

1.1.4 C🗸🗸

1.1.5 A🗸🗸

1.1.6 B🗸🗸

1.1.7 B🗸🗸

1.1.8 C🗸🗸

1.1.9 B🗸🗸

1.1.10 D🗸🗸 **10x2= (20)**

1.2

1.2.1 Culling🗸

1.2.2 Natality🗸

1.2.3 Population🗸

1.2.4 Vegan🗸

1.2.5 Census🗸/direct method

1.2.6 ATP🗸

1.2.7 Villi/Villus🗸

1.2.8 Pleura🗸

1.2.9 CO2/ Carbon dioxide🗸

1.2.10 Osmoregulation🗸

**10x1=(10)**

1.3

1.3.1A (only)🗸🗸

1.3.2 A (only)🗸🗸

1.3.3 B (only)🗸🗸

1.3.4 (Both) A and B🗸🗸

1.3.5 None🗸🗸 **5x2 = (10)**

1.4

1.4.1 Y🗸 Mitochondria🗸

1.4.2 X 🗸 Chloroplast🗸

1.4.3 D🗸 Oxygen🗸

1.4.4 C🗸Carbon dioxide/CO2🗸

1.4.5 A/B🗸 water🗸

**5X2 = (10)**

**TOTAL SECTION A: 50**

**SECTION B**

**QUESTION 2**

2.1

2.1.1 A Cortex🗸 (1)

B Pyramid🗸 (1)

C Medulla🗸 (1)

D Pelvis🗸 (1)

2.1.2 (A) Protect the kidney🗸 (1)

(b) Transport urine🗸 (1)

2.1.3 Bladder 🗸 (1)

2.1.4 Excretion🗸

Osmoregulation🗸

pH regulation🗸

Mineral salt regulation🗸 (Any 3) = (3)   **(10)**

2.2

2.2.1 (Structure of) Nephron🗸 (1)

2.2.2 A - Malpighian body🗸

B – Proximal convoluted tubule🗸

C – Descending limb/ Loop of Henle🗸

D – Collecting duct (Bellini)🗸 (4)

2.2.3 Urine🗸 (1)

2.2.4

* Efferent arteriole narrower than efferent arteriole🗸 allowing a pressure system to build up🗸
* Small slit pores between podocytes🗸ensure blood corpuscles and large plasma proteins do not pass through🗸
* Bowman’s capsule is cup-shaped🗸 allowing close contact with blood vessels of glomerulus🗸
* Single layer endothelial cells of capillary and podocytes🗸form thin layer 🗸
* Pores in endothelial layer of capillaries🗸allow passage way for substances🗸
* The glomerulus is folded/has a large surface area🗸 for more filtration🗸

(Any 2x2 = 4)

**(10)**

2.3

2.3.1 A Diaphragm 🗸

B Lungs 🗸

C Bronchus 🗸

D Trachea 🗸 (4)

2.3.2 Balloons inflate/fill/became bigger🗸with air🗸 (2)

2.3.3 Trachea is kept open 🗸 by C- shaped cartilage rings🗸 (2)

**(8)**

2.4

2.4.1 Alveolus🗸 (1)

2.4.2

|  |  |
| --- | --- |
| **Blood entering/at A** | **Blood leaving/at B**🗸 |
| deoxygenated🗸/low O2 content | oxygenated🗸/higher O2 content |

2+1 for table=3

2.4.3

* Alveolus is lobed🗸 To increase the surface area for gas exchange🗸
* Alveolus lined by single layer of (squamous) epithelium🗸 To provide a thin surface for the exchange of gases🗸
* Alveolus richly supplied with blood capillaries🗸 For the transport of oxygen and carbon dioxide🗸 Any 2x2 =4

**(8)**

2.5

2.5.1 Ethanol/alcohol 🗸 Carbon dioxide🗸 ATP/ small amount of energy🗸Any 2

2.5.2 Alcoholic beverage’s🗸 Baking industry🗸Making of dairy products🗸 Any 2

**(4)**

**QUESTION 2 40**

**QUESTION 3**

3.1.1 A Liver🗸

B Gall bladder🗸

E Duodenum/small intestine🗸

(3)

3.1.2 Organ C/ stomach has acidic pH🗸 Brought about by hydrochloric acid🗸

Organ E/duodenum/small intestine has alkaline pH🗸 Brought about

by(alkaline) bile salts/Sodium bicarbonate ions🗸

from (pancreatic juice) (4)

3.1.3

* Manufacture bile/secrete bile🗸
* Convert glucose to glycogen🗸
* Convert excess glucose to fat and store it🗸
* Stores minerals such as iron🗸
* Stores vitamins A,D and B12🗸
* De-aminate excess amino acid🗸
* Detoxified harmful substances🗸 Any 4=(4)

3.1.4 Pancreas🗸 (1)

**(12)**

3.2

3.2.1 When the body either does not secrete enough insulin🗸 or cannot use insulin

effectively🗸 (2)

3.2.2 Pancreas🗸 (1)

3.2.3 high blood glucose level🗸, slow healing of wounds🗸, frequent urination🗸, excessive thirst🗸, blurred vision🗸 weight loss🗸 OR OTHER SUITABLE mark 1st (2)

3.2.4 By injection of insulin🗸 (1)

3.2.5 Dieting🗸, exercising🗸, education about the disease🗸 healthy lifestyle🗸 ANY 2 OR Other suitable answer. (2) **(8)**

3.3

3.3.1 Photosynthesis🗸 (1)

3.3.2 5h00🗸 (1)

3.3.3 Light intensity🗸 (1)

3.3.4 For respiration🗸 (1)

3.3.5 17h45🗸(Accept ±15min) -6h30(Accept ±15min)🗸= 11 Hours 15 min🗸

(Accept answer ±30min) (3) **(7)**

3.4

3.4.1 To prove/show/test🗸 if/that sunlight is necessary for photosynthesis to occur🗸

(2)

3.4.2 Starch test🗸 (1)

3.4.3 Iodine solution🗸 (1)

3.4.4 To block out sunlight🗸 (1)

3.4.5 C-light yellow/light brown🗸 (1)

D-blue black/dark brown🗸 (1)

3.4.6 Sunlight🗸is needed for photosynthesis to occur🗸 (2) **(9)**

3.5 **Thoracic cavity will not be closed system** 🗸. Pressure in the thoracic

cavity and atmosphere 🗸 will be the same 🗸. Volume changes in the

thoracic cavity 🗸 will not result in pressure changes 🗸 breathing will not occur

effectively🗸 **(Any 4)**

**Total = 40**

**SECTIONC**

**QUESTION 4**

**Competition**

* Interspecific competition🗸
* When organisms of different species 🗸 depend on same resources🗸
* Example: Flour beetles🗸(OR ANY OTHER)
* Both species will decrease in population size while other increase🗸
* Competitive exclusion principle🗸 one species out compete the other🗸
* Resource partitioning🗸little overlap between ecological niches of different species🗸

**OR**

* Intraspecific competition🗸
* Is between organisms of the same species 🗸 that share the same available resource🗸
* Examples: Owls competing for same resources. Stronger owls will survive🗸(OR ANY OTHER)
* Owl population will decrease🗸 ANY 4

**Predation**

* A predator capture🗸 and kills other animals (prey)🗸for food
* Example: Lions that capture and feed on antelopes🗸(or any other)
* Prey population will decrease 🗸and the predator population will increase🗸

ANY 2

**Symbiosis** is the close association between two organisms🗸so that one or both benefit🗸(2)

**Parasitism**🗸

* One organism benefit (parasite)while the other is harmed (host)🗸
* Example: Tapeworm and humans🗸(or any other)
* The host organisms population size will decrease and the parasite population increase🗸

ANY 3

**Mutualism**🗸

* Relationship between two organisms in which both benefit🗸
* Example: Bacteria and roots of leguminous plants🗸(or any other)
* Both populations will increase🗸

ANY 3

**Commensalism**🗸

* Relationship between two organisms in which one benefits without harming the other🗸
* Examples: Sharks and sucker fish/Remora(benefit)🗸(or any other)
* The population size of the organism that benefits will increase in size🗸 ANY 3

**Content = 17**

**ASSESSMENT OF THE PRESENTATION OF THE ESSAY**

**SYNTHESIS = 3**

|  |  |  |
| --- | --- | --- |
| **CRIRERIA** | **ELABERATION** | **MARK** |
| Relevance | Only information on Competition, predation and symbiosis is included. | 1 |
| Logical sequence | Ideas arranged in a logical sequence. Correct examples and definitions given. | 1 |
| Comprehension | Defines competition, predation AND symbiosis including examples of each. | 1 |