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Question Paper Code: 53112

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Third Semester

Biomedical Engineering

15UBM302 - HUMAN ANATOMY AND PHYSIOLOGY

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Which one of the following organelles digests the old organelles that are no longer useful to the cells?
 - Ribosomes
 - Mitochondria
 - Golgi apparatus
 - Lysosomes
- In somatic cell cycle which of the below is/are more appropriate
 - In G1 phase DNA content is double the amount of DNA present in the original cell
 - A short interphase is followed by a long mitotic phase
 - DNA replication takes place in S-phase
 - G2 phase follows mitotic phase
- Which of the following options occur during ventricular systole in a mammalian heart?
 - Ventricular volume increases
 - Bicuspid (mitral) valve opens
 - Ventricular pressure increases
 - Aortic pressure decreases
- The dome-shaped muscle that plays an important role in breathing is the
 - diaphragm
 - alveolus
 - larynx
 - bronchus
- Which is the branch part of neuron that receives messages and sends them to the cell body?
 - reflex arc
 - axon
 - dendrite
 - synapse

6. In Peripheral nervous system _____ nervous system controls involuntary actions.
 (a) Dorsal (b) Somatic (c) Ganglion (d) Autonomic
7. Involuntary squeezing action of the muscles in digestive system causing food to move through
 (a) Mechanical digestion (b) Chemical digestion
 (c) Peristalsis (d) Indigestion
8. Saclike organ in which Urine is stored before being excreted
 (a) Urinary Bladder (b) Urethra
 (c) Ureter (d) Nephron
9. Type of joint found at the Elbow and Knee
 (a) Hinge Joint (b) Pivot joint
 (c) Moveable joint (d) Ball-and-socket joint
10. What structure is attached to the lens causing its shape to change?
 (a) Aqueous humor (b) Cornea
 (c) Ciliary muscle (d) Iris

PART - B (5 x 2 = 10 Marks)

11. Brief about structure and function of Cilia and Flagellum in cells.
12. Write essential functions of Cardiovascular system.
13. Give two major functions of Nervous System.
14. Express subsections of small intestine in human digestive system.
15. What is sensory adaptation?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Distinguish Prokaryotic cell and Eukaryotic cell, along with simple sketch. (6)
 (ii) Review important organelles found in Eukaryotic cell. (10)

Or

- (b) (i) Outline the generation and features of Action potential and Resting Potential with relevant graph that happen in muscle cell. (8)
 (ii) Express Nernst and Goldman equation for Trans-membrane potential. (8)

17. (a) Identify different events in cardiac cycle using Wigger's diagram. (16)

Or

(b) Summarize physiology of External Respiration ,the gas exchange between alveoli and blood circulation in Lungs. (16)

18. (a) Illustrate with suitable diagram the information pathways for Sensory, Motor and Inter-neurons. (16)

Or

(b) Relate Synapse and how neurotransmitters cross synaptic cleft. (16)

19. (a) Sketch and explain Digestion, Absorption, Elimination functional parts of digestive system. (16)

Or

(b) Describe the process of Urine formation in the Nephron. (16)

20. (a) Summarize and enlighten about Classification of Bones. (16)

Or

(b) Sketch and summarize the structure and general function of the outer, middle and internal ears. (16)
