

Time: 3 hrs

Marks: 75

Q1. Choose appropriate option for following multiple choice based questions. 20 M

- 1 Which part of the brain is responsible for regulating body temperature and the urge to eat?
 - A Hypothalamus
 - B Thalamus
 - C Cerebellum
 - D Pons

- 2 The release of bile and pancreatic juice stimulated by:
 - A Intestinal gastrin
 - B Cholecystokinin
 - C Secretin
 - D Pepsin

- 3 Which of the following stimuli decreases the rate and depth of ventilation?
 - A Increased activity of proprioceptors
 - B Increase in body temperature
 - C Decreased carbon dioxide levels in the blood
 - D Increased carbon dioxide levels in the blood

- 4 Which hormone is secreted by kidneys to stimulate RBC production?
 - A Renin
 - B Erythropoietin
 - C Aldosterone
 - D ADH

- 5 Prolactin (PRL), responsible for milk production, is secreted by
 - A Corticotrophs
 - B Somatotrophs
 - C Gonadotrophs
 - D Lactotrophs

- 6 Which cells in the testes produce testosterone?
 - A Sertoli cells
 - B Spermatogonia
 - C Leydig (interstitial) cells
 - D Primary spermatocytes

- 7 The refractory period refers to:
 - A The time when a neuron is excited by a stimulus
 - B The time when a neuron can be re-excited immediately
 - C The period during which a second action potential cannot be initiated
 - D The time when potassium channels are inactive

- 8 Which of the following best describes the function of the hepatic portal vein?
- A Returns blood from the liver to the heart
 - B It transports nutrient-rich blood from the gastrointestinal tract to the liver for processing.
 - C Return blood from the liver to the intestine
 - D Sends fats from the gut to the lymphatic system

9 Which of the following structures belongs to the respiratory zone, where gas exchange takes place?

- A Nose
- B Pharynx
- C Bronchi
- D Alveoli

10 The renal corpuscle consists of:

- A Glomerulus and Bowman's capsule
- B Loop of Henle and DCT
- C PCT and DCT
- D Afferent and efferent arteriole.

11 The primary function of luteinizing hormone (LH) is to:

- A Stimulate milk production
- B Promote ovulation and testosterone secretion
- C Regulate glucose levels
- D Control metabolism

12 Which layer of the uterus is responsible for its muscular contractions?

- A Endometrium
- B Perimetrium
- C Myometrium
- D Epimetrium

13 During the midcycle of the ovarian cycle, what key role does luteinizing hormone (LH) play?

- A Inhibits GnRH secretion
- B Initiates ovulation
- C Stimulates follicular growth
- D Lowers blood cholesterol

14 The spinal cord is linked to the peripheral nervous system through:

- A Spinal nerves
- B Thalamus
- C Sensory receptors
- D Motor end plates

- 15 Which digestive enzyme present in saliva is responsible for the breakdown of starch?
A Lipase
B Amylase
C Pepsin
D Trypsin
- 16 The term "tidal volume" refers to:
A The amount of air remaining in the lungs after forced expiration
B The maximum amount of air inhaled after normal inspiration
C The volume of air exchanged during normal breathing
D The total lung capacity
- 17 The process of sperm production is called:
A Oogenesis
B Spermatogenesis
C Fertilization
D Gametogenesis
- 18 Prostaglandins in the seminal vesicle secretion primarily helps in:
A Activation of clotting proteins
B Buffering acidic vaginal secretions
C Enhancing sperm motility and viability
D Formation of the prostate capsule
- 19 Which hormone promotes gluconeogenesis during prolonged fasting?
A Insulin
B Luteinizing hormone
C Cortisol
D Aldosterone
- 20 The ovarian cycle consists of the following three phases:
A Menstrual, proliferative, and secretory
B Follicular, ovulation, and luteal
C Ovulatory, secretory, and ischemic
D Menstrual, ovulatory, and implantation

20 M

Q2 Attempt the following (Any TWO).

- A Explain structure and function of spinal cord with a neat labelled diagram. Add a note on spinal meninges.
- B i) Explain the external respiration process in detail.
ii) Describe the different parts of a nephron with the help of a neat labelled diagram.
- C Describe the structure of adrenal glands. Explain the specific hormones secreted by each zone of the adrenal cortex and enlist their physiological functions.

35 M

Q 3 Attempt the following (Any SEVEN).

- A Explain the composition and functions of cerebrospinal fluid
- B Give a detailed account of the cranial nerves
- C Describe the various functions of the liver in detail.
- D Explain in brief the process of digestion in small intestine
- E Describe the process of exchange of oxygen and carbon dioxide between lungs & tissues
- F Explain the role of the juxtaglomerular apparatus in regulating blood pressure and filtration rate.
- G Describe how insulin and glucagon function together to maintain glucose homeostasis.
- H Explain in brief the hormonal regulation in menstrual cycle.
- I Explain with the neat and labeled diagram parts of penis
