DAY TWENTY FIVE

Unit Test 5
(Human Physiology)

1 When a neuron is in resting state, i.e. not conducting any impulse, the axonal membrane is
(a) equally permeable to both Na^+ and K^+ ions
(b) impermeable to both Na^+ and K^+ ions
(c) comparatively more permeable to K^+ ions and nearly impermeable to Na^+ ions
(d) comparatively more permeable to Na^+ ions and nearly impermeable to K^+ ions

2 Match the following columns.

	Column I		Column II
A.	PRL	1.	Gonadotropins
B.	TSH	2.	Glucocorticoids
C.	ACTH	3.	Thyroid hormone
D.	LH and FSH	4.	Mammary glands

Codes

	A	B	C	D		A	B	C	D
(a)	1	2	3	4	(b)	2	1	3	4
(c)	4	3	2	1	(d)	4	3	1	2

3 Which cellular constituent of liver performs phagocytic functions?
(a) Hepatocyte (b) Glisson's capsule
(c) Sinusoid (d) Kupffer's cell

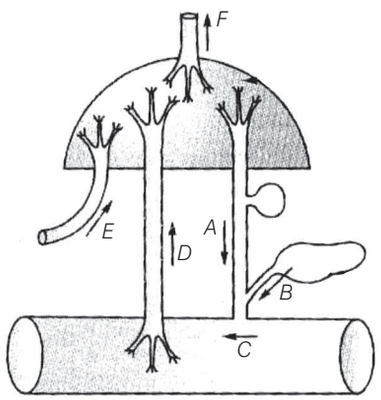
4 Myelin sheath is secreted by
(a) mast cell (b) goblet cells
(c) Hensen cells (d) Schwann cells

5 Most of the fat digestion occurs in
(a) rectum (b) stomach
(c) duodenum (d) small intestine

6 One of the examples of the action of the autonomous nervous system is
(a) knee jerk response
(b) pupillary reflex
(c) swallowing of food
(d) peristalsis of the intestines

Identify the type of gastrointestinal hormone based on the functions given below
I. Stimulates the crypts of Lieberkuhn.
II. Inhibits the secretion of glucagon by alpha cells.
III. Stimulates Brunner's glands to release mucus.
Choose the correct option accordingly.
(a) I–Gastrin, II–Ducrinin, III–Enterokinin
(b) I–Duocrinin, II–Cholecystokinin, III–Enterokinin
(c) I–Duocrinin, II–Cholecystokinin, III–Villikinin
(d) I–Enterokinin, II–Somatostatin, III–Duocrinin

8 The diagram given below shows how things get to and from the liver. They are labelled as *A, B, C, D, E* and *F*.
Which one of the following labellings is correct?



Choose the correct option.
(a) *A* is the hepatic portal vein and *E* is the hepatic vein
(b) *C* is the intestine and *F* is the hepatic portal vein
(c) *D* is the hepatic portal vein and *F* is the hepatic vein
(d) *B* is the pancreatic artery and *E* is the hepatic artery

9 Castle's Intrinsic Factor (CIF) is secreted by
(a) goblet cells (b) oxyntic cells
(c) zymogenic cells (d) mucus

10 Bile duct is formed by
(a) hepatic duct and sphincter of Oddi
(b) hepatic duct and duodenum
(c) cystic duct and hepatic duct
(d) cystic duct and sphincter of Oddi

11 Identify the correct statement.
(a) The thoracic cavity is enclosed laterally by thoracic vertebrae
(b) Diaphragm is a narrow space between two pleura
(c) Right lung is larger and has two lobes separated by an oblique fissure
(d) Each lung is enclosed by two membranes *viz*. visceral and parietal pleura

12 The gland that is responsible for homeostasis is
(a) sebaceous gland (b) sweat gland
(c) Brunner's gland (d) vasa recta

13 Gamma Amino Butyric Acid (GABA) is secreted by
(a) sensory neuron (b) motor neuron
(c) peptidergic neuron (d) adrenergic neuron

14 Which of the following statements are correct regarding spinal nerve?
I. It is located in the central canal of vertebral column.
II. It is composed of central grey matter, in which cell bodies of neurons are present.
III. It does not conduct the reflex action of body.
IV. It is composed of central white matter.
(a) I and III (b) II and IV
(c) III and IV (d) I and II

15 Deficiency of folic acid in human leads to a blood disorder called
(a) haemophilia (b) leukopenia
(c) leukaemia (d) pernicious anaemia

16 The largest part of mammalian tooth is made up of
(a) root (b) dentine
(c) enamel (d) pulp cavity

17 Liver in our body stores
(a) vitamin- B_{12} (b) vitamin-A
(c) vitamin-D (d) All of these

18 Haldane's effect explains
(a) increasing acidity of blood due to the release of H^+ ions
(b) the electrostatic neutrality of plasma
(c) respiratory quotient
(d) regulation of respiration

19 When the teeth are similar, cone-shaped, it is called
(a) acrodont (b) homodont
(c) heterodont (d) diphyodont

20 Tidal volume in human beings is
(a) 500 mL (b) 800 mL
(c) 1500 mL (d) 12 mL

21 Which of the following is reabsorbed in the alimentary canal?
(a) Monosaccharides (b) Proteins
(c) Fat soluble vitamins (d) Polysaccharides

22 Glomerular filtrate is
(a) blood plasma (b) proteinised plasma
(c) deproteinised plasma (d) urine stored in urinary bladder

23 Nodes of Ranvier are present in
(a) unipolar neuron (b) bipolar neuron
(c) multipolar neuron (d) myelinated neuron

24 When oxygen supply to the tissue is inadequate, the condition is
(a) asphyxia (b) apnea (c) dyspnea (d) hypoxia

25 Which of the muscle protein has contractile as well as enzymatic properties?
(a) Troponin (b) G-actin
(c) Heavy meromysoin (d) Tropomyosin

26 Match the following columns.

	Column I		Column II
A.	Glisson's capsule	1.	Hepatopancreatic duct
B.	Sphincter of Oddi	2.	Liver
C.	Brunner's gland	3.	Duodenum
D.	Salivary gland	4.	Parotid
E.	Pancreas	5.	Compound organ

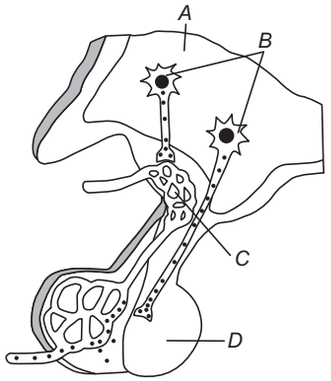
Codes

	A	B	C	D	E
(a)	2	1	3	5	4
(b)	3	2	1	4	5
(c)	1	2	3	4	5
(d)	5	4	2	1	3

27 The chemical formula of oxyhaemoglobin is
(a) $H_2B_2O_4$ (b) $Hb(O_2)_4$ (c) $Hb(O_3)_4$ (d) $H_3B_2O_8$

28 The structure present in man but not in frog is
(a) pancreas (b) adrenal gland
(c) thyroid gland (d) salivary gland

29 Identify *A-D* in the given figure and choose the correct combination.



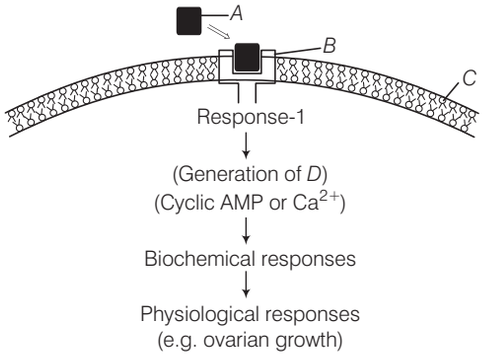
(a) *A* – Hypothalamic neuron, *B* – Hypothalamus, *C* – Portal circulation, *D* – Posterior pituitary
(b) *A* – Hypothalamus, *B* – Hypothalamic neuron, *C* – Portal circulation, *D* – Posterior pituitary
(c) *A* – Hypothalamus, *B* – Hypothalamic neuron, *C* – Posterior pituitary, *D* – Portal circulation
(d) *A* – Hypothalamus, *B* – Hypothalamic neuron, *C*–Posterior pituitary, *D* – Neurohypophysis

30 Single molecule of haemoglobin can carry
(a) 1 molecule of oxygen (b) 2 oxygen molecules
(c) 4 oxygen molecules (d) 8 oxygen molecules

31 Identify the hormone with its correct matching of source and function.
(a) Oxytocin – posterior pituitary, growth and maintenance of mammary glands
(b) Melatonin – pineal gland, regulates the normal rhythm of sleep-wake cycle
(c) Progesterone-corpusluteum, stimulation of growth and activities of female secondary organs
(d) Atrial natriuretic factor–ventricular wall increases the blood pressure

32 The mode of excretion in birds is
(a) ammonotelic, as the waste has high pH and high solubility in water
(b) ureotelic, as considerable amount of urea can be stored in blood
(c) uricotelic, as uric acid is least soluble in water and less toxic
(d) specialised mode of excretion by Malpighian tubules

33 Identify *A*-*D* and choose the correct option.



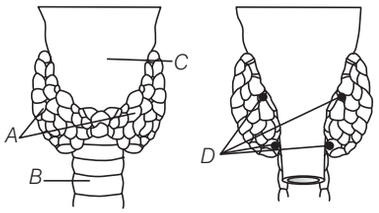
(a) *A* – Hormone, *B* – Receptor, *C* – Cell membrane, *D* – Secondary messenger
(b) *A* – Hormone, *B* – Receptor, *C* – Cell membrane, *D* – Primary messenger
(c) *A* – Receptor, *B* – Hormone, *C* – Cell membrane, *D*–Primary messenger
(d) *A* – Receptor, *B* – Hormone, *C* – Cell membrane, *D* – Secondary messenger

34 Respiratory movements are controlled by
(a) forebrain (b) midbrain
(c) hindbrain (d) medulla oblongata

35 'Podocytes' are
(a) specialised tube feet in echinoderms
(b) epithelial cells in Bowman's capsule
(c) phagocytic cells in liver
(d) hematopoietic cells in bone marrow

36 Haemoglobin–oxygen dissociation curve is
(a) sigmoid (b) straight (c) hyperbolic (d) constant

37 Identify *A, B, C* and *D* in the given diagram and choose the correct combination.

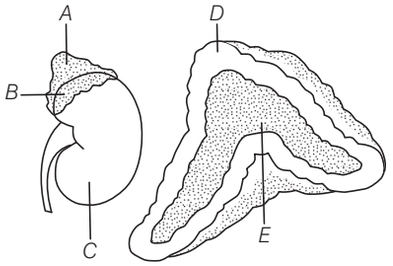


(a) *A* – Thyroid, *B* – Trachea, *C* – Vocal cord, *D* – Parathyroid glands
(b) *A* – Trachea, *B* – Thyroid, *C* – Vocal cord, *D* – Parathyroid glands
(c) *A* – Trachea, *B* – Vocal cord, *C* – Thyroid, *D* – Parathyroid glands
(d) *A* – Parathyroid glands, *B* – Thyroid, *C* – Vocal cord, *D* – Trachea

38 During asthma attack, a person has difficulty in breathing because of the contraction of
(a) trachea (b) alveoli
(c) bronchi (d) terminal bronchioles

39 The antidiuretic hormone increases the reabsorption of water in
(a) Proximal Convoluted Tubule (PCT)
(b) Henle's loop
(c) Distal Convoluted Tubule (DCT)
(d) Bowman's capsule

40 Identify *A*-*E* in the following figure and choose the correct option.



(a) *A* – Adrenal gland, *B* – Fat, *C* – Kidney, *D* – Adrenal cortex, *E* – Adrenal medulla
(b) *A* – Fat, *B* – Adrenal gland, *C* – Kidney, *D* – Adrenal cortex, *E* – Adrenal medulla
(c) *A* – Fat, *B* – Adrenal gland, *C* – Kidney, *D* – Adrenal medulla, *E* – Adrenal cortex
(d) *A* – Adrenal gland, *B* – Fat, *C* – Kidney, *D* – Adrenal medulla, *E* – Adrenal cortex

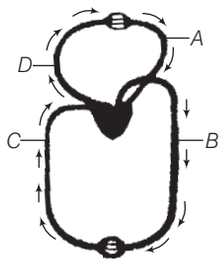
41 During haemodialysis,
(a) blood is pumped out from artery and returned to vein
(b) blood is pumped out from vein and returned to artery
(c) blood can be taken from either artery or vein to remove waste products
(d) blood is treated with heparin and pumped into artery

42 Correct the order of action of hydrophilic hormones.
I. Hormones bind to plasma membrane.
II. Physiological response.
III. Biochemical response.
IV. Generation of secondary messenger.

Choose the correct option.
(a) I, II, III, IV (b) II, I, III, IV
(c) I, IV, III, II (d) III, I, II, IV

43 Respiratory disorder 'emphysema' is a condition characterised by
(a) inflation of alveoli
(b) pulmonary haemorrhage
(c) increased number of air sacs
(d) infection of *Mycobacterium tuberculosis*

44 The given figure shows schematic plan of blood circulation in humans with labels *A* to *D*. Identify the label and give its functions?



(a) C–Vena Cava – takes blood from body parts to right auricle, pCO_2 = 45 mm Hg
(b) D–Dorsal aorta – takes blood from heart to body parts, pCO_2 = 95 mm Hg
(c) A–Pulmonary vein – takes impure blood from body parts, pCO_2 = 60 mm Hg
(d) B–Pulmonary artery – takes blood from heart to lungs, pCO_2 = 90 mm Hg

45 Which blood vessel carries least percentage of urea?
(a) Renal vein (b) Renal artery
(c) Pulmonary vein (d) Hepatic portal vein

46 Which one of the following pairs of hormones are the examples of those that can easily pass through the cell membrane of the target cell and bind to a receptor inside it (mostly in the nucleus)?
(a) Insulin and glucagon
(b) Thyroxine and insulin
(c) Somatostatin and oxytocin
(d) Cortisol and testosterone

47 Kidney stones are crystals of
(a) sodium chloride (b) silica
(c) calcium oxalate (d) sodium bicarbonate

48 Match the following columns.

	Column I		Column II
A.	Tidal volume	1.	Arthropods and molluscs
B.	Open circulatory system	2.	Vasodilation
C.	Ammonotelic	3.	Renal failure
D.	Atrial natriuretic factor	4.	Volume of inspired or expired air
		5.	Insects

Codes

	A	B	C	D
(a)	4	1	5	2
(c)	4	5	2	1

	A	B	C	D
(b)	1	2	3	4
(d)	1	3	4	5

49 Urine is concentrated in loop of Henle in
(a) descending limb
(b) thick ascending limb
(c) hairpin bend between descending and ascending limbs
(d) area between ascending limb and distal convoluted tubule

50 The pacemaker of human heart is
(a) AV node (b) SV node
(c) SA node (d) M node

51 The 'amino acid derivative' among the following hormone is
(a) insulin (b) epinephrine
(c) oestradiol (d) testosterone

52 Rarest WBCs in human are
(a) basophils (b) neutrophils
(c) eosinophils (d) monocytes

53 Which of the following is the correct pathway for propagation of cardiac impulse?
(a) SA node → AV node → Bundle of His → Purkinje fibres
(b) AV node → Bundle of His → SA node → Purkinje fibres
(c) SA node → Purkinje fibres → AV node → Bundle of His
(d) Purkinje fibres → AV node → SA node → Bundle of His

54 Blood dialysis is also called artificial
(a) lung (b) kidney (c) heart (d) liver

55 Stimulation of a muscle fibre by a motor neuron occurs at
(a) the neuromuscular junction
(b) the transverse tubules
(c) the myofibril
(d) the sarcoplasmic reticulum

56 Muscle firbes consist of
(a) myofibrils
(b) sarcomere
(c) myofibrils similar in length and diameter
(d) All of the above

57 Consider the following

I. The blood transports CO_2 comparatively easily because of its higher solubility.
II. Approximately 8.9% of CO_2 is transported being dissolved in the plasma of blood.
III. The carbon dioxide produced by the tissues, diffuses passively into the blood stream and passes into red blood corpuscles and react with water to form H_2CO_3.
IV. The oxyhaemoglobin (HbO_2) of the erythrocytes is basic.
V. The chloride ions diffuse from plasma into the erythrocytes to maintain ionic balance.

(a) I, III and V are true, II and IV are false
(b) I, III and V are false, II and IV are true
(c) I, II and IV are true, III and V are false
(d) I, II and IV are false, III and V are true

58 Choose the correct statement about 'neurohypophysis'.

(a) It stores the hormones produced by adenohypophysis
(b) It is poorly developed and functionless in humans
(c) It stores and releases hormones secreted by hypothalamus
(d) It secretes its own hormones

59 Which is not related to urine concentration in mammals?

(a) Testosterone hormone (b) Antidiuretic hormone
(c) Oxytocin (d) Both (a) and (c)

60 Murmur is a disorder of

(a) heart valves (b) AV node
(c) SA node (d) pulmonary vein

61 Nervous tissue consists of cells called

(a) neuron (b) glial cells
(c) ependymal cells (d) All of these

62 Match the following columns.

	Column I (Animal)		Column II (Respiratory)
A.	Earthworm	1.	Moist cuticle
B.	Aquatic arthropods	2.	Gills
C.	Fishes	3.	Lungs
D.	Birds/reptiles	4.	Trachea

Codes

	A	B	C	D		A	B	C	D
(a)	2	1	4	3	(b)	1	4	2	3
(c)	1	3	2	4	(d)	1	2	4	3

63 Exchange of gases in lungs occurs through

(a) simple diffusion (b) active transport
(c) osmosis (d) plasmolysis

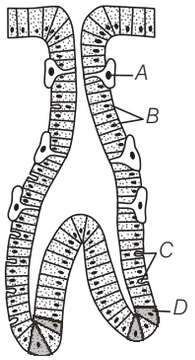
64 How many leucocytes are present in a healthy adult?

(a) 4.5-5.0 million/cm^3 of blood
(b) 1,00,000/cm^3 of blood
(c) 7,500/ per microlitre of blood
(d) 2,50,00,000 cm^3 of blood

65 In blood, CO_2 is transported mainly as

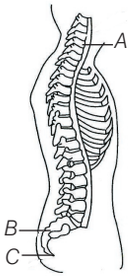
(a) sodium carbonate (b) carboxyhaemoglobin
(c) bicarbonate (d) CO_2 as such

66 The given below diagram represents the gastric glands. Label it from *A* to *D* and choose the correct option accordingly.



(a) *A* – Oxyntic cell, *B* – Chief cell, *C* – Mucous cell, *D* – Argentaffin cell
(b) *A* – Argentaffin cell, *B* – Oxyntic cell, *C* – Mucous cell, *D* – Chief cell
(c) *A* – G-cell, *B* – Chief cell, *C* – Mucous cell, *D* – Argentaffin cell
(d) *A* – Oxyntic cell, *B* – G-cell, *C* – Mucous cell, *D* – Chief cell

67 Identify *A*, *B* and *C* in the given diagram and choose the correct option.



(a) *A*–Cervical vertebrae, *B*–Coccyx, *C*–Sacrum
(b) *A*–Cervical vertebrae, *B*–Coccyx, *C*–Atlas
(c) *A*–Cervical vertebrae, *B*–Coccyx, *C*–Axis
(d) *A*–Cervical vertebrae, *B*–Sacrum, *C*–Coccyx

68 The thin filaments of sarcomere are made up of

(a) heavy meromyosin (b) light meromysoin
(c) actin (d) troponin

69 Go through the following statements and choose the correct option accordingly.

I. The anti-pellagra vitamin is nicotinamide present in milk, yeast, meat and leafy vegetables.
II. Crytps of Lieberkuhn are present in the liver.
III. Steapsin is a pancreatic amylase.

(a) I and II are correct (b) I and III are incorrect
(c) II and III are incorrect (d) I and III are correct

70 What is not true about glial cells?

(a) Modified glial cell called Schwann cell secretes myelin sheath
(b) Assist in nourishment of neurons
(c) Modulate nerve impulses
(d) Secrete neurotransmitters that facilitate synaptic transmission

71 The U-shaped bone present at the base of the buccal cavity is
(a) malleus (b) ethmoid (c) zygomatic (d) hyoid
(e) sphenoid

72 Select the correct statement regarding the specific disorder of muscular or skeletal system
(a) Muscular dystrophy–Age related shortening of muscles
(b) Osteoporosis–Decrease in bone mass and higher chances of fractures with advancing age
(c) Myasthenia gravis–Autoimmune disorder which inhibits sliding of myosin filaments
(d) Gout–Inflammation of joints due to extra deposition of calcium

73 Which part of the human ear plays no role in hearing as such, but is otherwise very much required?
(a) Eustachian tube (b) Organ of Corti
(c) Vestibular apparatus (d) Ear ossicles

74 Match the following columns.

	Column I		Column II
A	Vitamin-B_{12}	1.	Pellagra
B.	Folic acid	2.	Osteomalacia
C.	Niacin	3.	Perniceous anaemia
D.	Riboflavin	4.	Bleeding
E.	Vitamin-K	5.	Anaemia
F.	Calciferol	6.	Cheilosis

Codes

	A	B	C	D	E	F
(a)	3	5	1	6	4	2
(b)	3	5	6	1	4	2
(c)	3	5	1	4	6	2
(d)	5	3	1	4	6	2

75 Which is the thickest part of mammalian heart?
(a) Myocardium (b) Epicardium
(c) Endocardium (d) Pericardium

76 Neurosecretory cells
(a) secrete hormones
(b) generate and transmit nerve impulses
(c) are found in hypothalamus of all mammals
(d) All of the above

77 Injury to adrenal cortex is not likely to affect the secretion of which one of the following?
(a) Aldosterone
(b) Both androstenedione and dehydroepiandrosterone
(c) Adrenaline
(d) Cortisol

78 Acetylcholine is a
(a) neuronal transmitter
(b) chemical transmitter released in synaptic cleft to regenerate the nerve impulse
(c) cardiac inhibitor
(d) All of the above

79 How do parasympathetic neural signals affect the working of the heart?
(a) Reduce both heart rate and cardiac output
(b) Heart rate is increased without affecting the cardiac output
(c) Both heart rate and cardiac output increase
(d) Heart rate decreases, but cardiac output increases.

80 The characteristics and an example of a synovial joint in humans is

	Characteristics	Examples
(a)	Fluid cartilage between two bones, limited movements	Knee joints
(b)	Fluid filled between two joints, provides cushion	Skull bones
(c)	Fluid filled synovial cavity between two bones	Joint between atlas and axis
(d)	Lymph filled between two bones, limited movement	Gliding joint between carpals

81 Which of the following are the secondary messengers?
(a) Cyclic AMP (b) TSH
(c) Catecholamines (d) hCG

82 Match the following columns.

	Column I		Column II
A.	Purkinje cells	1.	Cerebellum to red nuclei
B.	Superior cerebellar peduncles	2.	Globular neurons
C.	Middle cerebellar peduncles	3.	Cerebellum, medulla oblongata and spinal cord
D.	Inferior cerebellar peduncles	4.	Communicates with pons

Codes

	A	B	C	D
(a)	1	2	4	3
(b)	1	2	3	4
(c)	2	1	4	3
(d)	2	1	3	4

83 Read the statements regarding muscle proteins.
I. Actin is a thin filament and is made up of two F-actins.
II. The complex protein, tropomyosin is distributed at regular intervals of troponin.
III. Myosin is a thick filament which is also a polymerised protein.
IV. The globular head of meromyosin consists of Light Meromyosin (LMM).

Which of the above statements are correct?
(a) I, II and III
(b) I, II and IV
(c) I and III
(d) II and IV

84 The olfactory mucous membrane that lines the nasal mucosa is
(a) vascular membrane
(b) sarcolemma
(c) schneiderian membrane
(d) tunica interna

85 Select the answer with correct matching of the structure, its location and function.

	Column I	Location	Column II
(a)	Eustachian tube	Anterior part of internal ear	Equalises air pressure on either sides of tympanic membrane.
(b)	Cerebellum	Midbrain	Controls respiration and gastric secretions.
(c)	Hypothalamus	Forebrain	Controls body temperature, urge for eating and drinking.
(d)	Blind spot	Near the place where optic nerve leaves the eye	Rods and cones are present but inactive here.

86 Which one of the following is the correct difference between rod cells and cone cells of our retina?

	Features	Rod cells	Cone cells
(a)	Visual activity	High	Low
(b)	Visual pigment contained	Rhodopsin	Rhodopsin
(c)	Overall function	Vision in poor light	Colour vision and detailed vision in bright light
(d)	Distribution	More concentrated in centre of retina	Evenly distributed all over retina

87 Match the following columns.

	Column I (Name of ventricles)		Column II (Their location)
A.	Ventricle I	1.	Hindbrain
B.	Ventricle II	2.	Right cerebral hemisphere
C.	Ventricle III	3.	Diencephalon
D.	Ventricle IV	4.	Left cerebral hemispee

Codes

	A	B	C	D
(a)	4	2	1	3
(b)	2	4	3	1
(c)	1	2	4	3
(d)	3	2	1	4

88 Diabetes Insipidus (DI) is caused due to the deficiency of
(a) insulin
(b) glycagon
(c) vasopressin
(d) aldosterone

89 Match the following columns.

	Column I		Column II
A.	Uremia	1.	Excess of protein level in urine
B.	Haematuria	2.	Presence of high ketone bodies in urine
C.	Ketonuria	3.	Presence of blood cells in urine
D.	Glycosuria	4.	Presence of glucose in urine
E.	Proteinuria	5.	Presence of urea in urine

Codes

	A	B	C	D	E
(a)	5	3	2	4	1
(b)	4	5	3	2	1
(c)	5	3	4	2	1
(d)	2	1	3	4	5

90 If one litre of water is introduced in human blood, then
(a) BMR increases
(b) BMR decreases
(c) RBC collapses and urine production decreases
(d) RBC collapses and urine production increases

ANSWERS

1 (c)	**2** (c)	**3** (d)	**4** (d)	**5** (d)	**6** (d)	**7** (d)	**8** (c)	**9** (b)	**10** (c)
11 (d)	**12** (b)	**13** (c)	**14** (d)	**15** (d)	**16** (b)	**17** (d)	**18** (c)	**19** (b)	**20** (a)
21 (c)	**22** (c)	**23** (d)	**24** (d)	**25** (c)	**26** (a)	**27** (b)	**28** (d)	**29** (b)	**30** (c)
31 (b)	**32** (c)	**33** (a)	**34** (d)	**35** (b)	**36** (a)	**37** (a)	**38** (d)	**39** (c)	**40** (a)
41 (a)	**42** (c)	**43** (a)	**44** (a)	**45** (a)	**46** (d)	**47** (c)	**48** (a)	**49** (c)	**50** (c)
51 (b)	**52** (a)	**53** (a)	**54** (b)	**55** (a)	**56** (a)	**57** (a)	**58** (c)	**59** (d)	**60** (a)
61 (d)	**62** (c)	**63** (a)	**64** (c)	**65** (c)	**66** (a)	**67** (d)	**68** (c)	**69** (c)	**70** (d)
71 (d)	**72** (b)	**73** (c)	**74** (a)	**75** (a)	**76** (d)	**77** (c)	**78** (d)	**79** (a)	**80** (c)
81 (a)	**82** (c)	**83** (c)	**84** (c)	**85** (c)	**86** (c)	**87** (b)	**88** (c)	**89** (a)	**90** (d)