

Question Paper

Exam Date & Time: 11-May-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Human Anatomy and Physiology II [PHA-BP201T-S1]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

1) Muscarinic receptors present in the circular muscles of iris (1)

[M1](#)

[M2](#)

[M3](#)

[β1](#)

2) Which is not an endocrine gland but contains cells that secrete hormones? (1)

[Pituitary](#)

[Thyroid](#)

[Thymus](#)

[Adrenal](#)

3) Each primary oocyte is surrounded by a single layer of flat follicular cells and this structure is known as (1)

[Primary follicle](#)

[Primordial follicle](#)

[Mature follicle](#)

[Ovarian follicle](#)

4) Identify the correct physiological effect of thyroid hormones (1)

[Decreased basal metabolic rate](#)

[Reduced cholesterol excretion](#)

[Downregulate beta receptors](#)

[Stimulates synthesis of sodium potassium pump](#)

5) Parathyroid hormone stimulates _____ to synthesize calcitriol (1)

[Liver](#)

[Kidneys](#)

[-](#)

[Bone](#)

[Heart](#)

6) Four haploid cells resulting from meiosis II are called (1)

[Spermatids](#)
[Spermatocytes](#)
[Spermiocytes](#)
[Spermatogonia](#)

7) Cells that continually undergo cell division to produce new olfactory receptors. (1)

[Supporting cells](#)
[Amacrine cells](#)
[Bipolar cells](#)
[Basal cells](#)

8) This hormone is secreted from the adrenal gland (1)

[Dehydroepiandrosterone](#)
[Testosterone](#)
[Dihydrotestosterone](#)
[Androgen](#)

9) Which eicosanoid hormone is derived from arachidonic acid? (1)

[Human growth hormone](#)
[Dopamine](#)
[Serotonin](#)
[Leukotriene](#)

10) When Punnett square is applied, what percentage of offspring will have *pp* genotype in phenylketonuria? (1)

[50%](#)
[25%](#)
[75%](#)
[100%](#)

11) Antidiuretic hormone secretion is stimulated by (1)

[Adrenaline](#)
[Acetylcholine](#)
[Dopamine](#)
[Serotonin](#)

12) In the heart, parasympathetic stimulation causes (1)

[Increased heart rate](#)
[Depolarization of SA node](#)
[Increased force of contraction](#)
[Decreased heart rate](#)

13) The hormone produced by the parafollicular cells of the thyroid gland is (1)

[Calcitriol](#)
[Triiodothyronine](#)
[Calcitonin](#)

[Thyroxine](#)

- 14) Baby born to parents with A and A blood groups would inherit either of the possible combinations of blood type (1)

[A, O](#)

[B, O](#)

[A, B](#)

[A, B,](#)

[AB](#)

- 15) One of the following is not an action of glucocorticoid (1)

[Glucose formation](#)

[Lipolysis](#)

[Anti-inflammatory effect](#)

[Protein synthesis](#)

- 16) Mushroom-shaped elevations scattered over the entire surface of the tongue. (1)

[Filiform papillae](#)

[Foliate papillae](#)

[Fungiform papillae](#)

[Vallate papillae](#)

- 17) Thymus plays an important role in (1)

[Maturation of a type of WBC](#)

[Reproduction](#)

[Lipid metabolism](#)

[Platelet activation](#)

- 18) An individual with PP trait on chromosomes is (1)

[Homozygous dominant](#)

[Homozygous recessive](#)

[Heterozygous dominant](#)

[Heterozygous recessive](#)

- 19) Identify the amine hormone (1)

[Melatonin](#)

[Oxytocin](#)

[Insulin](#)

[Thymosin](#)

- 20) At one end of each semicircular canal is a swollen enlargement called (1)

[Ampulla](#)

[Vestibule](#)

[Endolymph](#)

[Organ of corti](#)

II Long Answers

Answer all the questions.

- 1) Explain the events of signal transmission at a chemical synapse. Describe removal of the neurotransmitter from the synaptic cleft. Write a note on excitatory and inhibitory postsynaptic potentials. (10)
- 2) Explain the mechanisms involved in the neural and cerebral regulation of respiration. (10)

III Short Answers

Answer all the questions.

- 1) Draw a neat, labelled diagram of the external anatomy of kidney. Explain its functions. (5)
- 2) With the help of a diagram describe anatomy of the eyeball. (5)
- 3) Outline the synthesis, storage and release of thyroid hormones. (5)
- 4) Summarize the steps involved in spermatogenesis with a schematic representation. (5)
- 5) Describe the Punnett's square to demonstrate inheritance of dominant or recessive genes with an example. (5)
- 6) With special emphasize on receptors describe the functions of sympathetic system. (5)
- 7) A flock of tourists from India visited Thailand. Coastal area and beaches were the sight-seeing spots. During this time, one of their fellow-mates fell seriously ill and was admitted to the hospital with the following symptoms: dizziness, vomiting, numbness over the legs, prickling sensation over the body, difficulty in tongue movement and respiratory difficulties. The patient stated that he began feeling disturbed immediately after having meal with puffer fish soup. What could be the possible diagnosis? Correlate the effect of the neurotoxin with neuronal action potential. (5)

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