

**AGA KHAN UNIVERSITY EXAMINATION BOARD**

**SECONDARY SCHOOL CERTIFICATE**

**CLASS IX EXAMINATION**

**MAY 2016**

**Biology Paper I**

**Time: 35 minutes    Marks: 25**

**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 25 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.

| Correct Way |  | Incorrect Ways |  |
|-------------|--|----------------|--|
| 1           |  | 1              |  |
|             |  | 2              |  |
|             |  | 3              |  |
|             |  | 4              |  |

**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. Around 1.6 million species for all kingdoms has been classified and named as of April 2015 in 'Catalogue of Life', the most comprehensive and authoritative global index of species.

The above contribution to the field of biology is mainly an effort of

- A. histologists.
- B. taxonomists.
- C. immunologists.
- D. biotechnologists.

2. The wide variety of landscapes and climates in Pakistan allows for a diversity of wild animals and birds. The forests range from coniferous alpine and subalpine trees to deciduous trees in the Sulaiman range in the south.

The above statement shows a link between biology and

- A. chemistry.
- B. geography.
- C. economics.
- D. mathematics.

3. A theory becomes a law when it is

- A. used to form deductions.
- B. followed by further research.
- C. tested on both animals and plants.
- D. universally accepted by the scientists.

4. A scientist investigates the effect of increasing calcium nitrate concentration on the height of two different species of plants at constant temperature. He then organises the data in graphical form.

While drawing the graph, which quantity must he take on y-axis?

- A. Temperature
- B. Height of plants
- C. Species of plants
- D. Concentration of calcium nitrate

5. Flipper of a whale and wing of a bat have similar

- I. internal arrangement.
- II. basic function.
- III. external morphology.

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

6. Two kingdom classification system failed to justify the placement of all living organisms in just two groups. This is because the classification was based on only
- A. mode of nutrition.
  - B. cellular organisation.
  - C. reproductive behaviour.
  - D. geographical distribution.

7. Bryophytes are unable to pull water and nutrients up from the ground to any significant distance due to the absence of
- A. true roots.
  - B. chlorophyll.
  - C. epidermal layer.
  - D. vascular tissues.

8. The scientific classification of a plant is given below.

Order: Asparagales

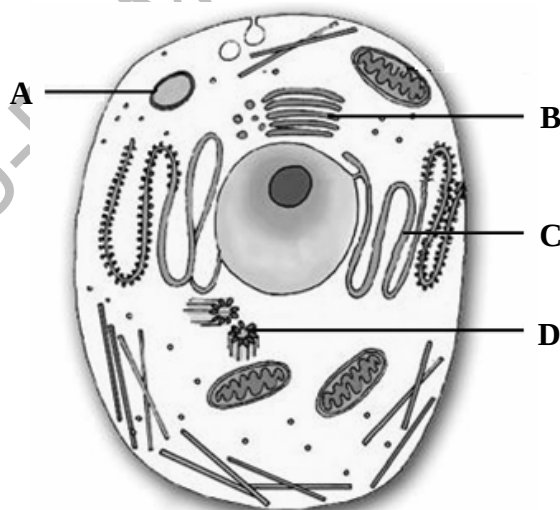
Genus: *Allium*

Division: Angiosperm

Family: Amaryllidaceae

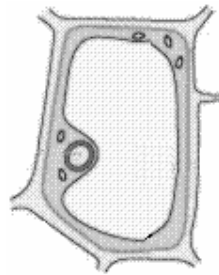
Following the rules of binomial nomenclature, the species of the plant would be

- A. *Allium cepa*.
  - B. *Angiosperm cepa*.
  - C. *Asparagales cepa*.
  - D. *Amaryllidaceae cepa*.
9. Which of the labelled organelles of the given animal cell is made up of microtubules?

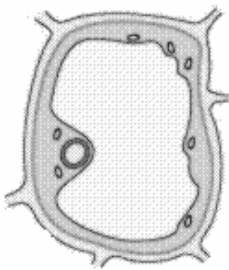


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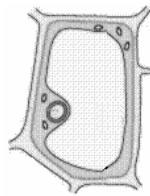
10. The diagram below shows a plant cell when placed in an isotonic solution.



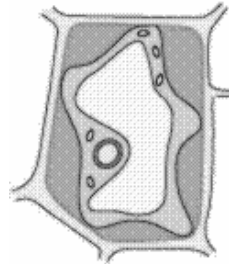
Which of the following diagrams shows the state of the plant cell after it is placed in a hypertonic solution for two hours?



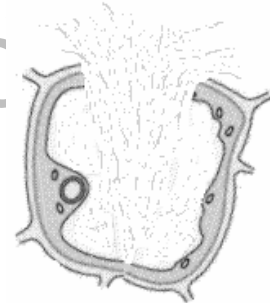
A



B



C



D

11. Companion cells are different from phloem tissues due to the presence of
- A. sieve plates.
  - B. nucleic acid.
  - C. lignified walls.
  - D. little protoplasm.
12. Skin cells do NOT enter  $G_0$  phase of the cell cycle as
- A. they lack  $G_1$  phase.
  - B. they keep on dividing.
  - C. their nuclei degenerate forever.
  - D. their supply of proteins is stopped.
13. The original number of chromosomes in daughter cells is maintained when the parent chromosomes undergo
- A. replication.
  - B. cytokinesis.
  - C. condensation.
  - D. crossing over.

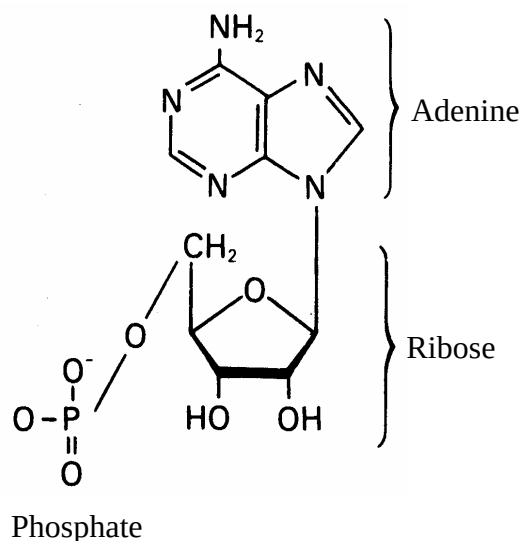
14. Synapsis is defined as the pairing of two
- sister chromatids of homologous chromosomes.
  - sister chromatids of non-homologous chromosomes.
  - non-sister chromatids of homologous chromosomes.
  - non-sister chromatids of non-homologous chromosomes.
15. The table below shows the mass of DNA in some cells of the human body.

| Cell Type | Mass of DNA in Cell (picogram) |
|-----------|--------------------------------|
| Kidney    | 6.6                            |
| Liver     | 6.6                            |
| X         | 3.3                            |

Cell X is most likely to be a

- skin cell.
  - lung cell.
  - nerve cell.
  - sperm cell.
16. An enzyme, tyrosinase, acts on tyrosine to catalyse the production of melanin in animal tissues. The enzyme can work in the presence of copper ions only.
- In the given case, copper is acting as a/ an
- inhibitor.
  - co-factor.
  - substrate.
  - active site.
17. An enzyme catalyses a chemical reaction by lowering the
- amount of enzyme consumed.
  - optimum yield of the product.
  - pH of the surrounding medium.
  - energy requirement of the reaction.

18. The diagram shows a nucleotide known as the chief currency of all cells.



In the given state, the above nucleotide is capable of

- A. gaining one adenine molecule.
  - B. releasing one adenine molecule.
  - C. gaining one inorganic phosphate.
  - D. releasing one inorganic phosphate.
19. Which of the following is the final step of cellular respiration?
- A. Formation of pyruvic acid
  - B. Synthesis of ATP molecules
  - C. Breakdown of carbon dioxide
  - D. Conversion of NAD into NADH
20. Wholemeal bread, banana, lettuce and cabbage are good sources of
- A. fat.
  - B. fibre.
  - C. water.
  - D. protein.
21. The example of assimilation of food in the body is
- A. release of bile by the liver.
  - B. use of glucose in respiration.
  - C. entry of fatty acids into lacteal.
  - D. breakdown of starch into glucose.

22. Which of the following indicates the movement of larynx and state of trachea during the swallowing of food?

|   | <b>Movement of Larynx</b> | <b>Passage to Trachea</b> |
|---|---------------------------|---------------------------|
| A | Up                        | Open                      |
| B | Up                        | Closed                    |
| C | Down                      | Open                      |
| D | Down                      | Closed                    |

23. A patient is found with the following symptoms.

- Abdominal pain
- Nausea
- Loss of appetite
- Regurgitation
- Abdominal burning

He is most likely to be suffering from

- A. diarrhoea.  
 B. peptic ulcer.  
 C. constipation.  
 D. nutritional anaemia.
24. Xylem vessels are long, narrow and hollow tubes. These structural features of xylem vessels help to transport water from roots to leaves through
- A. translocation.  
 B. root pressure.  
 C. capillary action.  
 D. transpiration pull.
25. The purpose of bicuspid and tricuspid valves in the heart is to
- A. prevent the backflow of blood.  
 B. push blood with immense force.  
 C. reduce friction during heart contractions.  
 D. separate oxygenated and deoxygenated blood.

Please use this page for rough work

AKU-EB MAY EXAMINATIONS 2016