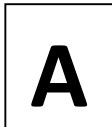


NAME: \_\_\_\_\_ ID NO: \_\_\_\_\_ TUTORIAL SEC: \_\_\_\_\_



BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI-HYDERABAD CAMPUS

BIO F111 (GENERAL BIOLOGY)

FIRST SEMESTER (2022-23)

ANNOUNCED QUIZ-3 (CLOSED BOOK)

DATE: 31/01/2023

MARKS: 30

DURATION: 30 MINUTES

**Instructions:**

**(1). Clearly ENCIRCLE the most appropriate answer using a PEN.**

**(2). There are a total of 30 questions each carrying 1 marks (30x1=30marks).**

**(3). Please write your NAME, ID No. and TUTORIAL SECTION.**

1. The address of a gene on the chromosome is called its \_\_\_\_\_.

- (A). Promoter      (B). Locus      (C). Allele      (D). Mutation

2. A gene that influences several characters, is said to exhibit

- (A). Multiple allelism      (B). Sex linked inheritance      (C). Pleiotropy      (D). Polygenic inheritance

3. A mating that is expected to produce 50% homozygotes and 50% heterozygotes is

- (A). BB X Bb      (B). Bb X Bb      (C). Bb X bb      (D). All the options A, B, C are correct

4. If the father has 'B' blood group and the mother is 'AB', which of the following is the right combination of likely genotypes of their offsprings (all possible options)?

- (A).  $I^A I^B$ ,  $I^B I^B$ ,  $I^B i$ ,  $I^A i$       (B).  $I^B i$  and  $ii$       (C).  $I^A I^B$ ,  $I^B I^B$ ,  $I^B i$ ,  $I^A i$ ,  $ii$       (D).  $I^A i$  and  $I^A I^B$

5. What are the genotype of gametes that will be produced by a parent with genotype GgRR in a dihybrid cross?

- (A). Gg and RR      (B). GR and gR      (C). GgRR and GgRR      (D). Only G, only g, only R, only R

6. The offsprings resulting from a cross between two pure homozygous recessives would be

- (A). 50% homozygous recessive and 50% heterozygous  
(B). 25% homozygous recessive and 75% heterozygous  
(C). 50% homozygous recessive and 50% homozygous dominant  
(D). 100% homozygous recessive and 0% dominant phenotype

7. The recessive allele  $b$  occurs with a frequency of 0.8 in a population of sea otters that is in Hardy-Weinberg equilibrium. What is the frequency of homozygous dominant individuals?

- (A). 0.64      (B). 0.8      (C). 0.04      (D). 0.32

8. \_\_\_\_ (i)\_\_\_\_ is the mechanical and chemical breakdown of food into small molecules, whereas \_\_\_\_ (ii)\_\_\_\_ is the uptake of these small molecules by the body's cells.  
(A). (i) Digestion; (ii). absorption                      (B). (i) Ingestion; (ii) absorption  
(C). (i) Digestion; (ii) elimination                      (D). (i) Peristalsis; (ii) ingestion
9. In corn, purple kernels are dominant to yellow. A random sample of 100 kernels is taken from a population in Hardy-Weinberg equilibrium. It is found that 9 kernels are yellow and 91 kernels are purple. What is the frequency of yellow allele in this population?  
(A). 0.09                      (B). 0.27                      (C). 0.3                      (D). 0.7
10. \_\_\_\_\_ circuit carries blood between heart and lung.  
(A). Pulmonary                      (B). Renal  
(C). Neuronal                      (D). None of the above
11. The additive effect of two or more genes on a single phenotype is referred to as \_\_\_\_\_.  
(A). Polygenic inheritance                      (B). Cytoplasmic inheritance  
(C). X-linked inheritance                      (D). Y-linked inheritance
12. The trachea forks into two \_\_\_\_\_.  
(A). Bronchi                      (B). Larynx                      (C). Pharynx                      (D). None of the options A, B, C is correct
13. Most chemical digestion occurs in the \_\_\_\_\_ as a result of the activity of enzymes made by the \_\_\_\_\_.  
(A). stomach; oral cavity                      (B). large intestine; small intestine  
(C). pancreas; stomach                      (D). small intestine; pancreas
14. \_\_\_\_\_ are the functional units of the kidneys.  
(A). Bowman's capsule                      (B). Tubules                      (C). Blood vessels                      (D). Nephrons
15. Air moves into the lungs by \_\_\_\_\_, as the air pressure in the lungs is lowered by the expansion of the chest cavity.  
(A). Positive pressure breathing                      (B). Without any pressure  
(C). Negative pressure breathing                      (D). None of the above
16. Which of the following statements is incorrect?  
(A). RBCs are less abundant than WBC in the blood  
(B). RBCs carry oxygen from the lungs to the tissues  
(C). WBCs contain nuclei and other cell organelles  
(D). WBCs temporarily increase when the body is combating an infection

17. \_\_\_\_\_ is converted to \_\_\_\_\_ with the help of clotting factors released by \_\_\_\_\_ respectively.
- (A). Fibrin, Fibrinogen, Platelets                      (B). Fibrin, Collagen, Platelets  
(C). Collagen, Fibrin, Platelets                      (D). Fibrinogen, Fibrin, Platelets
18. Diastolic and systolic phase of heart function involves \_\_\_\_\_ and \_\_\_\_\_ of heart muscle respectively.
- (A). relaxation, contraction                      (B). contraction, relaxation  
(C). Neither relaxation nor contraction                      (D). Only relaxation in both the phases
19. When food passes from the esophagus into the stomach, the muscular stomach walls begin to churn, mixing the food and stomach content into a thick soup called \_\_\_\_\_.
- (A). Gastric juice              (B). Bolus              (C). Peristalsis              (D). Chyme
20. If a haemophilia carrier female marries a haemophilic male, then:
- (A). All male progenies are likely to be haemophilic  
(B). All female progenies are likely to be haemophilic  
(C). 25% of the male progenies are likely to be normal  
(D). 50% of the female progenies are likely to be carriers
21. Which of the following is true for a population which is in Hardy-Weinberg equilibrium?
- (A). entities migrate constantly                      (B). populations should be limited and small  
(C). mating is random                      (D). process of natural selection is occurring
22. Whether an allele is dominant or recessive depends on
- (A). how common the allele is, relative to the other alleles  
(B). whether it is inherited from the father or the mother  
(C). whether or not it is linked other genes  
(D). whether it or another allele determines the phenotype when both are present
23. Identify the correct sequence of organization in mammals.
- (A). Organ System, Organism, Tissue, Organ, Cell  
(B). Tissue, Organ System, Organ, Cell, Organism  
(C). Cell, Tissue, Organ, Organ System, Organism  
(D). Organ system, Organ, Organism, Tissue, Cell
24. A neuron ends in many branches, each with a bulb-like \_\_\_\_\_ that contains neurotransmitters, which can be used to communicate signals to other neurons.
- (A). synaptic terminal              (B). dendrite              (C). axon              (D). cell body

25. In the human brain, body temperature, metabolism, heart rate, sleep, sex drive, hunger and thirst are influenced by the \_\_\_\_\_ region of the brain.

- (A). hypothalamus      (B). midbrain      (C). corpus callosum      (D). cerebellum

26. Anemia is a condition which is characterized by

- (A). an abnormally low amount of hemoglobin      (B). a low number of red blood cells  
(C). a low number of white blood cells      (D). both A and B are possible

27. In South Africa, there is a population that has a much higher frequency of Huntington's disease than is seen in other regions of the world. The cause is likely due to the fact that this population has descended from a relatively small subset of European colonists. Which of the following choices best explains the phenomenon observed in this South African population?

- (A). Bottleneck effect      (B). Founder effect  
(C). Natural selection      (D). Disaster effect

28. In neurons, an action potential moves \_\_\_\_\_.

- (A). away from the cell body  
(B). toward the cell body  
(C). away from the cell body and toward the cell body at the same time  
(D). none of the above

29. Which of the following statement(s) is incorrect for cerebrospinal fluid?

- (A). It is formed in the brain by filtration of arterial blood  
(B). It supplies nutrients and hormones to the central nervous system  
(C). It carries away wastes from the central nervous system  
(D). None of the above

30. Which of the following is a neurotransmitter?

- (A). Acetylcholine      (B). Dopamine      (C). Serotonin      (D). All the options A, B, C are correct