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Final Examination - Grade 13 - 2016

Index No .....

Biology II

Three - Hours

Impotent

Part A - Structured Essay. Answer all questions on the paper itself.

Part B - Essay, Answer four questions only. Give clearly labeled diagrams where necessary.

Part A

01. (A) i. For the survival of mankind, sustainable food production in necessary. State the three types of contributions that biology can make for sustainable food production.

.....
.....
.....

ii. Briefly explain the characteristics of living organisms given below.

a) Metabolism

.....

b) Growth

.....

c) Irritability

.....

d) Reproduction

.....

iii. Many non living entities may have one of these characteristics but not all of them. State an example of such a characteristic.

.....

iv. Name the method to solve any problem scientifically and accept by scientists.

.....

v. State the standard sequence of steps of the method that you have mentioned in 1A(iv)

.....

(B) i. What is the most abundant Inorganic compound found in organisms ?

.....

ii. Name three main functions of the compound mentioned in 1 B (1) in living organisms.

.....  
 .....  
 .....

iii. Fill the following table according to the given organic compounds in the first column.

Organic Compounds	Structural Unit	Elemental Composition	Type of Bond
Inulin	.....	.....	.....
Butter	.....	.....	.....
Amylase	.....	.....	.....

iv. State three types of all junctions in animal cell and give location of each.

Type of cell junction	Location
.....	.....
.....	.....
.....	.....

(C) i. Characteristic features of phylum Platyhelminthes are given below in column I. If these characteristic features are found in the animals mentioned in 2,3,4 columns, then use ✓ sign if presence.

Characteristic features	<u>Planaria</u>	<u>Fasciola</u>	<u>Taenia</u>
Leaf like body			
Eye spots			
Ventral mouth			
Acellular			
Suckers			

ii. What are the three types of mode Nutrition found in Domain bacteria.

.....  
 .....  
 .....

iii. Give an example of a bacterium for each type of Nutrition mentioned in 1 (II)

.....  
 .....  
 .....

02. (A) i. What are the phylla that do not bear at least one organism containing respiratory structure?  
 .....  
 .....
- ii. Other than Mollusca, name the classes of invertebrates which have gills as their respiratory structure.  
 .....  
 .....  
 .....
- iii. What is the main function of human respiratory system ?  
 .....
- iv. Name four structural features of lungs necessary to carry out the function mentioned in 2 A (iii).  
 .....  
 .....  
 .....  
 .....
- v. Name two functions which are non - related to the respiratory function in human pharynx ?  
 .....  
 .....

(B) i. a) What is meant by Holozoic Nutrition ?

.....  
 .....

b) Name the main steps of Holozoic Nutrition.

.....  
 .....

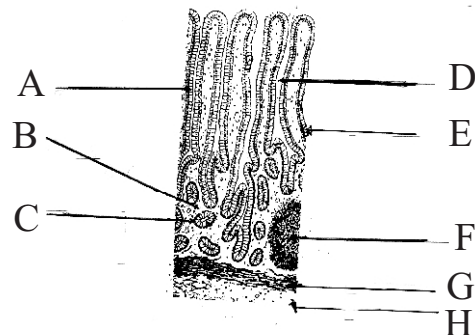
ii. Write two reasons that fascinated the transportation of food through the human oesophagus.

.....  
 .....

iii Following diagram shows a part of the human alimentary canal.

a) Name the parts labeled A, B, C, D, E, F, G, H

- A. ....
- B. ....
- C. ....
- D. ....
- E. ....
- F. ....
- G. ....
- H. ....



b) What part of the Alimentary canal is shown in the diagram above?

.....

iv. The part of the alimentary canal mentioned in 2 B(iii) (b) above, shows structural and functional features in the Mucosa of its wall.

Name a structural and functional feature of each

Structural Feature .....

Functional Feature .....

v. What are the type of epithelial cells that produce bile?

.....

vi. Why is bile salt not considered as enzyme?

.....

.....

C. i. In the liver sinusoid, name the cell type that belong to the cell layer lining the sinusoid but not attached to the cell layer permanently?

Cell type .....

Function .....

Site of production .....

ii. Name the vitamins produced with in the human alimentary canal and name its site of production.

Vitamin Produced

Site of Production

.....

.....

.....

.....

.....

.....

iii. Name a vitamin which is produced by human body other than digestive system.

.....

iv. Name the site of synthesising above mentioned Vitamin in 2C (iii)

.....

v. What are the hormones responsible for stimulating and inhibiting an important functions of the wall of the alimentary canal?

For Stimulating - .....

For Inhibiting - .....

03.A i. What is an action potential?

.....  
 .....

ii. What is the time period of an action potential?

.....

iii. Name two factors contributing to increase the speed of nerve impulse transmission, and mention how it contributes to increase the speed.

Factor	Type of the Contribution
.....	.....
.....	.....

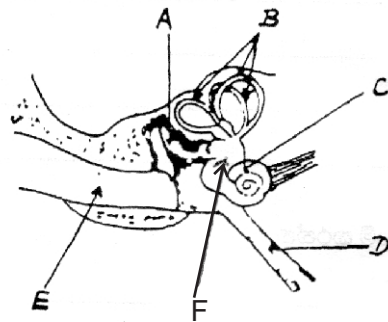
iv. State the feature of an action potential which prevent the reverse condition of a nerve impulse.

.....  
 .....

v. Name three neuro transmitters that are responsible for transmission of nerve impulse.

.....  
 .....

B.



i. Name the A,B,C,D, E and F part the diagram given above.

- A - .....
- B - .....
- C - .....
- D - .....
- E - .....
- F - .....

ii. Write a function of B and D.

- B - .....
- D - .....

iii. Name the sensitive cells found in F. Mention its function.

- Name of the sensitive cell - .....
- Function - .....

iv. What type of receptors do pressures receptors belong to?

.....  
.....  
.....

C. i. What is an Endocrine ?

.....  
.....  
.....

ii. Name an organ of the human endocrine system which acts both endocrine gland and exocrine gland ?

.....

iii. State the name of cell which act as endocrine and exocrine function in above organ

.....  
.....

iv Name the hormones responsible for following functions and name its site of production.

	Function	Hormone	Site of Production
a	- Stimulating the myometrial contraction	.....	.....
b	- Increasing the $Ca^{2+}$ level in blood	.....	.....
c	- Stimulating production of milk	.....	.....
d	- Contraction of gall bladder	.....	.....
e	- Maturation of T - lymphocytes	.....	.....

04. (A) i. What is meant by reproduction.?

.....

ii. What is meant by capacitation, which relevant to the fertilization of gametes in human.

.....  
.....  
.....

iii. Mention two enzymes found in the Acrosome of the human sperm.

.....

iv. How do you name the Nuclei of gametes, just before fertization.

Male gametes .....

Female gametes .....

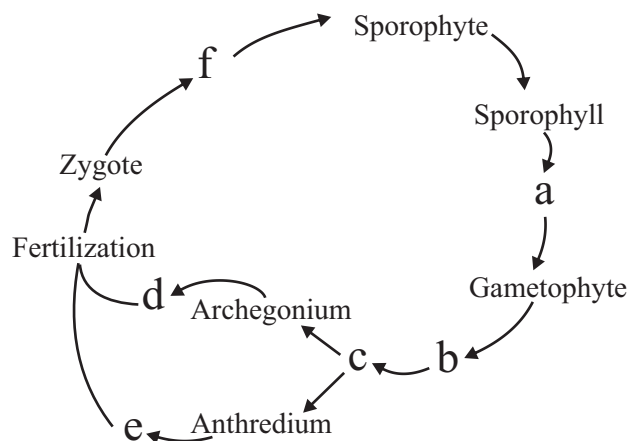
v. What is the special structure seen in Blastocyst that helps in implantation ?

.....

- (B)
- i. What is meant by human placenta ?  
 .....  
 .....
  - ii Name the two methods that involve in exchange of materials through the placenta.  
 .....  
 .....
  - iii. Name a hormone produced from the human placenta since the beginning ?  
 .....
  - iv. What is the function of umbilical cord ?  
 .....  
 .....
  - v. What is the hormone that declines rapidly in maternal blood close to parturition ?  
 .....

- (C)
- i. Name an underground stem of higher plants that acts as a vegetative propagatory organ and a parenating organ.  
 .....
  - ii Name the two growth substances used in culture media for plant tissue culture.  
 .....  
 .....
  - iii. What is ment by Alternation of generation in plants ?  
 .....

iv. The digram given below indicates the life cycle of Nephrolepis.



Name the stages labeled as a, b, c, d, e, f

- a - .....
- b - .....
- c - .....
- d - .....
- e - .....
- f - .....

iii. What are the structures at which, meiosis takes place in the above life cycle.

.....

(C) i. What is meant by Polyallelism ?

.....  
.....

ii Name four characters that are transmitted through polygenic inheritance.

.....  
.....  
.....  
.....

iii. Name two genetic disorders in humans caused by single gene mutations.

.....  
.....

iv. State a factor that affects on Induced mutation.

.....

v. State two deductions of Darwin - Wallace theory of natural selections.

.....  
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## Final Examination - Grade 13 - 2016

### Biology II

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#### Impotent

**Part B** - Essay, Answer four questions only. Give clearly labeled diagrams where necessary.

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5.
  - I. Explain the conducting system of Heart.
  - II. Explain about the features of Lymphatic system, its general structure and its function briefly.
6.
  - I. Explain the gross structure of the kidney.
  - II. Explain the formation of urine in human.
7.
  - I. Mention the main functions of the human skeletal system.
  - II. Name the three types of skeleton found in the animal kingdom and explain briefly providing an example of each.
8.
  - I. What is meant by solid waste?
  - II. What are the environment and health hazards due to unorganized disposal of solid waste?
  - III. What are the methods by which these problem can be minimized?
9. Describe the components of our Eco system and role of the each component.
10. Write short notes on the following.
  - I. The effect of smoking on the functioning of the respiratory system.
  - II. Regulation of body temperature.
  - III. Bud grafting.