

Question Paper

Exam Date & Time: 03-Jul-2023 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Human Anatomy and Physiology II (Theory) [PHA-BP201T-S3]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Most neurons in the brain and spinal cord are (1)
- [Unipolar](#)
[Bipolar](#)
[Pseudounipolar](#)
[Multipolar](#)
- 2) Which follicle becomes dominant and ready for ovulation? (1)
- [Mature follicle](#)
[Secondary follicle](#)
[Primordial follicle](#)
[Primary follicle](#)
- 3) Water soluble hormones bind to (1)
- [Nuclear receptors of target cells](#)
[Cytosolic receptors of target cells](#)
[Integral transmembrane receptors of target cells](#)
[Membrane receptors of target cells](#)
- 4) Tetrodotoxin blocks action potentials by inserting in to (1)
- [Calcium channel](#)
[Potassium channel](#)
[Sodium channel](#)
[Na-K ATPase](#)
- 5) During spermatogenesis, the four haploid cells resulting from meiosis II are called (1)
- [Spermatocytes](#)
[Spermatogonia](#)
[Spermatozoa](#)
[Spermatids](#)
- 6) An individual with *PP* trait on chromosomes is (1)
- [Heterozygous dominant](#)
[Homozygous dominant](#)

[Heterozygous recessive](#)

[Homozygous recessive](#)

- 7) Offspring of parents with AB and O blood groups would inherit either of the possible combinations of (1) blood type

[A, O](#)

[B, O](#)

[A, B](#)

[AB,](#)

[O](#)

- 8) Medial geniculate nucleus is associated with (1)

[Vision](#)

[Hearing](#)

[Olfaction](#)

[Gustation](#)

- 9) Accessory sex gland which secretes slightly acidic fluid that helps semen coagulate (1)

[Prostate gland](#)

[Cowper's gland](#)

[Seminal vesicles](#)

[Ampulla](#)

- 10) Most anions inside the neuron are not free to leave. This factor contributes to (1)

[Positive resting membrane potential](#)

[Negative resting membrane potential](#)

[Zero resting membrane potential](#)

[Electrical synapses](#)

- 11) This structure contains the remnants of mature follicle after ovulation (1)

[Corpus spongiosum](#)

[Corpus albicans](#)

[Corpus](#)

[hemorrhagicum](#)

[Corpus luteum](#)

- 12) Middle layer of the eyeball (1)

[Retina](#)

[Fibrous tunic](#)

[Vascular](#)

[tunic](#)

[Lens](#)

- 13) Of the following, which is an estrogenic effect? (1)

[Increases flexibility of pubic symphysis](#)

[Lowers blood cholesterol level](#)

[Inhibits secretion of FSH](#)

[Inhibits secretion of LH](#)

- 14) Beta-2 receptor is located in (1)
- [Heart](#)
 - [Lungs](#)
 - [Brain](#)
 - [Adipose tissue](#)
- 15) The funnel shaped portion of each uterine tube is known as (1)
- [Fimbriae](#)
 - [Ampulla](#)
 - [Infundibulum](#)
 - [Isthmus](#)
- 16) At an electrical synapse, action potentials conduct through (1)
- [Connexons](#)
 - [Synaptic cleft](#)
 - [Na-K ATPase](#)
 - [Ligand-gated channels](#)
- 17) One among the following is not a barrier method of contraceptive (1)
- [Condom](#)
 - [Copper-T](#)
 - [Diaphragm](#)
 - [Vaginal pouch](#)
- 18) Binding of an odorant molecule to an olfactory receptor protein activates (1)
- [Adenylate cyclase](#)
 - [Opsin](#)
 - [Cribriform plate](#)
 - [Organ of Corti](#)
- 19) Which cells secrete androgen-binding protein? (1)
- [Spermatogenic cells](#)
 - [Leydig cells](#)
 - [Sertoli cells](#)
 - [Sperm cells](#)
- 20) Acetylcholinesterase enzyme is inhibited by (1)
- [Methyl Mercaptan](#)
 - [Norepinephrine](#)
 - [Organophosphorus compounds](#)
 - [GABA](#)

II Long Answers

Answer all the questions.

- 1) With a neat labelled diagram, explain the various lung volumes and lung capacities. How does decompression sickness occur? (10)

- 2) With a neat, labelled diagram, describe the steps underlying synthesis, storage and release of thyroid hormones. (10)

III Short Answers

Answer all the questions.

- 1) Describe the anatomy of spinal cord. (5)
- 2) Explain signal transduction mechanism leading to gustation. (5)
- 3) Discuss the mechanism of action of lipid soluble hormones with a schematic representation. (5)
- 4) Describe the formation, circulation, and functions of CSF. (5)
- 5) Briefly explain the embryonic period. (5)
- 6) A 17-year-old boy came to the emergency department showing symptoms such as bradycardia, decreased BP, dyspnea, pinpoint pupil, frequent urination, diarrhea, contraction of skeletal muscles. History revealed that the boy consumed organophosphorus insecticide. Examine the symptoms and interpret how organophosphorus insecticide consumption might have resulted in these symptoms. Correlate the symptoms with autonomic nervous system giving special emphasis on receptors involved. (5)
- 7) Describe the filtration membrane of the glomerular capillaries. (5)

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