

MARCH 2024 MOCK EXAMINATION (BIOLOGY 1)

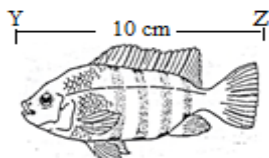
DURATION: 45 minutes

ANSWER ALL QUESTIONS

1. A student was provided with a specimen of a toad 10cm long. The student made a drawing of the specimen of length 12cm long. Calculate the magnification of the drawing.

- A. x 2.2 B. x 1.2 C. x 0.3 D. x 12.0

2. The line YZ in the diagram below represents the length of the drawing. What is the actual length of the specimen if the magnification is 0.5?



- A. 0.5cm B. 10cm C. 20cm D. 5cm

3. The head end of an animal is at its

- A. Anterior end B. dorsal end
C. lateral end D. posterior end

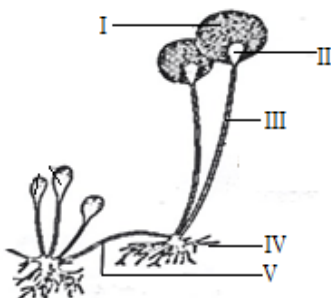
4. Which of these is **NOT** a true statement of the cell theory?

- A. All living organisms are composed of one or more cells.
B. The cell is the structural and functional unit of all living organisms.
C. All living cells come from the reproduction of pre-existing cells.
D. A cell does not contain information for its structural and functional development in its nucleic acids.

5. Which of the following parts of an organism is a tissue?

- A. Blood of a mammal B. Flower of a plant
C. Leaf of a plant D. Neurone of a man.

Use the diagram below to answer questions



6. The structure labelled II is the

- A. columella B. stolon
C. spore D. sporangium

7. The structure labelled I am associated with

- A. sexual reproduction B. gamete formation
C. asexual reproduction D. bud formation

8. Which of the following statement about the structure labelled IV is **true**? It

- A. releases digestive enzymes onto the substrate.
B. is the root hair of the plant.
C. absorbs mineral salts from the soil.

D. is the point where root nodules are formed.

9. In mosses, the gametophyte develops immediately from the

- A. protonema B. gemmae
C. prothallus D. spores

10. The indusium of a fern covers the

- A. antheridia B. archegonium
C. sporangia D. spores

11. Which of the following developmental stages is **not** present in a complete metamorphosis?

- A. Imago B. Larva C. Nymph D. Pupa

12. The caterpillar is attached to the silk pad by the

- A. true legs B. silk girdle
C. prolegs D. claspers

13. Oil applied to the surface of water kills the larvae of mosquitoes through:

- A. dehydration B. poisoning
C. starvation D. suffocation

14. Which of the following insect's activities would increase the cost of mechanized farming?

- A. Grasshopper B. Honey bee
C. Mosquitoes D. Termites

15. Maize grains are best stored against insect attack by:

- A. covering with leaves B. leaving them in their cobs
C. storing in the room D. keeping in a silo

16. The mycelial growth habit leads to a body with a high surface area-to-volume ratio. Why is this important?

- A. Mycelia have a large surface area for absorption.
B. The hyphae that make mycelium are long, thin tubes
C. Hyphae are broken into compartments by walls called septa
D. Hyphae can infiltrate living or dead cells.

17. Which protostome is distinguished by having body segments organized into distinct regions?

- A. Mollusca B. Arthropoda
C. Annelida D. Nematoda

18. An open circulatory system is less efficient than a closed circulatory system in what respect?

- A. It is harder to deliver O₂ to specific tissues based on need
B. Haemolymph does not contain respiratory pigments, such as haemoglobin.
C. There is no heart to pump the blood.
D. In a closed circulatory system, body movement can not help circulate the blood.

19. Which of the following promotes oxygen release from haemoglobin?

- A. a decrease in temperature.
- B. a decrease in CO₂ levels
- C. a decrease in pH.
- D. a decrease in carbonic anhydrase.

20. How is most carbon dioxide transported in the blood?

- A. as a gas in the plasma
- B. bond to an amino group on haemoglobin.
- C. bond to the haem group on the haemoglobin.
- D. as bicarbonate ions (HCO₃⁻) in plasma.

21. Members of Chondrichthyes are thought to be descended from fishes that had.....

- A. a cartilaginous skeleton
- B. a bony skeleton
- C. mucus glands
- D. slime glands

22. Monotremes include:

- A. kangaroos
- B. koalas
- C. bandicoots
- D. platypuses

23. Which of the following is a pseudo-ruminant?

- A. cow
- B. pig
- C. crow
- D. horse

24. The acidic nature of chyme is neutralized by;

- A. potassium hydroxide
- B. sodium hydroxide
- C. bicarbonates
- D. vinegar

25. Which hormone controls the release of bile from the gallbladder

- A. pepsin
- B. amylase
- C. CCK
- D. gastrin

26. Neurons contain ____, which can receive signals from other neurons.

- A. axons
- B. mitochondria
- C. dendrites
- D. Golgi bodies

27. Activation of the sympathetic nervous system causes:

- A. increased blood flow into the skin
- B. a decreased heart rate
- C. an increased heart rate
- D. increased digestion

28. _____ is released by motor nerve endings onto muscle.

- A. Acetylcholine
- B. Norepinephrine
- C. Dopamine
- D. Serotonin

29. Parkinson's disease is caused by the degeneration of neurons that release _____.

- A. serotonin
- B. dopamine
- C. glutamate
- D. norepinephrine

30. Where does perception occur?

- A. spinal cord
- B. cerebral cortex
- C. receptors
- D. thalamus

31. An ecologist hiking up a mountain may notice different biomes along the way due to changes in all of the following except:

- A. elevation
- B. rainfall
- C. latitude
- D. temperature

32. A key feature of estuaries is:

- A. low light conditions and high productivity
- B. salt water and fresh water
- C. frequent algal blooms
- D. little or no vegetation

33. Where would you expect to find the most photosynthesis in an ocean biome?

- A. aphotic zone
- B. abyssal zone
- C. benthic realm
- D. intertidal zone

34. The maximum rate of increased characteristic of a species is called its _____.

- A. limit
- B. carrying capacity
- C. biotic potential
- D. exponential growth pattern

35. The population size of a species capable of being supported by the environment is called its _____.

- A. limit
- B. carrying capacity
- C. biotic potential
- D. logistic growth pattern

36. The first species to live on new land, such as that formed from volcanic lava, are called _____.

- A. climax community
- B. keystone species
- C. foundation species
- D. pioneer species

37. Which type of mimicry involves multiple species with similar warning coloration that are all toxic to predators?

- A. Batesian mimicry
- B. Müllerian mimicry
- C. Emsleyan/Mertensian mimicry
- D. Mertensian mimicry

38. A re-created ecosystem in a laboratory environment is known as a _____.

- A. mesocosm
- B. simulation
- C. microcosm
- D. reproduction

39. The weight of living organisms in an ecosystem at a particular point in time is called:

- A. energy
- B. production
- C. entropy
- D. biomass

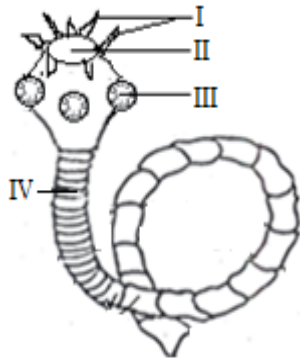
40. The primary producers in an ocean grazing food web are usually _____.

- A. plants
- B. animals
- C. fungi
- D. phytoplankton

41. The process whereby nitrogen is brought into organic molecules is called _____.

- A. nitrification
- B. denitrification
- C. nitrogen fixation
- D. nitrogen cycling

The diagram below represents the head region of an organism. Study it and answer Questions 42 to 44



42. Which of the labelled parts is used to fasten the organism to its host?
A. I and III **B.** I and IV **C.** II and III **D.** II and IV
43. The structure labelled **II** is called the
A. sucker **B.** hook **C.** rostellum **D.** proglottid.
44. The habitat of the organism is the
A. circulatory system of adult invertebrate
B. digestive tract of adult vertebrate.
C. reproductive system of young vertebrate
D. excretory organ of young invertebrates

Use the sewage disposal methods listed below to answer Questions 45 to 47.

I. Pit latrine II. KVIP III. Water closet

45. Which method pollutes underground water?
A. I only **B.** II only
C. I and II only **D.** I, II, and III.
46. The correct order of preference of the methods in terms of hygiene is
A. I, II, and III. **B.** II, III, and I.
C. III, I, and II. **D.** III, II, and I.
47. The most hygienic method of sewage disposal is
A. bucket latrine **B.** KVIP
C. pit latrine **D.** water closet.
48. The line transect is normally used in sampling:
A. grass in the savanna
B. fast-moving animals
C. slow-moving animals
D. trees in the forest
49. A vegetable farmer will benefit from a cattle rearer if the
A. faecal remains of the cattle are made available to the farmer.
B. farmer makes available fresh green vegetables for consumption by the cattle farmer
C. farmer provides shelter for the cattle and cattle farmer
D. cattle rearer makes available meat to the farmer daily

Consider the following factors:

- I** – Poor storage facility
- II** – Damage caused by pests
- III** – Damage caused by diseases
- IV** – Inadequate transport facilities
- V** – Late harvesting
- VI** – Inadequate processing facilities
- VII** – Natural disaster
- VIII** – Bush burning or bushfires

50. Which of the factors listed above can cause food shortage in an ecosystem?

- A.** I, II, III, IV, V, VI, VII and VIII
- B.** I, IV, V, VI, VII, and VIII only
- C.** I, II, III, IV, V, and VIII only
- D.** II, III, V, VI, VII and VIII only