

Sl. No. of Ques. Paper : 2038

GC-3

Unique Paper Code : 32581302

Name of Paper : Human Physiology and Anatomy II

Name of Course : B.Sc. (H) Biomedical Sciences (CBCS)

Semester : III

Duration : 3 hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt five questions in all. Question No. 1 is compulsory. Subparts of the questions should be attempted together. Draw illustrations or diagrams wherever necessary.

Q1. (a) Differentiate between:

(1.5X4=6)

- (i) Primordial follicle and Graffian follicle
- (ii) Prehormone and Prohormone
- (iii) osmotic and loop diuretics
- (iv) pre-hepatic and post-hepatic jaundice

(b) Define:

(1X5=5)

- (i) Chyme
- (ii) Spermiation
- (iii) Urinary incontinence
- (iv) Vital capacity
- (v) Cardiac output

(c) Explain / Give reasons / Justify:

2X4=8

- (i) Endurance training results in decrease in cardiac rate.
- (ii) Whole milk or a fatty snack consumed before the ingestion of alcohol decreases the rate of intoxication. By what mechanism may fat producing this effect?
- (iii) If hypathalamo hypophyseal tract is severed, what would happen to vasopressin secretions?
- (iv) Corticosteroids should not be administered for a long time.

Q2. Write short notes on:

(3, 3, 4, 4)

- (i) Functions of Liver
- (ii) Menopause
- (iii) Structural and Functional differences between arteries and capillaries
- (iv) Vasa recta

Q.3.

- (a) The surface area of the small intestine is increased due to certain structural adaptations. List, draw and explain the structural adaptations (5)
- (b) Compare and contrast the functions of insulin and glucagon in regulating blood glucose. (4)
- (c) Explain why edema is generally the symptom of glomerulonephritis. (2)
- (d) Illustrate with the help of a flowchart, how the central nervous system regulates ventilation. (3)

Q4.

- (a) Which symptoms will be common in a patient whose leydig cells have been destroyed and in a patient whose sertoli cells have been destroyed? Which symptom will not be common? (2)
- (b) List the ways in which CO₂ is transported by the blood. Describe the process of chloride shift. (5)
- (c) How are fats digested, absorbed and transported? Can fat be digested and absorbed in the absence of bile salts? Explain. (5)
- (d) Thyroid hormone is not a steroid hormone but its mechanism of action is like that of steroid hormones, explain (2)

- Q5. (a) Draw haemoglobin and O₂ dissociation curve and explain its coordinates (5)
- (b) Discuss the role of calcitonin and parathormone in maintaining calcium homeostasis in blood. (4)
- (c) Describe how stroke volume is intrinsically regulated by end diastolic volume why is the regulation significant? (3)
- (d) A 70-kg adult patient is artificially ventilated by a machine during surgery at a rate of 20 breaths/min and a tidal volume of 250 ml/breath. Assuming a normal anatomic dead space of 150 ml, is this patient receiving an adequate alveolar ventilation? (2)

Q6.

- (a) What is LH surge? Compare the hormonal secretions of ovarian follicles with corpus luteum. (5)
- (b) Give location and function of following (1X5=5)

- (i) Myentric plexus
- (ii) Zona fasciculata
- (iii) Theca externa
- (iv) Podocytes
- (v) Apneustic center

(c) Why do patients taking diuretics for treatment of high blood pressure need to supplement their diets with K^+ rich foods? (2)

(d) If the partial pressure of oxygen in venous blood is 40 mm of Hg, then why do we call the blood deoxygenated? (2)