

NAME: .....Index number .....

**P530/1**  
**BIOLOGY**  
**Paper 1**  
**2 ½ hrs**

**B.H.S**  
**UACE BIOLOGY PAPER 1**  
**2 HOURS 30 MINS**

**INSTRUCTIONS:**

Answer all questions. In section A answer in the box provided. In section B, answer in the spaces provided.

Section	Marks
<b>A(1-40)</b>	
<b>41</b>	
<b>41</b>	
<b>43</b>	
<b>B</b> <b>44</b>	
<b>45</b>	
<b>46</b>	
<b>Total</b>	

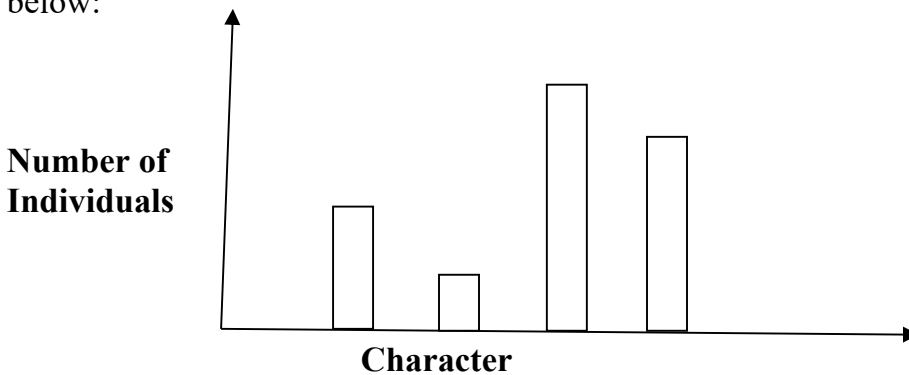
- Which of the following cells is haploid?  
(a) Premordial germ cell                      (b) Primary spermatocyte.   
(c) Spermatogonium                              (d) Secondary spermatocyte.
- Which of the following characteristics of a parasite is not a means of ensuring continuity of the species of the parasite?  
(a) Means of dispersal of offspring  
(b) Regeneration of redundant body parts.  
(c) Means of penetrating another organism.   
(d) Protection against enzymes`
- Why lipids are considered better energy sources than carbohydrates?  
It is because lipids  
(a) are insoluble in water.                      (b) do not form hydrogen bonds with water

- (c) are more compact (d) have higher population of hydrogen.
4. Which of the following events occur both in mitosis and meiosis?  
 (a) DNA synthesis (b) synapsis  
 (c) crossing over (d) halving chromosome number
5. Which one of the following could result from low level of progesterone during gestation?  
 (a) Miscarriage (b) Parturition (c) Menstruation (d) Lactation.
6. Which of the following epithelial tissue lines blood capillaries?  
 (a) glandular tissue (b) cuboidal tissue  
 (b) squamous tissue (d) columnar tissue.
7. The biomass of consumers is always less than that of producers because  
 (a) consumers are small in size (b) Producers have to support consumers  
 (c) Energy is lost in consumers (d) consumers have a low productive rate.
8. Analysis of a DNA sample showed that 34% of the bases were adenine. The percentage of guanine bases in the sample was:  
 (a) 35 (b) 16 (c) 28 (d) 34
9. In sponges, the different types of cells are independent of each other in function because   
 (a) They show divisions of labour  
 (b) Cottar cells maintain flow of water  
 (c) The cells are not co-ordinated  
 d) Sponges are made up of collar flagellates
10. Which of the following conditions reduces the affinity of hemoglobin for oxygen?   
 (a) high oxygen concentration (b) High carbondioxide concentration  
 (c) low body temperature (d) High pH of the blood.
11. One of the following is not used to describe a population of organisms.  
 (a) size (b) density (c) Distribution (d) biodiversity
12. The following occurs during senescence except   
 (a) Shrinking body (b) Increased sensitivity  
 (c) hardening sensitivity (d) Mental senility
13. Which of the following is synthesized at interphase during mitosis  
 (a) t R NA mR NA r R NA D NA
14. A mammal eats more food than a reptile of the same body weight because   
 (a) a mammal lives longer (b) a mammal controls its body temperature  
 (c) a mammal egest more food (d) No heat absorption occurs in a mammal.
15. Ripening of raw tomatoes when mixed with ripe ones occurs because ripe tomatoes produce.

- (a) warmth      (b) cytokines      (c) ethane      (d) gibberellins

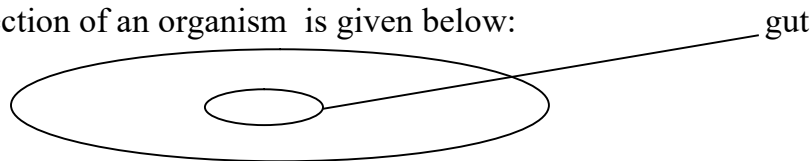
16. Which of the following activities does not contribute to green house effect?  
 (a) Deforestation      (b) use of CFCs  
 (c) Discharge of gases from industries      (d) Burning of fossil fuels
17. Which of the following factors is least likely to contribute to development of new species.  
 (a) stabilizing selection      (b) Geographical Isolation  
 (c) Gene mutation      (d) Reproductive isolation
18. Production of Uric acid in insects is an adaptation for.  
 (a) Conserving mineral salts      (b) Conserving water  
 (c) removing excess water      (d) Maintaining energy loss.
19. Primary growth in plants is mainly the activity of  
 (a) optical meristem      (b) Laterel meristems  
 (c) intercalary meristems      (d) Primary Meristems
20. In Bryophytes, gametes are produced by  
 (a) gametophyte through mitosis      (b) Sporophyte through meiosis  
 (c) sporophyte through mitosis      (d) gametophyte through meiosis

21. Which of the following is a likely character in a human population shown in the figure below:



- (a) Figure length      (b) Height      (c) Ear size      (d) Blood groups
22. Which of the following enzymes would be adversely affected by high pH?  
 (a) Lipase      (b) Trypsin      (c) amylase      Pepsin
23. Which one of the following features is not essential for gaseous exchange in the lungs?  
 (a) Thin epithelium      (b) Pleural fluid  
 (c) dense net work of capillaries      (d) Presence of moisture

24. Which of these glands is compound saccular?  
 (a) Mammary gland (b) Sebaceous glands  
 (c) sweat glands (d) gastric glands.
25. Which of the following would lead to genetic death in an animal population?  
 (a) albinism (b) Haemophilia (c) sickle cell trait (d) Infertile males.
26. Which of the following cell organelles is associated with the final stage of most cell secretion?  
 (a) Ribosome (b) Rough endoplasmic reticulum  
 (c) Golgi apparatus (d) smooth endoplasmic reticulum
27. Which of the following substances contains globular proteins?  
 (a) Enzymes (b) Keratin (c) Elastin (d) collagen
28. Which of the following counteracts rolling in a bony fish?  
 (a) Dorsal body flattening  
 (b) General massiveness of the head  
 (c) Pressure of water against the sides  
 (d) Vertical and horizontal fins
29. A cross section of an organism is given below:



- Which of the following means of gaseous exchange would be most suitable for the organism.
- (a) Use of gills (b) diffusion over the body  
 (d) Use of lungs (e) Use of trachea
30. Which of the following qualities of guard cells least contribute to their opening?  
 (a) Presence of vacuole (b) Presence of chloroplasts  
 (c) Inner wall being less elastic than outer wall. (d) Uneven thickening of walls.
31. Which of the following is a fibrous soluble protein  
 (a) myosin (b) collagen (c) myoglobin (d) Fibrinogen
32. A muscle of an individual contains 24 chromosomes would a germinal epithelium cell with in the way contain.



**SECTION B 60 MKS**

41. (a) State the role of cell membranes. (1mk)

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(c) Why is transport across cell membranes necessary (5mks)

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(d) Give two examples of processes in plants that require active transport

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(e) Give two examples of processes in plants that require active transport. (1mk)

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42. (a) What is meant by primary productivity? (1mk)

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(b) State four groups of organisms that contribute to primary productivity. (2mks)

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Explain how water stress affects primary productivity in plants. (5mks)

(ii) Chlorosis can affect primary productivity in plants. Explain. (3mks)

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43. (a) Show how triglyceride is formed from a fatty acid and glycerol. (3mks)

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(b) What properties do lipids possess as storage food substances (2mks)

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(b) Outline the physiological and structural function of lipids in living organisms.  
(i) Physiological (3mks)

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(ii) structural (2mks)

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44. (a) What is meant by inhibition of an enzyme? (1mk)

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(b) Explain how end product inhibition in an enzyme controlled reaction in a negative feed back. (7mks)

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(c) Explain the role of activities of an enzyme in enzyme specificity. (2mks)

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45. Explain the need for a capillary

(a) to be smaller in diameter than a red blood cell passing through it. (2mks)

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(b) Explain the need for special respiratory surfaces and transport pigment in higher animals. (3mks)

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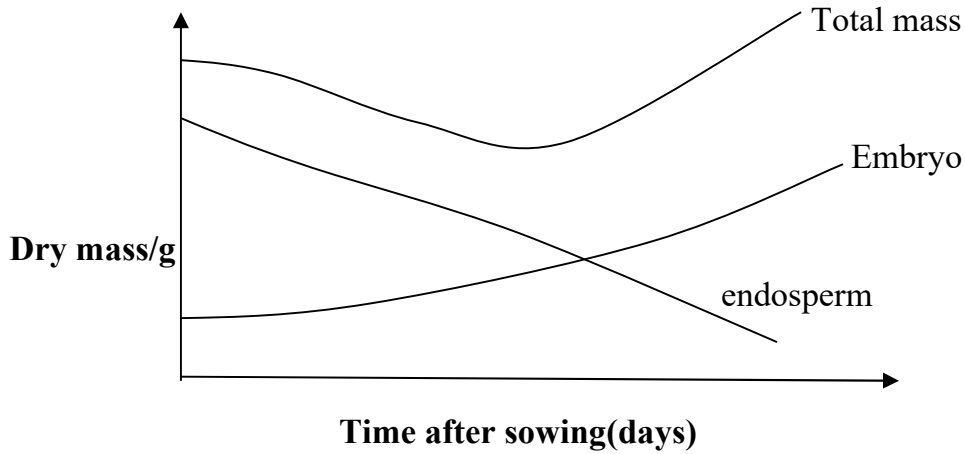
(c) Gaseous exchange occurs efficiently in higher plants with out transport system pigment. Explain (5mks)

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46. The figure below shows change in dry mass of the embryo, endosperm and total mass of maize seeds germinating in light conditions.



(a) Explain the changes in relative dry mass of the (i) endosperm. (3mks)

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(ii) Embryo. (2mks)

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- (b) Explain why the total mass of the seedlings initially decreases then later increases. (2mks)

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- (c) suggest with reasons, what would happen to the total dry mass of the seedlings if the seeds were germinated in the dark. (3mks)

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End