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Biology, 2013 EC, natural science, entrance exam

Grade 12 · Biology · 2013 E.C.

Time allowed: 120 minutes **Questions:** 30 **Total marks:** 30

Name _____ Grade _____ ID No. _____ Date _____

1. Which one of the following is true about the importance of Lucy in resolving debates about human evolution? (1)

A. Big brains came before bipedalism.

B. Lucy had a brain size of 18% of her body mass.

C. Bipedalism came before big brains.

D. Lucy was partially an arboreal primate.

2. Which one of the following can best explain behavior? It is (1)

A. the co-ordinated response of an organism to an internal or externalstimuli.

B. the tendency for parts of plants to grow towards light.

C. the actions or reactions of a person or animal in response to external or internal stimuli.

D. a cell or group of cells that receives and processes stimuli.

3. The quick withdrawal of your hand from a hot plate is an example of (1)

A. fixed action pattern.

B. innate behavior.

C. biological clock.

D. key stimulus.

4. Which one of the following processes describes a biological clock? (1)

A. Removal of one's thumb from hot objects quickly

B. The growing of plants towards light

C. Circannual migration of birds from temperature to tropical areas

D. Kinenis and taxes of woodlice and other simple animals

5. Identify learned behavior from the following. (1)

A. Dog trained to hunt.

B. Honey bee making honey.

C. Child withdrawals hand from hot things.

D. Ants making nest.

6. Which one of the following features is unique to bacteria? (1)

A. Presence of permeable membrane

B. Being unicellular

C. Absence of nuclear membrane

D. Having flagella for location

7. It is possible to produce human insulin in a bacteria strain. The insulin gene should be inserted in a plasmid and the recombinant DNA plasmid should be inserted into a bacterium. What is the role of bacterium in this process? (1)

A. The source of insulin and modification

B. The source of plasmid and insulin production

C. Multiplying the recombinant DNA molecule

D. Joining the gene of insulin with the gene of plasmid

8. Bacteria can cause diseases in all of the following mechanisms EXCEPT (1)

A. changing the genetic structure of host cells.

B. entering living cells and disrupting metabolic systems.

C. releasing toxins as they multiply.

D. invading and growing on the tissues of organs.

9. Functional diseases differ from infection discases in that they (1)

A. are caused by microorganisms.

B. occur in the brain and heart.

C. are common in females than males.

D. show no signs of damage on the organ of organ system

10. The social impact of AIDS can be mainly revealed by (1)

A. fear of stigmatization.

B. loss of appetite.

C. reduced labor force.

D. loss of body weight.

11. Which one of the following is a DNA virus? (1)

A. Herpes complex

B. HIV

C. Hepatitis C

D. HINI

12. Which one of the following is a correct comparison of lytic and lysogenic cycles of virus multiplication? (1)

A. Lysogenic cycle releases new viruses using only chronic cycle.

B. Lytic cycle involves incorporation of viral DNA into the host DN

C. Lytic cycle releases new viruses only by splitting the host cell.

D. Both cycles damage the host cell DNA following infection.

13. In an HIV/AIDS community screening were asked to take part in voluntary testing. The following discussion presents the views of four grade 12 students named A, B, C and D towards HIV testing. (1)

#Students A: I should not take the testing; it is simply boring.
#Students B: We should take the testing, since we are educated, we should be exemplary.
#Student C: If we get tested and got positive, what should we do? So, lets us not get tested.
#Student D: You know, this HIV/AIDS testing is simply a business.

We should not be cheated. Which student do you think is correct?

A. Student B

B. Student A

C. Student D

D. Student C

14. Which event of cellular respiration takes place in the cytoplasm of eukaryotic cell? (1)

A. Production of pyruvate from glucose

B. Reaction of acetyl CoA with oxaloacetate

C. Production of ATP through chemiosmosis

D. Reaction of pyruvate with coenzyme A

15. Suppose two moles of glucose is burned aerobically. How many moles of ATP can be produced by substrate level phosphorylation in Krebs cycle? (1)

A. 4

B. 6

C. 10

D. 8

16. During alcoholic fermentation, CO_2 is released when (1)

A. acetaldehyde is reduced
B. pyruvate is oxidized
C. pyruvate is decarboxylated
D. ethanol is oxidized

17. During anaerobic respiration, reduced NAD is required to (1)

A. split pyruvate to CO_(2) and acetaldeyde.
B. reduce pyruvate to lactate.
C. convert lactate into pyruvate.
D. reduce pyruvate to acetyl CO_(2)

18. Why do we get tired and fatigued during exercise such as long distance running? It is due to (1)

A. accumulation of CO.
B. accumulation of lactic acid
C. high rate of aerobic respiration.
D. shortage of glucose.

19. If one base in the six triplets of the gene coding for one of the four Polypeptides in the haemoglobin molecule alters the triplet from GAG To GTG, which one of the following biological terms best describes The above phenomenon? (1)

A. Mutation
B. Cloning
C. Translation
D. Transcription

20. Which one of the following is the basic characteristic of mutation? It is (1)

A. spontaneous
B. planned
C. regular
D. expected

21. The theory that suggests "life can evolve autonomously from non-living objects" is known as (1)

A. cosmozoan theory
B. spontaneous generation theory
C. biochemical theory
D. eternity theory

22. Which one of the following is true about neo-Darwinian theory? (1)

A. There is a natural variation in features and variation which are heritable
B. All species tend to produce more offspring than can possibly survive
C. It takes into genetic and animal behavior to understand evolution
D. Development of new feature is important for survival

23. Which one of the following statements describes the evolutionary Theory of Lamarck? (1)

A. Acquired characteristics cannot be inherited
B. Structures commonly used become more develoed
C. Origin of species happens only through natural selection
D. Species started complex and gradually become simple

24. The behavior which trainers look, if modified, could lead to the Desired behavior and reward such a behavior is (1)

A. innate
B. instinct
C. reflex
D. operant

25. Which one of the following examples of behavior describes when a animal stops responding to stimulus or cue after a period of repeated exposure? (1)

A. Imprinting
B. Reflex
C. Habituation
D. Conditioning

26. police man trained a dog on how to find explosive materials through Sniffing; on another instant the same police man observed a week old Puppy following him to the roadside. Which one of the following is Correct about the behaviors of the animal in the observation? (1)

A. The first case is genetically encoded and he second is adaptive

B. Both of the cases indicate natural behavior of the animals

C. Both of the cases indicate learned behavior of the animals

D. The first cases develop through trial and the second genetically Coded.

27. Which one of the following behavior is a courtship behavior? (1)

A. Touch

B. Scent marking

C. Ritual fighting

D. Defending a den

28. The Ethiopian wolf (Canis simensis) lives and hunt in packs. During patrolling their habitat, both male and female wolves of the group maintain their area with urine containing pheromone. This pattern of behavior best exemplifies (1)

A. courtship behavior

B. territorial behavior

C. operant behavior

D. learned behavior

29. The terrestrial biome characterized by cold temperature, dry Precipitation frozen soil and inhabited by migration birds is (1)

A. boreal forests

B. deserts

C. tropical montane forests

D. tundra

30. Which one of the following explains biodiversity? (1)

A. The variability among living organisms, within species, and of Ecosystem.

B. The large number of human races in the world

C. The similarity and differences of organisms which live in different Ecosystems

D. Large number of organisms in the ecosystem

— END OF EXAMINATION —