SEMESTER-III

CORE-V – CHORDATES

UNIT-I PART-I (Each question carry 1 mark)

1.Hemichordates are _____ feeders.

2.Fertilization in hemichordate is _____.

3.Anterior most division of body in hemichordate is called _____.

4.An outgrowth from roof of buccal cavity into proboscis of Balanoglossus is called _____.

5.The protochordate with well developed notochord is _____.

6.Fertilization in Herdmania is _____.

7.In Herdmania the matrix is formed of _____.

8.Branchial sac in Herdmania is called _____

9.The incurrent siphon in Herdmania is called _____

10.The excurrent siphon in Herdmania is called _____

11.The cells that carry out excretion in Herdmania is called_____

12.Mouth in Amphioxus is bordered by _____

13. Cleavage in Amphioxus is _____type.

14.Body muscle in Amphioxus are arranged as V-shaped blocked called_____

15.The gill slits in Amphioxus opens into the _____,

16.Body of Branchiostoma is divided into _____ and _____.

17.Tornaria larva was first described by _____

18.Ocelli and apical tuft of cilia is borne by _____.

19.Gonad in Herdmania is known as _____

20.The structure that helps in attachment of Ascidian tadpole to substratum is called _____.

21.The chordate feature that is lost during retrogressive metamorphosis in Ascidian Tadpole larva is _____

22.Number of pairs of gill slits present in larva of Amphioxus is _____.

23.The nerve cord lies _____ to the notochord.

24._____ pairs of gill slit is present in Ascidian Tadpole larva.

25.The tailed Ascidina Tadpole fixes to the substratum with the help of _____

26.Notochord develops from _____ layer of the three germ layer.

27.In vertebrates the notochord is replaced by _____.

28.The nerve cord is derived from _____.

29.Circular mouthed fishes are also called _____.

30.Limbless amphibians are termed as _____.

31.The earliest known chordates were called _____.

32.Auricularia larva are found in _____.

33.The band of cilia present near the mouth of Dipleurula larva is called _____

34.The habitat of earliest known chordate was _____.

35.The phylum that include Bslsnoglossus.

36.Choradate feature of Hemichordate.

37.Coelom type in Balanoglossus.

38.The common term of Balanoglossus

39.Larval form in the hemichordate.

40.The larval form in herdmania.

41.The type of metamorphosis in Urochordate.

42.The protein component of Tunic in Urochordate.

43.The structure used by Tadpole larva to attach to the substratum before metamorphosis.

44.The common name of Herdmania.

45.Other name for Cephalochordates.

46.External opening of Atrion.

47.Photoreceptor cells in Amphioxus.

48.The homologous structure of pineal body present in Amphioxus.

49.The structure in Amphioxus homologous to the adenohypophyses of vertebrates.

50.The flame cells in nephriedium of Amphioxus.

51.The other name for posterior ciliary band in Tornaria larva.

52.The maturation of ovary prior to testis in Herdmania.

53.The blastula state of Herdmania.

54.Anslogous structure to Thyroid gland in Ascidian tadpole.

55.The balancing organ attached to the brain of Ascidian Tadpole.

56.The photo receptor structure present is Ascidian Tadpole.

57. The number of Adhesive papilla that develop in Ascidian Tadpole.

58.Name an organism other than Ascidian Tadpole that show retrogressive metamorphosis.

PART-II (Each question carry 1.5 mark)(answer in2/3 sentence each)

1.Coelom in Balanoglossus, 2.Buccal diverticulum,

3.Chordate features in Urochordate, 4.Test, 5.Tunicin, 6.Spicules,

7.Gonads in Herdmania, 8.Chordate features in Asidian tadpole,

9.Hatschek's pit, 10.Protonephridia, 11.Solenocyte,

12.Oral hood in Amphioxus, 13.Endostyle, 14.Apical plate, 15.Telotroch,

16.Ovo Testis, 17.Adhesive papilla, 18.Sea squirt 'eats its own brain,

19.Protogyny in Herdmania, 20.Fixation of Tadpole larva, 21.Squamata,

22.Apoda, 23.Chodrichthyes, 24.Osteichthyes, 25.Ophidia, 26.Prototheria,

27.Marsupials, 28.Paedomorphosis, 29.Inverted vertebrate, 30.Homoplasy.

PART-III (Each question carry 2 mark)(answer in 75 words)

1.Metamorphosis of Tornaria larva, 2.Tonaria larva,

3.A sexual reproduction in hemichordate, 4.Ascidian tadpole,

5.Retrogressive metamorphosis, 6.Non-chordate features of Herdmania,

7.Wheel organ, 8.Feeding mechanism in Amphioxus, 9.Pharynx in Amphioxus,

10.Chordate feature of Amphioxus, 11.Tornaria larva, 12.Ascidian tadpole larva,

13.Retrogressive metamorphosis, 14. Amphioxus larva, 15.Tadpole larva,

16.Gonad of Herdmania, 17.Chordate characters of Tadpole larva,

18.Retrpgressive changes in Tadpole larva, 19.Notochord, 20.Acrania,

21.Tunicata, 22.Agnatha, 23.Gnathostomata, 24.Eutheria, 25.Dipleurula concept,

26.Neotonous larva theory, 27.Hypothetical ancestral chordates.

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Give an account of digestive system of Balanoglossus.

2.Describe the mode of feeding and digestion in Balanoglossus.

3.Enumerate the general characteristics of hemichordate.

4.Give an account of general characteristics of Urochordates and justify its inclusion in chordate.

5.Describe the affinities and systematic position of Urochordate.

6.Describe the structure of pharynx and mode of feeding in Herdmania.

7.Enumerate the primitive, degenerate and specialized character of Cephalochordata.

8.Discuss the affinities of Amphioxus.

9.Give an account of general characteristics of Cephalochordates and justify its inclusion in chordate.

10.Give an account of the structure of Tornaria larva and its metamorphosis.

11.Describe the structure of Ascidian tadpole larva and discuss the retrogressive metamorphosis.

12.Give an account of the development of Amphioxus larva.

13.Give an account of the changes that occur during retrogressive metamorphosis of Ascidian Tadpole larva.

14.Describe the structure of Ascidian Tadpole larva. Mention the changes that occur during its metamorphosis.

15.Give an account of general characteristics of Chordates.

16.Give an outline classification of Chordates.

17.Discuss the origin of chordate from Echinoderm.

18.Give of account of origin of chordate from Annelid/Arthropod.

19.Discuss the Garstang's hypothesis of origin of chordate.

20.Discuss the Auricularian hypothesis of origin of chordates.

UNIT-II , PART-I (Each question carry 1 mark)

1.The other term for hagfishes.

2.The Cyclostome which have vestigial eyes.

3.Common term used for Petromyzon.

4.Larva of Petromyzon.

5.The rheo-receptor present in Lamprey.

6.Kidney type in Chondrichthyes.

7.The valve present in the intestine of Chondrichthyes.

8.Tain fin type in Osteichthyes.

9.Common term for Anabas.

10.Common term for Exocoetus.

11.Movement of large number of animals from one place to another for feeding, reproduction or to escape weather extreme.

12.Migrating or swimming or drifting with the water current.

13. Migrating or swimming or drifting against the water current.

14.Migration of fishes from fresh water to sea water and vise-versa.

15.A pair of sac like outgrowth of pharynx acting as necessary respiratory.

16. Accessory respiratory organ in Polypterus.

17.Double breather fishes.

18.South American Lung fish.

19.The structure prepared by protopterus for aestivation.

20.Amphibian species that carry eggs round the neck of female.

21.The mother Amphibian coils her body round the bunch of eggs.

22.Fish that broods fertilized eggs in mouth cavity.

23.A fish that hold fertilized eggs in the brood pouch.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences each)

1.Primitive characters of Cyclostomes.

2.Degenerate characters of Cyclostomes.

3.Specialized characters of Cyclostomes.

4.Sucker fish

5.Sea horse

6.Climbing perch

7.Carps

8.Aphidromous migration

9.Shoaling

10.Feeding migration

11.Spawning migration

12.Dipterus

13.Primitive feature of Dipnol

14.Special feature of Dipnol

15.Rhipidistian

16.Coclacanth

17.Prototetrapods.

18.Extinct Amphibians.

19.Neoteny

20.Hibernation

21.Amphibian heart

22.Midwife toad

23.Parental care in Ichthyophis

24.Home nest in Amphibians.

PART-III , (Each question carry 2 mark)(answer in 75 words)

1.Ammocoete larva

2.Petromyzon

3.Myxinoidea

4.Heart of Petromyzon

5.Pineal apparatus in Petromyzon.

6.Condrichthyes

7.Osteichthyes.

8.Dipnoi

9.Teleosts

10.Catadromous migration

11.Anaadromous migration.

12.Potamodromous migration.

13.Oceanodromous migration

14.Parental care in Hippocampus.

15.Viviparity in fishes.

16.Mermaid's purse.

17.Swim bladder as lung.

18.Banchial outgrowth in fishes.

19.Lung fish

20. Affinitis of Lung fishes with Amphibia.

21.Devonian fishes

22.Lisaamphibia

23.Apoda

24.Urodeles

25.Anura

26. Parental care in Urodeles

27. Viviparity in Amphibians

28. Parental care in Apoda

PART-IV , (Each question carry 6 mark)(answer within 500 words)

1.Give an account of the general characteristics of Agnatha.

2.Discuss the affinities and phylogenetic position in Cyclostomes.

3.Give an account of the general characteristics of Cyclostomes.

4.Discuss the structural peculiarities of Petromyzon.

5.Discuss the general characters and classification of Chondrichthyes upto order.

6. .Discuss the general characters and classification of Osteichthyes upto order .

7.Describe the different types of fish migration and discuss its advantages.

8.Give an account of the European Eel migration.

9.Discuss the various grades of parental care in fishes.

10.What is parental care? Describe the phenomenon with reference to fishes ?

11.What are respiratory organs? Discuss the accessory respiratory organ found in fishes ?

12.What are accessory respiratory organ? Discuss the various forms of accessory respiratory organ found fishes.

13.Justify the statement 'Dipnoans are the granduncle of Amphibians.

14.Write an essay on evolution of Dipnoi and their relationship with Ambhibians.

15.Give an account of " Tetrapoda".

16.Discuss the problem of land life and the basic designs made by tetrapods to achieve them during evolution.

17.Describe the general characteristics of Amphibia and classify the class up to order giving suitable example.

18.Classify class Amphibia up to order giving characteristics and examples.

19.What is Parental care? Discuss the phenomena with reference to Amphibians.

20.Describe the different mode of Parental care found in order Anura of Class Amphibia.

UNIT-III, PART-I (Each question carry 1 mark)

1.The era known as the age of reptiles.

2.Tempetature dependent sex determination occurs in which reptile.

3.Limbless reptiles

4.Living fossil in reptiles.

5.The sole of survivor of the order Rhyncocephalia.

6.Living fossil in reptiles.

5.The sole of survivor of the order Rhyncocephalia.

6.The anal opening in Sphenodon.

7.Defination type in non-poisonous snake.

8.The venom of which snake is both neurotoxic and haemotoxic in nature.

9.The protein used to neutralize venom.

10.Glorified reptiles

11.Connecting link between reptiles and birds.

12.Master of air.

13.Number of chamber in avian heart.

14.Form of excretion in birds.

15.Non-migratory birds.

16.Migration based on seasonal changes.

17.Migratory movement from East to West or West to East.

18.Vertical movement of birds.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences)

1. Anapsida

2.Parapsida

3.Diapsida

4.Living fossil.

5.Tuatara

6.Cause of long survival of Sphenodon.

7.Snake fangs

8.Anti-venin

9.Haemotoxic venom

10.Neutrotoxic venom

11.Paired wing theory

12.Four wing theory

13.Monophyletic origin of birds.

14.Perching

15.Pectoralis major

16.Keel bone

17.Diurnal birds.

18.Nocturnal birds.

19.Resident Birds.

20.Erratic migration.

PART-III (Each question carry 2 mark)(answer in 75 words)

1.Dinosaurs.

2.Squamata

3.Diapsida

4.Features that Sphenodon share with Dinosur.

5.Sphenodon affinities with Chelonia.

6.Affinities of Sphenodon with lizard.

7.Snake venom

8.Sea snake venom

9.Poison glands in snake

10.Perching birds

11.Flightless birds.

12.Flight birds.

13.Passeriformes

14.Calliformes

15.Reptilian features of Archaeopterys.

16.Avian features of Archaeopterys.

17.Flight muscle in birds.

18.Penumatic bone in birds.

19.Lung in bird.

20.Air sacs.

21.Complete migration

22.Navigation during migration.

23.Threats during migration.

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Describe the general characters of reptile and classify up to order giving examples.

2.Give an account of the affinities of Sphenodon.

3.Discuss the features of Sphenodon.

4.Give an account of poison apparatus of a venomous snake.

5.Describe briefly the biting mechanism in snakes.

6.Classify Classify Aves up to order giving characters and examples.

7.Discuss the general features in Aves and give outline classification up to order.

8.Justify the statement “Birds are Glorified Reptiles”.

9.Discuss the concept “Archaeopteryx-a connecting link towards origin of birds”.

10.Give an account of the different theories related to origin of flight in ancestral birds.

11.Discuss the morphological adaption for flight in birds.

12.Discuss the anatomical adaption for flight in birds.

13.Give an account of flight adaption in birds.

14.What is migration?

15.Give a detailed account of navigation mechanism followed by migratory birds.

16.Discuss briefly the advantages and disadvantages of bird migration.

UNIT-IV ,PART-I (Each question carry 1 mark)

1. Prototheria is represented by _____.
2. Cleavage type in prototheria _____.
3. Aerial adaption in mammals is due to the development of _____.
4. Unguligrade locomotion is found in animals bearing_____.
5. Aquatic adaption by mammals is due to the development of _____.
6. Idea of zoogeography was originally contributed by _____.

7. Australia is included in _____ realm.
8. Africa is included in _____ realm.
9. Egg lying mammals
10. Animals with teatless mammary glands.
11. Who developed the idea of adaptive radiation.
12. The ability to climb.
13. Flying mammals.
14. Digitigrade locomotion.
15. A full cycle of motion of a running or walking mammal.
16. Number of regions that constitute the continent.
17. The biggest zoogeographical realm.
18. The science dealing with the distribution of living animal.
19. Who proposed the continental drift theory?
20. The single super continent according to Wegner.
21. After splitting the land mass which moved southward.
22. After splitting the land mass which moved northward.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences)

1. Habitat of Platypus.

2. Mammary glands in Platypus.

3. Arborial

4. Cursorial

5. Prehensile tail.

6. Realm megagaea.

7. Realm Neogaea

8. Realm Notogaca

9. Lauarasia

10. Sea of Tethys

11.Pangaea

12.Gondwana

13.Amphibian fauna in Palaearctic region

14.Avian fauna in Oriental region

15.Warm blooded animals

16.Sebaceous gland

PART-III (Each question carry 2 mark)(answer in 75 words)

1.Prototheria

2.Reptilian characters of Platypus

3.Specialized characters of Prototheria

4.Adaptive radiation

5.Form of locomotory appendages in Mammals

6.Zoogeographical realms

7.Palaearctic region

8.Australian region

9.Continental Drift theory

10.Plate tectonic theory

11.Fossil evidence in support of plate tectonic theory

12.Continuous distribution of animals

13. Discontinuous distribution of animals

14.Vertebrate fauna in Palaearctic region

15. Vertebrate fauna in African region

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Discuss the affinities and phylogenic position of prototheria .

2.Give an account of adaptive radiation in mammals with respect to locomotory appendages .

3.Discuss the radiation of limb structure in mammals .

4. Give an account of the Zoogeographical realms of the bird and mention the subregion the under it .

5.Describe the different theories pertaining to distribution of animals .

6. Discuss the postulation of Plate tectonic theory along with the evidences .

7. Discuss the concept of continental drift theory proposed by Alfred Wegener and give an account of the evidences in support .

8. Describe the different theories pertaining to distribution of animals .

9. . Give an account of the different types of fauna seen in different Zoogeographical realms .

10. Describe the factors affecting dispersal of animals .

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CORE-VI – PHYSIOLOGY (controlling &coordinating systems)

UNIT-I PART-I (Each question carry 1 mark)

1.The inter-fitting, finger like processes of cell membranes of adjacent cells.

2.The alternate term for multilayered layer of epithelial tissue.

3.The minute non-motile protoplasmic process that increase the surface area of the cell.

4.The type of epithelium that lines the long alveoli.

5.The vitamin important for normal growth and maintenance of bones.

6.The type of epithelium is present in Thyroid follicles.

7.Among vertebrates the class of animal that has the largest RBC.

8.The graveyard of RBC.

9.The leucocytes that give the highest count in normal differential count.

10.The leucocytes meant for production of antibody.

11.Name a striated involuntary muscle tissue.

12.Neuron with a single dendrite and single axon.

13.The cells that support the CNS.C

14.The longest efferent process of a neuron.

15.The protein associated with dead cells in keratinized stratified epithelium.

16.The outer membranous covering of the bone.

17.The cavity that lodges osteocyte.

18.The cytoplasmic process that form the means of communication between osteocytes.

19.A flexible connective tissue.

20.The process of laying down new bone material by bone cells.

21.Cells responsible for bone resorption.

22.The replacement of old bone tissue with new one.

23.The fluid constituent of blood is known as ----------.

24.Irritbility nature of animals is due to the presence of ---------- tissue.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences)

1. Osteocyte, 2. Chondrocyte, 3. Matrix, 4. Cilia, 5. Squamous epithelium, 6. Fibroblast,7. Adipocytes, 8. Macrophages, 9. Mast cells, 10. Reticular connective tissue, 11. Transitional epithelium, 12. Ligament, 13. Tendon, 14.Bone marrow,15.Chondroblasts,16.Elastic cartilage.

PART-III (Each question carry 2 mark)(answer in 75 words)

1. Stratified epithelial tissue, 2. Areolar tissue, 3. Fibres of connective tissue, 4. Haversian system, 5. Hyaline cartilage, 6. Fibro cartilage, 7. Adipose tissue, 8. Lymph, 9. Neuroglial cells,10.Bone cells,11.Bone matrix,12.Compact bone,13.Spongy bone,14.Bone growth,15.Bone resorption.

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Describe the structure, location, types and function of epithelial tissue.

2.Give an account of fluid connective tissue.

3. Describe the structure of neuron.

4.Give an account of different types of muscular tissue.

5. Describe the structure of a mammalian bone.

6.Give an account of different types of bones found in human body.

7.Give an account of different types of cartilages found in human body.

8.What is ossification ? Describe the process of ossification.

9.What is bone resorption ? Enumerate the steps involved in Bone resorption.

10.Describe the structure, location, types and function of simple epithelial tissue.

UNIT-II, PART-I (Each question carry 1 mark)

1.The sub-units of muscle fibre is called--------.

2.The light area present in the middle of A-band is called---------.

3.The segment between two adjacent Z-line in a myofibril is called----------.

4.The number of polypeptide chain that constitute myosin is----------.

5.Each Troponin molecule is composed of------sub-units.

6.The protein filament limited to A-band.

7.The protein filament limited to I-band.

8.The enzyme that separates myosin into LMM and HMM.

9.The sub-unit of Troponin to which calcium binds during muscle contraction.

10.The line that bisects I-band.

11.The muscle that works in rhythmic fashion.

12.The protein filament limited to A-band.

13. The protein filament limited to I-band.

14.The line that bisects I-band.

15.The theory that best explains muscle contraction.

16.The cell that do not under go cell division.

17.The resting potential value of a neuron.

18.The path taken by the nerve impulse in a reflex action.

19.The organ of hearing and balance.

20.The gland that secretes tear.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences)

1. A-band, 2. I-band, 3. Z-line, 4. Troponin, 5. Tropomyosin, 6. G-Actin, 7. F-Actin, 8. Cross bridge, 9.Rigor mortis,10.Actin-myosin complex,11.Sensory neuron,

12.Motor neuron,13.Nissl bodies,14.Node of Ranvier,15.Voltage-gated channel,

16.Action potential,17.Resting membrane potential,18.Depolarization,

19.Synaptic cleft,20.Acetylcholine,21.Ear ossicle,22.Cochlea,23.Vestibule.

PART-III (Each question carry 2 mark)(answer in 75 words)

1. Sarcotubular System, 2. Sarcoplasmic reticulum, 3. Myosin, 4. Actin,

5. Sarcomere,6.Cardiac muscle,7.Smooth muscle,8.Sliding mechanism,

9.Power stroke,10.Myelinated nerve fibre,11.Action potential,

12.Neurotransmitter,13.Structure of synapse,14.Reflex action.

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Describe the ultrastructure of skeletal muscle fibre.

2.Give an account of histology of different types of muscle in the body.

3.Give an account of muscle protein present in skeletal muscle fibre and describe their arrangement.

4.Describe the histology of skeletal muscle and cardiac muscle.

5.Describe the molecular mechanism of muscle contraction.

6.Explain the chemical basis of muscle contraction.

7.Describe the structure of a neuron.

8.Explain the mechanism of maintenance of resting membrane potential.

9.Explain the steps for generation of action potential in neuronal membrane.

10.Describe the events that occur during synaptic transmission.

11.Describe the reflex action with example.

12. What is reflex arc ? Describe the types of reflex arc along with its action.

13.Describe the structure of human eye with its physiology.

14.Describe the structure of human ear with its physiology.

UNIT-III, PART-I (Each question carry 1 mark)

1.Leydig cell secrete ---------- hormone.

2.After ovulation the ruptured follicle is transformed into -------.

3.Degenerating corpus luteum is called ----------.

4.Fluid filled cavity within graafian follicle -------.

5.Coiled tubules present within testis is called ----------.

6.The cap like structure present on the head of sperm.

7.The male sex hormone is ----------.

8.The cells that provide support and nutrition to the developing germ cell.

9.The testis is situated within a pouch called ----------.

10.Non-functional gamete produced during oogenesis.

11.The method used to prevent pregnancy is called ----------.

12.The sterilization technique employed in man ---------.

13.Matured ovarian follicle ----------.

14.The hormone from hypothalamus that regulate anterior pituitary -.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences)

1.Sertoli cell, 2.Leydig cell, 3.Zona pellucida, 4.Spermatid, 5.Rete testis,

6.Primary spermatocyte, 7.Testosterone, 8.Seminiferous tubule, 9.GnRH,

10.Fallopian tube, 11.Corpus luteum, 12.Contraceptive injection, 13.Oral pill,

14.Relaxin, 15.Placental lactogen.

PART-III (Each question carry 2 mark)(answer in 75 words)

1.Seminiferous tubule, 2.Ovarian follicle, 3.Structure of sperm, 4.Epididymis,

5.Prostate gland, 6.Testosteron, 7.Cowper's gland, 8.Seminal vesicle, 9.Estrogen,

10.Progesterone, 11.Hypogonadism, 12.FSH, 13.LH, 14.Puberty, 15.Luteal phase,

16.Graafian follicle, 17.Ovarian cycle,18.Vasectomy, 19.Chorionic gonadotropin.

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Describe the histology of testis and spermatogenesis .

2.Describe the histology of ovary and the structure of ovum .

3.Describe the physiology of human male reproductive system.

4.Describe the stages of spermatogenesis and structure of human sperm.

5.Describe the endocrine aspect of testis.

6.Describe the human female reproductive system.

7.Describe the stages of oogenesis.

8.Discuss the endocrine aspects of ovary.

9.Describe the hypothalamic-pituitary-testicular axis and its regulation.

10.Describe the hypothalamic-pituitary-ovarian axis and its regulation.

11.Discuss the puberty change in male.

12.Discuss the puberty change in female.

13.Describe the uterine changes during the menstrual cycle.

14.What is ovarian cycle ? Describe the changes in the ovary during this cycle.

15.Give an account of placental hormones and their function.

UNIT-IV, PART-I (Each question carry 1 mark)

1.The structure that links endocrine system to nervous system is ------.

2.The hormone released by the middle region of hypothalamus is ---------.

3.Other name for anterior region of hypothalamus.

4.The term used for posterior region of hypothalamus.

5.Strucuture that maintain homeostasis in the body.

6.Pineal gland produce ---------hormone.

7.The major cells present in pineal gland constitute -------.

8.The gland that effects sleeping pattern.

9.Body's internal clock.

10.The upward growth of pharyngeal epithelium during development of pituitary gland is known as ---------.

11.FSH and LH are released under the influence of

12.The hormone released from intermediate lobe is

13.Hypersecretion of growth hormone in child causes

14.Deficiency of anterior pituitary secretion during childhood causes

15.The hormone responsible for general growth of the body.

16.The hormone from pituitary that stimulates thyroid gland.

17.The hormone that inhibits prolactin secretion.

18.The disorder caused by hypersecretion of growth hormone in adult.

19.Excess secretion of water through urine without glucose.

20.Which is the life saving gland ?

21.The hormone that regulates Na+ and K+ in the extracellular fluid.

22.The endocrine part of Pancreas.

PART-II (Each question carry 1.5 mark)(answer in 2/3 sentences)

1.Corticotropin releasing hormone , 2.Pineal gland and ageing,

3.Melatonin, 4. Gonadotropin, 5. TSH, 6. GHIH, 7. Prolactin, 8.Tyrosine,

9.Hypocalcemia, 10. Hypercalcemia, 11.Proinsulin, 12.Epinephrine,

13.Neurohormone, 14.Peptide hormone, 15.Hormone Receptor.

PART-III (Each question carry 2 mark)(answer in 75 words)

1.Diabetes insipidus .2.Hypothalamic hormone, 3.Circadian rhythm

4.Pineal gland disfunction, 5. Growth Hormone, 6. FSH, 7. ADH, 8. Oxytocin,

9. Gigantism, 10. Dwarfism, 11. Acromegaly, 12. Thyroxin, 13.Calcitonin,

14.Goitre, 15.Diabetes mellitus, 16.Somatostatin, 17.Aldosterone, 18.Cortisol,

19.Addison's disease, 20.Cushing's Syndrome,21.Properties of hormone,

PART-IV (Each question carry 6 mark)(answer in 500 words)

1.Describe the structure and function of hypothalamus.

2.Describe the histology of Pineal gland. Add a note on the hormones released and their function.

3.Describe the structure and function of anterior pituitary gland.

4.Give an account of neurohypophyseal hormones and their function.

5.Describe the structure and function of Thyroid gland.

6.Give an account of synthesis and function of Thyroxin hormone.

7.Describe the structure and function of Parathyroid gland.

8.Discuss the role of insulin in regulating glucose level.

9.Discuss the histology of adrenal gland its hormone.

10.What is hormone ? Describe the different types of hormones.

11.Describe the mechanism of non-steroid hormone action.

12. Describe the mechanism of action of steroid hormone on its target cell.

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CORE-VII,(BIOCHEMISTRY),

UNIT-1, PART-1(EACH QUESTION CARRY 1 MARK)

1.Who coined the term carbohydrate?

2. Define glycosome.

3. Name the organisms where storage polysaccharide is dextrin.

4. What are the two major biological functions of polysaccharides?

5.Which sugar serve as a source of energy for sperm?

6. Which carbohydrate is used as plasma substitute?

7. The carbohydrate with 3 to 10 sugar units are called…….

8. The study of carbohydrates in health and disease is called……..

9. Write the formula of monosaccharides.

10. Name two simplest known monosaccharides.

11. Which monosaccharide do not have asymmetric carbon atom?

12. Which sugars cyclize into ring forms in solution?

13. Name some important disaccharides.

14. Which compound is commonly known as milk sugar?

15. Sucrose consists of what monosaccharides?

16. The glycosidic bond seen in sucrose is……..

17. Which type of glycosidic bond found in maltose?

18. The major fat in adipose tissue that function as fuel reserve is…….

19. Name the cyclic ring of steroids.

20. The fluidity of the membrane is maintained by……

21. The only pospholipid that has antigenic property is ……

22. Hydrolysis of fat by alkali is called……

23. The nitrogenous base present in lecithin is…….

24. Name the most abundant glycerol-phospholipids of cell membrane.

25. Which fatty acid is employed in treatment of leprosy?

PART – 2 (Each question carry1.5 mark)

1. Define carbohydrate.

2. What is epimers?

3. What is isomers?

4.What is chiral carbon atom?

5. What is monosaccharides ?

6. what is disaccharides ?

7. Why sucrose is called invert sugar?

8. Which are non-reducing sugar?

9. What are glycans?

10. What is homoglycans?

11. What are hetero-polysaccharides?

12. What are glycolipids?

13. What is peptidoglycans?

14. What is sphingolipids?

PART – 3(Each question carry 2 mark)

1. Explain D and L isomerism, 2. Trioses

3. Biological importance of pentose.

4. Epimers, 5. Biological importance of monosaccharides.

6. Biological importance of lactose., 7. Sucrose

8. Lactose, 9. Maltose, 10. Disaccharides,11.Starch.

12. Cellulose, 13. Chitin, 14. Inulin, 15. Glycogen.

16.Glycosides, 17. Peptidoglycans,18. Glycolipids

19. Fatty acids, 20.Steroids, 21. Waxes,22. Conjugated lipids

23.Triglycerides, 24. Glycoproteins, 25. Polysaccharides

PART- 4, LONG ANSWER TYPE(Each carry 6 marks)

1. Describe structure, classification and biological importance of monosaccharides.

2. Describe the structure and function of disaccharides.

3. Describe structure and biological importance of polysaccharides.

4. Describe nomenclature, classification and biological importance of fatty acids.

5. Describe structure and function of glycolipids.

UNIT-2, PART-1(EACH QUESTION CARRY 1 MARK)

1. How many amino acid universally occur in proteins of all form of life?

2. Name the first and last discovered amino acids out of 20 standard ones.

3. Which amino acid can absorb UV light?

4. Which amino acids are metabolized to ketone bodies?

5. The imino acid found in protein structure is…….

6. The hormone thyroxin is derived from which amino acid?

7.Which amino acid is the precursor of neurotransmitter?

8. Which bond in protein structure are not broke in denaturation?

9. Why histones are basic proteins?

10.How many peptide bonds present in decapeptide?

11. Who coined the term “protein” ?

12.Which is the most abundant protein in human body?

13.In protein digestion which bonds are hydrolyzed?

14. Which is the most abundant class of immunoglobulins in human blood?

15. Which immunoglobulin is often called macroglobulin?

16. Which immunoglobulin has antiviral activity?

17. Which is the major form of the antibody in external secretions?

18. Which antibodies have J-chain?

19. The specific region of antigen that can bind to antibody is called……

20. Epitopes bind to …….of antibody molecules.

PART-2 (EACH QUESTION CARRY 1.5 MARK)

1. Define amino acid.

2. Name the essential components of amino acid.

3. Name the amino acids with aliphatic chains.

4. Name the aromatic rings of aromatic amino acids.

5. Why all proteins act as buffers?

6. What is peptide bond? 7. Define protein.

8. What is simple protein? 9. What is conjugated protein?

10. What is alpha helix? 11. What is protein denaturation?

12. Define epitope. 13. What is paratopes? 14. What is antibody?

15. What is antigen? 16. What is hapten?

17.Define T-cell epitopes. 18. Define B-cell epitopes.

19. What is valency of antigen? 20. What is immunogen?

PART-3 (EACH QUESTION CARRY 2 MARK)

1. Basic amino acids, 2. Aromatic amino acids.

3. Sulfur- containing amino acids,4. Essential amino acids.

5. Ramachandran plot. 6. Peptide bond.

7. Primary structure. 8. Secondary structure.

9. Tertiary structure. 10. Protein denaturation.

11. Beta sheet, 12. Alpha helix.

13. Fragments of immunoglobulins. 14. Ig domains

15. Structure of IgA, 16. Structure of IgD

18.Structure of IgE, 19.Epitopes

20.Antigenic determinants.

PART-4 (EACH QUESTION CARRY 6 MARK)

1.Describe the classification of amino acids along with their structures.

2. Discuss about the structure and properties of amino acids.

3. Discuss the various levels of organization in proteins. Add a note on the determination of primary structure of proteins.

4. Describe the structure and biological significance of proteins.

5. Describe the structure of different classes of immunoglobulins with suitable diagrams.

6.Describe the structure, chemical nature and types of antigens.

UNIT-3, PART-1(EACH QUESTION CARRY 1 MARK)

1.1.Who discovered nucleic acid?

2. Who proposed double helical structure of DNA?

3. Who is the father of genetic engineering?

4. One gene one enzyme hypothesis was put forth by…….

5. Which radioactive elements were used by Hershey and Chase?

6. How many hydrogen bond present between guanine and cytosine?

7. Who proposed RL mode of DNA replication?

8. The plasmid in bacteria is a circular…..

9. Cytoplasmic male sterility is controlled by……

10. Wound tumour virus has……..stranded RNA.

11. Who proposed clover leaf model of RNA?

12.At which stage of cell cycle replication occurs?

13. Okazaki fragments are joined by which enzyme?

14. The rate of prokaryotic DNA polymerase was discovered by…….

15. Who discovered theta mode of DNA replication?

16. Who reported that DNA replication is semiconservative?

PART-II, (Each question carry 1.5 mark)

1.Mention two important properties of genetic material.

2. What is the conclusion of Griffth's experimnt?

3. What is Chargaff's rules?

4. What is phosphodiester linkage?

5. What is Z- DNA?

6. What is denaturation of DNA?

7. What is the role of DNA topoisomerase?

8.Name the protein association with DNA?

9. What are the chemical composition of chromatin?

10. What is semiconservative DNA replication?

11. What is the role of telomere on ageing?

12. What is DNA ligase?

13. What is pyramidine?

14.What is nucleotide?

15. What is RNA primer?

16. What is mismatch repair?

17. What is cot curves?

18. Define DNA replication.

19. What is m-RNA?

20. What is pyrimidine dimer?

PART-III, (Each question carry 2 mark)

1.Important features of genetic material

2. Characteristics of DNA, 3. Nuclein

4. z-DNA,5. B- DNA, 6. Supercoilling of DNA

7. Denaturation of DNA, 8. Function of DNA

9. Genetic RNA, 10. Types of RNA

11. Heterochromatin, 12. Clover leaf model

13. Cot curve, 14. Semiconservative replication

15. DNA polymerase, 16. Topoisomerases

17. Okazaki fragments, 18.Lagging strand

19. Leading strand, 20. RNA priming, 21.DNA ligase

PART-IV, (Each question carry 6 mark)

1.Describe the salient features of DNA double helix.

2. What are nucleic acid? Describe different types of DNA.

3. Give a brief account of denaturation and re-naturation of DNA.

4. Describe various types of RNA.

5. Give a comparative account of DNA and RNA.

6.Describe denaturation and renaturation of DNA.

7. What is nucleotide? Describe structure of nucleic acid.

UNIT-4, PART-1(EACH QUESTION CARRY 1 MARK)

1. Digestive enzymes are classified under which class of enzyme?

2. What is the function of hydrolase?

3. What is the function of lyases?

4. What is the function of ligase?

5.The name enzymes literally means……

6. The first enzyme isolated and crystallized was……..

7. When antibodies act as enzymes they are called……

8. What are the substrate for lysozyme?

9. The fastest enzyme known as……

10. The activator for salivary amylase is……..

11. The PH for lysosomal enzymes is……..

12. A low Km value indicates……..

13. Who proposed lock and key model for enzyme action?

14. Who proposed induced fit model for enzyme action?

15. Anti-diabetic drugs target an allosteric enzyme named…..

16. Modulators or effectors bind to ……..of enzymes.

17. Name the enzymes located in peroxisome compartment.

18. Which organelles are known to carry tranferases?

19. Enzymes for detoxification are located in…….

20. Zymogen activation involves……

PART-2 (EACH QUESTION CARRY 1.5 MARK)

1. What is enzyme?

2. What are zymogens?

3. What are major classes of enzymes?

4. What is holoenzymes?

5. What is apoenzymes?

6. What is active site?

7. What is cofactor?

8. What is coenzymes?

9. What is prosthetic group?

10. What is activation of energy

11. What is first order reaction?

12.What is MM equation?

13. What is Michaelis constant?

14. What is draw back of MM plot?

15. What is enzyme inhibition?

16.What is competitive inhibitors?

17. What is allosteric enzymes?

18. What is enzyme induction?

PART-3 (EACH QUESTION CARRY 2 MARK)

1. Prosthetic groups, 2. Metalloenzymes

3. Isoenzymes, 4. Catalytic site

5. Allostric site, 6. Chemical nature of enzyme

7. Characteristic of enzymes

8. Catalytic cycle of enzyme action

9. Lock and key model of enzyme action

10. Induced fit model of enzyme action

11. Effect of substrate concentration

12. Effect of pH on enzyme action

13. Effect of temperature of enzyme action

14. Km and its significance

15. Enzyme inhibitors,16. Allosteric modulator

17. Significance of enzyme inhibition,18. Allosteric enzymes

19. Enzyme kinetics, 20. Isoenzymes

PART-4 (EACH QUESTION CARRY 6 MARK)

1. What is enzymes? Describe their nomenclature and classification.

2. Define enzyme. Discuss the factors affecting enzyme action.

3. What is cofactor? Discuss the role of cofactors in enzyme action.

4. Describe various mechanism of enzyme action.

5. Describe the various factors affecting rate of enzyme reaction.

6. What is enzyme kinetics? Explain the kinetics of single substrate reaction.

7. What is MM equation? How will you derive it from an enzyme catalyzed mono-substrate reaction.

8. Describe various types of inhibition of enzyme action.

9. Describe structure, properties, and regulation of allosteric enzymes.

10. Describe regulation of enzyme action.

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CORE PAPER- VIII , (COMPARATIVE ANATOMY OF VERTEBRATE)

UNIT-I, PART-I (EACH QUESTION CARRY 1 MARK)

1. Study of internal structure of animal is called…….

2. Which glands are present in the eyelids and spread their oily secretion on eyeball?

3. Long tail of peacock serve for which function?

4. Study of external feature of animal is called……..

5.Melanocytes are located in……

6. In Hippopotamus sweet glands are restricted in……

7.Dermis of vertebrate is derived from which cell layer?

8. Which glands are present in alimentary canal of mammals?

9. Digital cornifications are modification of ……

10. Which vitamins is synthesized in the presence of sunlight in the skin of mammals?

11. Reflecting pigment cells in luminescent glands contain……

12. In birds uropygial gland is present just above the……

13. Poison secreted by parotid glands of amphibiana is ……

14. Which gland secrete tear?

15. Outer protective covering of animals is ……..

16. Which types of jaw suspensorium found in Elasmobranchs?

17. In living amphibian exoskeleton is……..

18. Skull of cyclostomes is made of……

19. Pituitary gland is housed in……..

20. Cranium is constituent of …….

PART-II (EACH QUESTION CARRY 1.5 MARK)

1. What is integument?

2. Write the function of integument?

3. Define gland.

4. What is apocrine gland?

5. What is stratum cornieum?

6. What are the derivative of epidermis?

7. What are the derivative of dermis?

8. What are the function of skin?

9. What is jaw suspensorium?

10. Write the structure of mammary gland?

11. Write the function of sweat gland.

PART-III, (EACH QUESTION CARRY 2 MARKS)

1. Epidermal glands, 2.Keratinisation, 3.Horns

4. Feathers, 5. Dermal derivatives,6. Epidermal derivatives

7. Structure of hair,8. Jaw suspensorium

9. Structure and function of mammary gland,10. Exoskeleton

11. Endoskeleton,12. Axial skeleton,13. Function of integument

14. Stratum cornium

15 Structure of skin

PART-IV (EACH QUESTION CARRY 6 MARK)

1. What is integument ? Describe the integument and its derivatives in vertebrates .

2.Give an account of the integument in a vertebrate you have studied. Explain the function of integument.

3.Discuss how the integument of reptiles and birds are adapted to their respective modes of life.

4.Give a comparative account of integument of reptiles,birds and mammals .

5.Give an account of different types of jaw suspensorium in vertebrates .

6.Compare the skull of a lizard with that of a bird .

7.Describe the pectoral and pelvic girdles of Frog,Varanus(Lizard),Gallus(Bird),and Rabbit.

8.Describe how the structure of girdle is suited to the mode of life in these animals.

UNIT-II, PART-I (EACH QUESTION CARRY 1 MARK)

1. Which glands are present in alimentary canal of mammals?

2. What is the function of accessory respiratory organ in fishes?

3.Largest oral glands are found in…….

4. In frog tongue is……..

5. Large oesophagus is found in……

6. Epithelial lining in a true stomach contains……

7. In ruminants, true stomach is represented by…….

8. A complete gill is called…….

9. In bony fish operculum arises from……..

10. Longs of reptiles are located in…….

11. Respiratory organs of embryonic vertebrates is…….

12. What is the voice box of birds?

13. What is the voice box of human?

14. Which is called storage house of gall bladder?

15. The tusk of elephant is which type of teeth?

PART-II (EACH QUESTION CARRY 1.5 MARK)

1. Define dentition?

2. Write the function of teeth.

3. Write the function of tongue?

4. Write the characteristic of teeth?

5. Write the function of HCL.

6. What is gland?

7. What is gizzard?

8. What is crop milk of bird?

9. What is haemoglobin?

10. Write the function of air bladder.

11. Define holobranch gill?

12. What is operculum?

13. What is branchial diverticula?

14. What is trachea?

15. What is spiracles?

PART-III (EACH QUESTION CARRY 2 MARK)

1. Gizzard, 2. Ileum, 3. Colon,4. Pancreas

5. Liver,6. Ruminant stomach,7. Digestive gland

8. Gills,9. Lungs,10. Larval gills,11. Pseudobranchs

12. Swim bladder,13. Branchial diverticula

14. Dentition,15. Accessory respiratory organs

PART-IV (EACH QUESTION CARRY 6 MARK)

1.Give a comparative anatomy of digestive system of Lizard and Bird.

2. Give a comparative account of stomach in different vertebrates.

3. Give a brief account of teeth.

4. Give a comparative account of respiratory organism vertebrates.

5.Write a detail essay on accessory respiratory organ.

UNIT-III, PART-I (EACH QUESTION CARRY 1 MARK)

1. What is close circulation?

2. What is open circulation?

3. Define arterioles.

4. Define capillaries.

5. Which blood vessel pours blood into right atrium from the heart wall?

6. Four chambered heart found in which vertebrate?

7. Three chambered heart found in which vertebrate?

8. Two chambered heart found in which vertebrate?

9.Smallest arteries are connected to smallest veins by…….

10. In urodeles, conus is replaced by…….

11. The opening of coronary sinus is guarded by…….

12. In man, renal portal system is……..

13. What is the functional unit of kidney?

14. Hypothetical primitive kidney is……..

15. Archionephros is found in……..

16. Urinary bladder opens to exterior through……..

17. In mammals, testes are found in……

18. Oviduct in vertebrates is modified……

19. The functional adult gonad is derived from which part of genital ridge?

20. Henle's loop and major portion of the collecting tubules are situated in…….

PART-II (EACH QUESTION CARRY 1.5 MARK)

1. What is Bulbus arteriosus?,2. What is sinus venusus?

3. What is haemoglobin?,4. What is capillaries?

5. What is mitral valve?,6. What is tricuspid valve?

7. What is mullerian duct?,8. What is metanephrous kidney?

9. What is protonephrous kidney?,10. What is opisthonephrous?

11. What is renal corpuscle?,12. What is archinephron?

13. What is wolffian body.,14. Write the function of kidney.

15. Write the function of blood.

PART-III (EACH QUESTION CARRY 2 MARK)

1. Venous heart, 2. Ductus Botalli

3. Ductus caroticus,4. Renal portal system

5. Hepatic portal system,6. Function of spleen.

7. Function of blood,8. Function of lymph

9. Three chambered heart,10. Four chambered heart

11. Two chambered heart,12. Archinephron

13. Mesonephros,14. Nephron

15. Mullerian duct,16. Renal capsule

17. Opisthonephros,18. Pronephros

19. Wolffian body,20. Function of kidney

PART-IV (EACH QUESTION CARRY 6 MARK)

1.Describe the evolution of heart in vertebrates.

2. Give a comparative account of heart in fishes, amphibians, reptiles, birds and mammals.

3. Give a comparative account of heart and aortic arches in reptiles, birds and mammals.

4. Describe the aortic arches of vertebrates .

5. Give a general account of the evolution of urinogenital system in vertebrates.

6. Give a comparative account of the structures of kidney in the vertebrates.

7. Describe the evolution of genital ducts in different vertebrates.

8. Give a comparative account of the male reproductive organs of frog and rabbit.

9. Compare the female genital system of bird with that of a mammal.

UNIT-IV, PART-I (EACH QUESTION CARRY 1 MARK)

1. What is the structural and functional unit of nervous system?

2. What is neuron?

3. What is arbor vitae?

4. Bipolar neurons are found in……..

5. Central nervous system in vertebrates is derived from……..

6. Nissl's granules are made up of……..

7. Cerebral hemisphers in eutherians are connected internally by…….

8. Function of restiform bodies in elasmobranchs ……..

9. In vertebrates taste buds are present on……

10. What are the receptors of touch and pressure, vibrations and balance?

11. Pecten is found in the eye of…….

12.What is receptor?

PART-II (EACH QUESTION CARRY 1.5 MARK)

1. What is photoreceptor?,2. What is neuron?

3. What is bipolar neuron?,4. What is synapse?

5. What is neuroglia?,6. What is nerve impulse?

7. What is cranial nerve?,8. What is spinal nerve?

9.Define peripheral nervous system.

10. Define receptor.,11. What is olfactory lobe?

12.What is statoacoustic organ?

PART-III (EACH QUESTION CARRY 2 MARK)

1.Pineal eye,2. Autonomic nervous system

3. Synapse,4. Neuron,5. Conduction of nerve impulse

6. Cochlea,7. Parietal eye,8. Nerve endings

9. Chemoreceptors,10. Mechanoreceptors

11. Organ of Jacobson,12. Thermoreceptors

PART-IV (EACH QUESTION CARRY 6 MARK)

1.Discuss the comparative account of brain of vertebrates.

2. Give a comparative account of the structure of brains of frog and rabbit.

3. Describe the brain of a lizard and compare it with that of a mammal.

4. Describe the origin, distribution, nature and function of cranial nerves in a vertebrate.

5. Describe the structure of ear in vertebrates.

6. Explain the mechanism of hearing and equilibrium in vertebrates.

7. What is receptor? Classify them.

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CORE -9 (PHYSIOLOGY: LIFE SUSTAINING SYSTEMS)

UNIT-I , PART-I (Each question carry 1 mark)

1.Digestive enzyme in stomach is secreted by which cells ?

2.The functional cells of the liver is called what ?

3.The green colour bile pigment is called what ?

4.Secretion of bile is under the control of which hormone ?

5. Which vestigeal structure is present in alimentary canal of human ?

6. Which is the largest salivary gland in human ?

7. Which enzyme digest the milk ?

8. Which enzyme responsible for digestion of protein ?

9.What is the name of finger like extension of the small intestine ?

10.The hormone that regulates gastric secretion .

11.Which hormone stimulated pancreas ?

12.In which form protein are absorbed ?

13. Which enzyme digest the starch ?

14. Which enzyme digest the trypsinogen ?

15. Which enzyme digest the triglycerides ?

PART-II (Each question carry 1.5 marks) (within 2/3 sentences)

1.Gastric gland,2.Saliva,3.Gall bladder

4.Pancreatic juice,5.Salivary gland,6.Intestinal gland

7.Chyme,8.Bile salt,9.Microvilli,10.Secretin

11.Cholecystokinin,12.Vermiform appendix,13.Lipase

14.Payer ’s patches15.Brunne ’s gland

PART-III (Each question carry 2 marks) (within 75 words)

1.Salivary gland, 2.Liver,3.Pancreas

4.Emulsification,5.Chemical digestion of food in stomach

6.Function of HCL in stomach,7.Absorption of glucose

8.Gastrointestinal hormones,9. Chemical digestion of food in intestine

10.Carbohydrate digestion in gastrointestinal tract

PART-IV (Each question carry 6 marks) (within 500 words)

1.Describe the structural organization of gastrointestinal tract .

2.Discuss the function of different parts of gastrointestinal tract .

3.Give an account of the structure and function of different glands in digestion .

4.Describe the chemical mechanism of food in gastrointestinal tract .

5.What is digestion ? Describe the process of digestion of food in stomach .

6. Describe the mechanism of absorption of food in alimentary canal .

7.Give an account of absorption of water ,mineral and vitamin in gastrointestinal tract .

8. Discuss the hormonal control of enzyme secretion in gastrointestinal tract .

9.Describe the protein digestion in gastrointestinal tract .

10.Describe the carbohydrate digestion in gastrointestinal tract .

UNIT-II , PART-I (Each question carry 1 mark)

1.The cartilaginous tube that connects larynx to bronchi .

2.The cup shaped structural unit of lungs .

3.Vocal cords are located in which organ ?

4.Instrument used to measure lung volume and capacities .

5.Instrument used to measure the volume of air that move into and out of the lungs .

6.Iron containing respiratory pigment found in mammalian RBC .

7.The protein part of heamoglobin .

8.The enzyme that catalise the formation of carbonic acid in RBC .

9.A condition of decrease PO2 is known as…….

10.A condition of increase PCO2 is known as …….

11. Receptor which respond to change in blood pressure is called……..

12. Which is known as voice box of human?

13. What is the partial pressure of O2 in alveoli of lungs?

14. Vocal cord are located within……..

15. Which substances reduces the surface tension in alveoli?

PART-II (Each question carry 1.5 marks) (within 2/3 sentences)

1. Trachea,2. Alveoli,3. Goblet cell,4. Conducting zone of respieation

5. Inspiratory capacity,6. Vital capacity,7. Total lung capacity

8. Oxyhaemoglobin,9. Carbonic anhydrase,10. Haemocynanine

11. Chlorocruorin,12. Halden effect,13, Hypoxia

14. Pulmonary odema,15.Chemoreceptor

PART-III (Each question carry 2 marks) (within 75 words)

1.Hyaline cartilage,2.Inspiratory capacity,3.Vital capacity

4.Functional residual capacity,5.Haemogiobin,6.Haemoerythrin

6.Bohr effect,7.Symptoms of CO poisoning

8.Stretch receptors,9.Significance of Oxygen-Haemoglobin dissociation curve

10.Carbon monoxide poisoning,11.Total lung capacity

PART-IV (Each question carry 6 marks) (within 500 words)

1.Describe the mechanism of respiration in human .

2.Describe the histology of trachea and lungs .

3.Describe the mechanism of pulmonary respiration .

4.Give an account of different respiratory capacities in human .

5.Describe the different respiratory volume associated with pulmonary ventilation

6.Give an account of transport of respiratory gases in blood .

7.Describe the various forms of respiratory pigments .

8.Describe the mechanism of CO2 transport in blood .

9.Discuss the nervous and chemical mechanism for control of respiration .

10.Discuss the oxygen-haemoglobin dissociation curve with its factors .

11.What is CO ? Describe the toxic effect, symptom and treatment for CO .

UNIT-III, PART-I (Each question carry 1 mark)

1.Function unit of kidney .

2.Average glomerular filtration rate in human .

3.Nephron that have shorter loop of Henle .

4.The straw coloured fluid that oozes from blood clot is --------.

5.The only non-nucleated cells in the body is ---------.

6.The life span of RBC is----------.

7.Heamopoiesis occurs in --------.

8.The most abundant WBC is ----------.

9.The hormone that regulates erythropoiesis ----------.

10.The process by which the formed elements of blood develop is called -----.

11.Which process produces red blood cells ?

12. Which process produces leukocytes ?

PART-II (Each question carry 1.5 marks) (within 2/3 sentences)

1.Medullary pyramids,2.Nephron loop.

3.Vasa recta,4.Tublar secretion,5.Plasma

6.Platelet plug,7.Serum,8.Mast cell

9.Lymphocyte,10.Granulocytes

PART-III (Each question carry 2 marks) (within 75 words)

1.Glomerulus, 2.Bowman's capsule

3.Juxtaglomerular cells,4.Nephron

5.Renal corpuscles,6.ADH

7.Counter current exchange,8.Rh factor

9.Leukopoiesis,10.Platelet formation

11.Haemoglobin,12.Heparin

13.Role of calcium in coagulation

14.Erythropoiesis,15.Haemopoiesis

PART-IV (Each question carry 6 marks) (within 500 words)

1.Describe the internal structure of human kidney .

2.Describe the mechanism of urine formation in human .

3. Describe the mechanism of regulation of water balance in human kidney .

4.Describe the mechanism of regulation of acid-base balance in human kidney .

5. Describe the counter current mechanism for concentration of urine .

6.Describe the composition and function of blood .

7.What is haemostasis? Describe the process by which haemopoiesis is achieved.

8. What is haemopoiesis ? Describe the stages of erythropoiesis .

9.What is blood clotting ? Describe its intrinsic and extrinsic mechanism.

10.Discuss the ABO and MN blood grouping in man .

UNIT-IV, PART-I (Each question carry 1 mark)

1.The septum that separates right and left atria .

2.The circulation that involves blood supply to the heart wall .

3.The middle layer of wall of the heart is ----------.

4.The valve between right and left ventricle is called ----------.

5.The natural pacemaker of heart is ------.

6. The time period for atrial diastole is ----------.

7.The sequence of events that occur during a heart beat .

8.The conduction of cardiac impulse with maximum velocity occurs in -------.

9.The valve present at the base of the large arteries that arise from heart .

10.The blood vessel that returns venous blood from upper part of the body .

PART-II (Each question carry 1.5 marks) (within 2/3 sentences)

1.Coronary artery,2.Pacemaker

3.Purkinje fibers, 4.systole

5.Diastole,6.Internodal fibres

7.AV node,8.SA node

9.Cardic cycle,10.Pressoreceptors

PART-III (Each question carry 2 marks) (within 75 words)

1.Myocardium,2.Ventricles of heart

3.Valves of human heart,4.Sinoatrial node ,5.AV node

6.Bundle of his,7.Pericardium

8.Atrial events,9.Ventricular events

10.Heart sound,11.ECG , 12.QRS complex

13.Measurement of blood pressure

14.Regulation of blood pressure

PART-IV (Each question carry 6 marks) (within 500 words)

1.Describe the structure of human heart .

3.What is coronary circulation ? Discuss the blood vessels involved in it .

4.Give an account of the origin and conduct of cardiac impulses .

5.What is cardiac cycle ? Describe the different events occur in it .

6.Define cardiac output .Discuss the regulation of cardiac output .

7.Describe the nervous regulation of heart rate .

8.Describe the chemical regulation of heart rate .

9.What is blood pressure ? Describe its nervous and chemical regulation .

10.Describe the internal structure of human heart .

11.Describe the mechanism of circulation of human heart .

12.Describe the structure and working of conducting myocardial fibres .

13.Describe double circulation of human heart .

14. Describe different pacemakers of human heart.

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CORE-X (BIOCHEMISTRY OF METABOLIC PROCESS)

Unit-1, PART-1, (EACH QUESTION CARRY 1 MARK)

1.What is metabolism ?

2. What are metabolites ?

3.Which molecule couples catabolic reactions to anabolic reactions ?

4.Why catabolic pathways are convergent ?

5.Why anabolic pathways are divergent ?

6.How energy released in catabolic pathways is conserved ?

7.What is futile cycle ?

8.A series of enzyme-catalyzed reactions is called a _____.

9.The biosynthetic phase of metabolism is called _____,While the reactive phase is called _____.

10.The coupling of energy-releasing metabolic reactions and energy-requiring anabolic reactions is achieved through _____.

11.What is a shuttle system?

12.Who many types of NADH shuttle systems operate in mitochondria? What are they?

13.Name the basic components of a shuttle system.

14.Why outer mitochondrial membrane is freely permeable to metabolites upto10-kD?

15.Which shuttle dose not involve any membrane transporter system?

16.which shuttle consumes no energy in transferring reducing equivalents from NDH to respiratory chain?

17.Which enzyme catalyzes the reversible transfer of phosphorylation group from creatine phosphate to ADP to form ATP?

18.Which enzyme participates in creatine phosphate shuttle?

19.Oxidation of extra mitochondrial NADH is mediated by ____.

20.For every cytosolic NADH, the malate-aspartate shuttle yields_ATPs, whereas the glycerophosphate shuttle yields_____ATPs.

21._____ is the more universal NADH shuttle system.

23._____ is the irreversible NADH shuttle.

24._____ shuttle does not involve membrane transporter system.

25.Which model explains the mechanism of facilitated diffusion?

26.Which membrane proteins regulate cell volume and internal osmotic pressure?

27.Name the a glyceroprotein that pound in the cell membranes of adipocytes.

28.Which type of aquaporin is regulated by ADH (vasopressin)?

29.What are ionophores?

30.Expand the term ABC in ABC transporters.

31.Which transporters catalyze the rapid flip-flop diffusion of phospholipids in a membrane?

32.Give an example of ABC transporter which acts as ion channel but not as a pump?

PART-2 (EACH QUESTION CARRY 1.5 MARK)

1. Define metabolism.,2. What is anabolism?

3. What is catabolism?,4. When a metabolic pathway is called cyclic?

5. What is futile cycle?

6.What is the purpose of a shuttle system?

7. Why glycerophosphate shuttle is less efficient?

8. What is uniporter?,9. What is symport?

10. What is antiport system?,11. What is active transport?

12. Why ATP called energy currency of cell?

13. What isATP coupling?,14. Define phosphorylation.

15. What is metabolic regulation?,16. What is metabolic control?

PART-3 (EACH QUESTION CARRY 2 MARK)

1. Function of metabolism,2. Amphibolism 3. Stages of catabolism,

4.Compartmentation of metabolic pathways.5. Malate-aspartate shuttle,6. Glycerol 3 phosphate shuttle,7. Creatine phosphate shuttle,8. Creatine kinase

9.ATPase,10. AB trnsporter, 11. Lactose permease

12. Leucine permase, 13.Energy currency of cell

14. Phosphogens, 15. ATP-ADP cycle

PART-4 (EACH QUESTION CARRY 6 MARK)

1. What is metabolism? Distinguish between catabolism and anabolism by giving suitable examples for each.

2. Explain the amphibolic nature of citric acid cycle.

3.Explain the NADH shuttle mechanism. Add a note on their significance.

4. Explain different types of transport ATPase with example.

5. Explain the metabolic roles of ATP in a typical cell.

6. Explain the role of ATP in coupled reactions.

7. Give an account of regulatory mechanisms of intermediary metabolism.

UNIT-2, PART-1(EACH QUESTION CARRY 1 MARK)

1.How many glycolytic reactions are freely reversible?

2. Which reaction steps are key for regulation of glycolysis.

3. What are the end product of glycolysis?

4. Name the end product of glycolysis in RBCs?

5.Which enzyme is considered as the primary control site in glycolysis?

6. What is the site of glycolysis?

7.The conversion of glucose into ethanol is called……

8. The final electron acceptor in lactic acid fermentation is……

9. How many ATP are produced by glycolysis?

10. How many reactions of citric acid cycle are freely reversible?

11. Name enzymes in citric acid cycle that catalyze the irreversible reactions.

12. Name the substrates from which acetyl-coA is produced.

13. Which is the substrate level phosphorylation step of TCA cycle?

14. What is the chemical formula of citric acid?

15.How many di-carboxylic acids are in the Krebs cycle?

16. What is the site of citric acid cycle?

17.Name the two phases of pentose phosphate pathway.

18. What are the main products of PP pathway?

19. Which is the first product of the pentose phosphate pathway?

20.Which hormones regulate gluconogenesis?

PART-2, (EACH QUESTION CARRY 1.5 MARK)

1. What is substrate level phosphorylation?

2. What is Rapoport-Leubring cycle?

3. What are the allosteric inhibitors of PFK-1?

4.Acetyl-CoA is used for what purpose?

5.Wht TCA cycle is called final common oxidative pathway?

6. Name the two phases of pentose phosphate pathway?

7. What are the main products of PP pathway?

8. What are the substrates for gluconeogenesis?

9. What is cori cycle?

10.What are the significance of glycolysis?

11. What is glycogenesis?

12. What is glycogenolysis?

13. Define gluconeogenesis.

14. What is glycolysis?

15. What is TCA cycle?

PART-3, (EACH QUESTION CARRY 2 MARK)

1. Explain the hormonal regulation of glycolysis.

2. Why aerobic glycolysis releases more energy than anaerobic glycolysis?

3. Why is phosphofructokinase-1 rather than hexokinase the pacemaker of glycolysis?

4. Write about the biological importance of glycolysis.

5. Explain the special feature of glucose oxidation in RBCs.

6. Regulation of TCA cycle.

7. Inhibitors of TCA cycle.

8. Amphibolic role of TCA cycle.

9. Energetic of TCA cycle.

10. Energetic of glycolysis

11. Carbon dioxide releasing steps during oxidation of glucose.

12. What is pentose phosphate pathway?

13. Explain regulation pentose phosphate pathway.

14. Write biological importance of PPP.

15. explain regulation of gluconeogenesis.

16. Write significance of gluconeogenesis.

17. Write a note on cori cycle.

18. Glycogenolysis.

19. Glycogenesis.

20. Glycogen synthase.

PART-4, (EACH QUESTION CARRY 6 MARK)

1. Describe process of glycolysis.

2. What is preparatory phase of glycolysis? Explain it3

3. Explain amphibolic nature of TCA cycle.

4. Describe reaction of TCA cycle.

5. Give an account of TCA cycle and explain its biological significance.

6. Describe pentose phosphate pathway and write its significance.

7.Describe metabolic reaction of gluconeogenesis.

8. What is glycogenolysis? Discuss the reaction and regulation of the pathway.

9. Define glycogenesis.Explain the reaction and regulation of this pathway.

UNIT-3, PART-1, (EACH QUESTION CARRY 1 MARK)

1. Which is he major pathway of oxidation of fatty acids in animal cells?

2. How many reactions of citric acid cycle are freely reversible?

3. How many ATPs are produced on complete beta oxidation of palmitic acid?

4. Which organelles involved in beta oxidation?

5. Where is alpha oxidation takes place?

6. Which is the product of omega oxidation of fatty acid?

7. Activation of fatty acid is catalyzed by enzyme……..

8. Net ATP yield from one molecule of palmitic acid is….

9. How many times fatty acid synthase reactions are repeated to form palmitic acid?

10. Fatty acids are transported in blood by the carrier……..

11. Which is the building block of fatty acid?

12. The key enzyme in fatty acid synthesis is ……

13. The main source of NADPH for fatty acid biosynthesis s……..

14. Which keton body does not have a keto group?

15. Which is the basic group of keton body formation?

16. Which is the starting material for ketogenesis?

17. Keton bodies in urine are identified by which test?

18. Which amino acids are synthesized from transamination?

19.What is the first member of urea cycle?

20. Where the urea cycle takes place?

PART-2, (EACH QUESTION CARRY 1.5 MARK)

1. Acetyl-coA is used for what purpose?

2. What are the products of beta oxidation of odd number fatty acids?

3. What is carnitine?

4. How fatty acid oxidation are regulated?

5. What is omega oxidation of fatty acid?

6. What is alpha oxidation of fatty acid?

7.What are keton bodies?

8.What is ketosis?

9. Which compound is called primary keton body?

10. What is pyridoxal phosphate?

11. What is transamination?

12. What is deamination?

13. What is the main purpose of transamination reaction?

14.What is krebs bicycle?

15. Write the net equation of urea cycle.

16. What is glucogenic amino acid?

17. What is ketogenic amino acid?

18. Which amino acids are converted to succinyl-coA?

PART-3, (EACH QUESTION CARRY 2 MARK)

1.Fatty acid synthase, 2. Carnitine shuttle

3. Beta oxidation proper, 4. Omega oxidation

5. Alpha oxidation,6. Metabolism of propionyl-coA

7. Regulation of palmitic acid biosynthesis

8. Keton bodies, 9. Ketognenesis, 10. Regulation of ketogenesis

11. ketosis, 12.Transamination, 13. Deamination

14. Amino acid pool, 15.Oxidative deamination

16. Reaction of urea cycle, 17. Glucogenic amino acid

18. Ketogenic amino acid

PART-4, (EACH QUESTION CARRY 6 MARK)

1. Write briefly on beta oxidation of odd chain fatty acid.

2. Describe the beta oxidation of saturated even chain fatty acids.

3. How is propionyl-coA is formed? How is it further metabolized?

4. Describe the de novo synthesis of palmitic acid.

5. What are keton bodies? Explain the reaction leading to their formation.

6.Explain the trans-deamination pathway in the liver.

7.Describe the process of urea cycle.

8.Describe the metabolic fate of C- skeleton of amino acids that converted to pyruvate.

9.Describe the metabolic fate of C- skeleton of amino acids that converted to alpha ketoglutarate.

10.Describe the metabolic fate of C- skeleton of amino acids that converted to succinyl-coA.

UNIT-4,PART-1, (EACH QUESTION CARRY 1 MARK)

1. How is acetyl-coA formed?

2. Name the inhibitors of oxidative phosphorylation.

3. Which factors regulate oxidative phosphorylation?

4. Which is the most widely accepted theory for oxidative phosphorylation?

5.Which enzyme couple proton flow to ATP synthesis?

6.Which is well accepted mechanism of ATP synthesis?

7. Oxidation and phosphorylation are coupled by a…….

8. Coupling of proton flow to phosphorylation of ADP is catalyzed by……

9.What is the major function of the respiratory chain?

10. What are the substrates for mitochondrial respiratory chain?

11. Name the reducing equivalent carried by each NDH.

12. Which s the world's smallest molecular motor?

13. What is the site of oxidative Phosphorylation?

14. Which mitochondrial enzyme complex is associated with ATP synthase activity?

15.What is P\O ratio?

PART-2, (EACH QUESTION CARRY 1.5 MARK)

1. What is oxidative phosphorylation?, 2. What is rotational catalysis?

3. What is function of mitochondrial respiratory chain?

4. What are the components of ETS?, 5. What is redox pair?

6. What is reduction potential?, 7. What is standard reduction potential?

8.What is Nernst equation?, 9. What is ATPase?

10.What is respiratory chain?, 11.What are respirosomes?

12. What is ATP synthase?

13. What are the two energy components of proton-motive force?

14. How is PMF is essential for oxidative phosphorylation

15. What is coenyme-Q?

PART-3, (EACH QUESTION CARRY 2 MARK)

1. Salient feature of oxidative phosphorylation

2. ATP synthase, 3.Biological oxidation

4. Redox system, 5. Reduction potential

6. Oxido-reductase, 7.Flvoproteins

8. Ubiquinone, 9.Cytochromes, 10. Respirosomes

11. Cytochrome oxidase, 12.Succinate dehydrogenase

13.P/O ratio, 14.Chemiosmotic coupling theory

15.Uncouplers,16. Cyanide poisoning.,

17. Inhibitors of ETS, 18. Ionophores

PART-4, (EACH QUESTION CARRY 6 MARK)

1. Explain the theories of oxidative phosphorylation.

2. Define oxidative phosphorylation? Discuss the three defining component of oxidative phosphorylation.

3. Describe various components of respiratory chains.

4. Describe the steps in ATP synthesis according to the binding change mechanism.

5. Describe the process of oxidative phosphorylation.

6. Describe the electron carriers present in each of the complexes.

7. What is oxidative phosphorylation? Describe the various mechanisms of the process.

8.Describe inhibitors and uncouplers of electron transport chain.

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