

AGA KHAN UNIVERSITY EXAMINATION BOARD

HIGHER SECONDARY SCHOOL CERTIFICATE

CLASS XI EXAMINATION

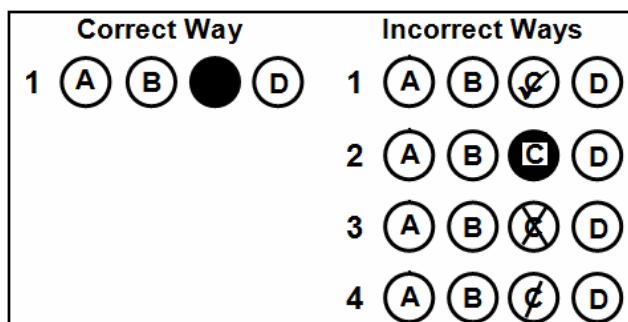
MAY 2012

Biology Paper I

Time allowed: 40 minutes Marks 30

INSTRUCTIONS

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 30 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.



Candidate's Signature

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.

1. A student is interested to study the fauna of a lake.

Which branch of biology should he/she select?

- A. Microbiology
- B. Marine biology
- C. Fresh water biology
- D. Social biology

2. The compound formed by combination of a base and a pentose sugar is called

- A. nucleoside.
- B. nucleotide.
- C. dinucleotide.
- D. trinucleotide.

3. Which of the following is a set of macro-molecules?

- A. Cellulose, water and collagen
- B. Cellulose, water and wax
- C. Oxygen, collagen and water
- D. Cellulose, collagen and wax

4. Which of the following sequences correctly represents the result of a reaction involving an enzyme?

- A. $P_1 + S \rightarrow P_2 + E$
- B. $S + E \rightarrow P_1 + P_2$
- C. $P_1 + P_2 + E \rightarrow S + E$
- D. $S + E \rightarrow P_1 + P_2 + E$

Key

E = Enzyme

P₁ = Product 1

P₂ = Product 2

S = Substrate

5. Which of the following is correct about a prokaryotic cell?

	Endoplasmic reticulum	DNA	RNA	Nucleus
A.	✓	✓	✗	✗
B.	✓	✗	✗	✓
C.	✗	✓	✓	✗
D.	✗	✗	✓	✓

6. Which of the following is the function of nucleoli?

- A. Formation of ribosomes
- B. Formation of centromeres
- C. Organisation of the spindle during nuclear division
- D. Formation and breakdown of the nuclear envelope

7. Which diagram represents an organelle that contains the enzyme needed to synthesize ATP in the presence of oxygen?



A

B

C

D

8. With the development of modern research methods, viruses are now recognized as
- cellular organisms with nucleic acid.
 - cellular organisms without nucleic acid.
 - particles of nucleic acid often with a protein coat.
 - particles of nucleic acid without a protein coat.
9. Measles and influenza viruses cause diseases in humans. Which of the following is a similarity between these two viruses?
- Both are enveloped RNA viruses
 - Both are naked RNA viruses
 - Both are enveloped DNA viruses
 - Both are naked DNA viruses
10. How are Gram negative bacteria different from Gram positive bacteria?
- Periplasmic space is absent
 - Outer membrane is absent
 - Higher percentage of lipids
 - More permeable to dyes
11. Which of the following antibiotics correctly matches with its effect when misused?

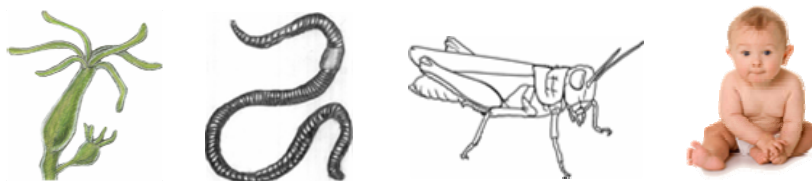
	Antibiotic	Effect of Misuse
A.	Penicillin	Deafness
B.	Tetracycline	Discoloration of teeth
C.	Streptomycin	Allergic reactions
D.	Penicillin	Discoloration of teeth

12. Which of the following statements is true about cyanobacteria?
- They lack flagella.
 - They are true eukaryotes.
 - They consist of bunches of cells.
 - They do not contain chlorophyll.

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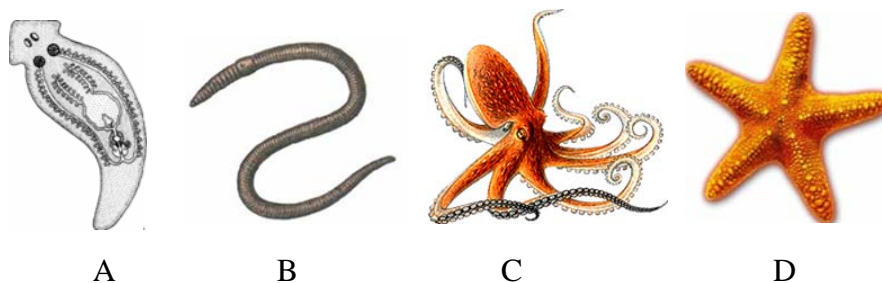
13. Algae are different from plants as
- A. they lack chlorophyll.
 - B. they have unicellular sex organs.
 - C. the cell wall is absent.
 - D. the zygote is protected by the parent body.
14. The flexible outer covering in paramecium is called
- A. tests.
 - B. cilia.
 - C. pellicle.
 - D. flagella.
15. The shells of foraminiferans contain pores through which cytoplasmic projections are extended which help foraminiferans to
- A. entangle their prey.
 - B. form limestone deposits.
 - C. exchange genetic material.
 - D. enhance under water beauty.
16. Which of the following is a non-hyphal fungi?
- A. Mushroom
 - B. Rhizopus
 - C. Ustilago
 - D. Yeast
17. Which of the following is FALSE about the land adaptation of fungi?
- A. Spores produced in large numbers
 - B. No need of water for fertilization
 - C. Hyphae absorb water
 - D. Gametes have flagella
18. Based on the fact that a watermelon contains many seeds, what can be inferred about a normal flower of a watermelon plant?
- A. It contains many sepals and petals.
 - B. It contains very large anthers.
 - C. It contains a large number of ovules.
 - D. It contains a large number of stamens.
19. Which of the following groups belongs to phylum arthropoda?
- A. Annelids, insects and myriapods
 - B. Arachnids, crustaceans and myriapods
 - C. Crustaceans, insects and molluscs
 - D. Insects, myriapods and nematodes

20. The organisms shown in the figure are classified in the same



- A. genus.
- B. species.
- C. phylum.
- D. kingdom.

21. Which of the following animals does NOT possess a coelom?



22. The fermentation of glucose by yeast normally yields

- A. lactic acid, CO₂ and 2 ATP.
- B. alcohol, CO₂ and 36 ATP.
- C. alcohol, CO₂ and 2 ATP.
- D. CO₂, H₂O and 36 ATP.

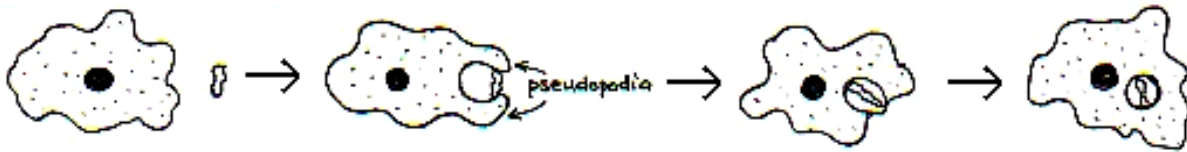
23. Which of the following mechanisms applies to Krebs's cycle?

	Production of ATP	Formation of Pyruvate	Production of Carbon dioxide
A	✓	✓	✗
B	✗	✗	✓
C	✓	✗	✓
D	✗	✓	✗

24. The presence of cilia, an oral groove and food vacuole, and the absence of chloroplast in a unicellular organism indicate that the organism carries on

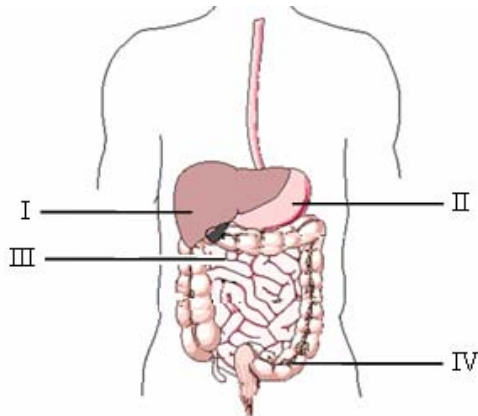
- A. sexual reproduction.
- B. autotrophic nutrition.
- C. extracellular digestion.
- D. heterotrophic nutrition.

25. Which of the following processes in amoeba is shown in the diagram?



- A. Egestion
- B. Ingestion
- C. Synthesis
- D. Respiration

26. The diagram shows the alimentary canal of a man with its associated glands.



In which region/s of the alimentary canal does the digestion of fats take place?

- A. I and III
- B. II only
- C. III only
- D. III and IV

27. In cockroach, gaseous exchange takes place by

- A. tracheal tubules.
- B. spiracles.
- C. lungs.
- D. gills.

28. What is the role of antigens in the defence mechanism against diseases?

- A. They bind to invading pathogens.
- B. They trigger the immune response.
- C. They inactivate invading antibodies.
- D. They suppress the inflammation response.

29. Which of the following is FALSE about platelets?
- A. Smaller than white blood cells
 - B. Contain DNA
 - C. Irregular cell fragments
 - D. Deficiency causes thrombocytopenia
30. The diagnosis of a blood disorder shows swollen spleen of the patient. It is because of
- A. inadequate production of white blood cells.
 - B. storage of too much fluid in the tissues.
 - C. renal retention of salts and water.
 - D. excessive destruction of red blood cells.

Please use this page for rough work