SEM IV

Paper-CC8

Comperative anatomy of vertebrates

2 marks

1.What is Remiges and rectrices?

2.what is Down feather?

3.Define pterylosis and apteria?

3.What is keratinization?

5.Define uricotelism?

6.What do you mean by ureotelism and ammonotelism?

7.What is Jacobson's organ?

8.What is Macula Densa? Mention it’s function.

9.Whatis Diastema?

10.What is ductus arteriosus?

11What is neuromast cell?

12.Distinguish between single circuit heart and double Circuit heart.

13.Distinguish between protostomia and deuterostomia.

14.What is polyculture?

15.What is ruminant stomach?

16.What is foramen of panizza?

17.Add a note on

Sebaceous glad

Uropygial gland

Ctenoid scale

Placoid scale

Gizzard

Venous heart

Juxta glomerular apparatus

Rachis and calamus

CNS

Organ of Corti

Air sac

A.R.O

Gonopodium

Foramen of Monro

Chemoreceptor and mechanoreceptor.

5 Marks

1. Discuss mammalian uteri.
2. Discuss the general plan of circulation in vertebrates.
3. What are receptors and classify them.
4. Give an general account on teeth.
5. Add a note on Air-Sac of Columba sp.
6. Write a note on amphibian respiratory organ.
7. Write the short note on A.R.O.
8. Write a note on different integumentary glands of mammals.
9. Briefly describe the septal and operculum gill in fish.
10. Briefly describe the skeletal system.
11. Illustrate the different types of fish scaleswith suitable diagram.

10 Marks

1.What is integument?Describe the integumentary derivatives in vertebrates.

2.Discuss jaw suspension in vertebrates.

3.State the comparative account of aortic arches in vertebrates.

4.Give general account of evolution of kidney in vertebrate series.

5.Describe the Evolutionary process of urinogenital ducts in vertebrates.

6.Whatis ruminant stomach?Write the process of fore gut fermentation in Bos.

Paper-CC9

Animal Physiology

2 mark Question

1. 1.Mention the names of two proteolytic enzyme.
2. What do you mean by Rh factor?
3. What is Cardiac output?
4. What do you mean by cardiac cycle?
5. What is pacemaker and reserve pacemaker?
6. What is JG apparatus?
7. 7.What do you mean by haemopoiesis?

5 mark Question

1.Briefly describe the structure of haemoglobin.

2.Mention the process Fibrin degradation.

3.Mention different factors, affecting blood pressure regulation.

4.Briefly describe Chloride shift with schematic diagram.

5.Mention the osmoregulation process of fresh water fish.

1. Briefly describe the process of urine formation.

10 mark Question

1..Briefly describe the phases of cardiac cycle. Mention the process of counter current mechanism inrespect of renal physiology.

2.What is haemostasis? Mention the extrinsic and intrinsic pathway of haemostasis.

3.Briefly describe the digestion of carbohydrates of different parts of digestive system. Mention the process of acid-base balance in our body in respect of renal physiology.

IMMUNOLOGY (CC-10)

2 MARKS

1. Write the Difference between Classical and Alternative pathway of Complement System.
2. What is Inflammation ?
3. What is Hybridoma?
4. Write the two Function of Cytokines.
5. Write the significance of ELISA.
6. Add a note on IgG.
7. Write the difference between Active and Passive Immunity.
8. What is T- Cell epitopes.
9. Write the Difference between MHC-l & MHC-ll.
10. What is Attenuated Vaccine with Example?
11. What is secondary lymphoid organ with Example?
12. Write the two Function of Antibody.
13. Write the short note on Heptane.
14. Write the two function of cytokines.
15. Write the difference between Humoral & cell mediated Immunity.
16. What is Adjuvant?
17. What is Incubation period?
18. Write the name of bacteria that causes Tuberculosis.
19. What is Antigenicity?
20. What is Immunogenicity?

. **5 MARKS**

1. How does immune system discriminate between self and non self molecules?
2. Write down properties and trafficking of lymphocyte.
3. What are antigens ? Explain with example.

4. Draw a structure of immunoglobulin and label it.

5. What is hybridoma technology?

6. What is the difference between humoral and cell-mediated immune response?

7. Briefly discuss about NK-DC interaction.

8. Write down types of antibodies and their individual role in immune response.

9. What is auto immunity?

10. What is ELISA-PCR?

11. What are the autoimmune components of diabetes mellitus?

12. How does a vaccine works in the immune system?

14. Briefly discuss about types of vaccine.

15. What is graft rejection?

16. What is the role of TNF and IFN in immune system?

17. Write short notes on Filariasis.

18. Write short notes on Tuberculosis .

19. Discuss about natural killer cells.

20. Write the total cycle of Malaria.

10 marks

1. Describe three fundamental concept of immune system. Specificity, self and non self discrimination and memory.

2. Define structure and properties of immunoglobulin classes.

3. Describe genetic organisation of MHC I and MHC II .

4. Describe cell signalling through MAP kinases.

5. Describe ELISA and RIA.

6. Write down production and delivery system of vaccines.

7. Discuss primary and secondary immune response.

8. What are immunogenicity? Explain their characteristics.

9. What are different immunodiagnostics and immunotherapy in virology?

10 Write the types,properties, functions of Cytokines.

SEC-2

Sericulture

. 2 marks

1..What is Mountage ?

2.Mention the chemical composition of silk.

3.Write a example of silk worm.

4.Write the causative agent of Muscardine.

5.What is silk route ?

6.What is Bivoltines?

7.Write a importance of silk fibre.

8.What is RKO?

. 5 marks

1. Briefly describe the life cycle of Bombyx mori.

2. Discuss on the structure of silk gland. Mention the chemical composition of silk. 3. What is Mountage? Discuss on different types of Mountage.

4.Write the prospectus of sericulture in India.

5. Write the causative agent, symptoms and treatment of the following diseases : (i) Pebrine

(ii) Muscardine

6.What is RKO? Briefly discuss the harvesting and storage procedure of cocoons.

. 10 marks

1.What is Moriculture? Briefly discuss the plantation systems of Mulberry plants.

2.Write the early age and late age rearing process of silk worm. Mention the scientificname of different types of silk worm species and their host plant.

3.What is silk route? Write the difference of the following topics :

(i) Mulberry and Non-Mulberry sericulture.

(ii) Diapause and non-diapause egg.

(iii) Bivoltine and Multivoltine.

(iv) Male silk moth and female silk moth.

4. Briefly discuss about rearing house and rearing appliances of silk worm rearing.

PAPER-CC11(Molecular Biology)

Mark-2

1.What is TATA BOX and CAAT BOX ?

2. What do you means Central dogma ?

3. What is tRNA charging?

4. Write the difference between transcription and translation.

5. What is Okazaki fragment?

6. Add a note on Silencers in Transcription.

7. What is Promoter and Operator?

8. What is Discontinuous Replication?

9. Write the difference between B-DNA and Z- DNA.

10. What do you mean Hollo enzyme.

Mark-5

1. Write the process of Semiconservative replication.
2. Draw and describe the Rho-dependent and Rho- independent termination of transcription.
3. Briefly discuss the process of Nucleotide excision DNA repair.
4. What is PCR ? How PCR help synthesis of numerous new DNA.
5. Write the process of Southern bloating.

Mark-10

1. What is DNA replication? Write the process Initiation phase of DNA replication. what is Kornberg enzyme? what is RNA priming. Write the difference between Leading and Lagging strand. (1+5+1+1+2=10)
2. What is Exon and Intron? Write the process of splicing mechanism basis of spliceosome process. How RNA editing occurred.(2+4+4=10)
3. What is Lac operon? Write the switch off and switch on condition basis of negative control. Write the structure of trap. Operon. (1+5+4=10)

Paper-C12

Genetics

2 mark Question

1. 1.What is Co-dominance?
2. 2. What is incomplete dominance?
3. What do you mean by Epistasis?
4. 4.What is Sex-linked inheritance?
5. What do you mean by sex-influenced inheritance?
6. 6.Add a note oon polygenic inheritance.
7. What do you mean by sex-limited inheritance?

5 mark Question

1.Briefly describe sex determination process Drosophila sp.

2. Briefly describe sex-determination process of human.

3.Add a note on Ac-Ds transpositionin maize.

4.Briefly describe Shell-spiralling in snail regarding extra-chromosomal inheritance.

10 mark Question

1.Briefly describe different types of chromosomal aberrations with example.

2.Difference between complete and incomplete linkage. Mention role of P elements in Drosophila sp regarding transposable genetic elements.

3.Briefly describe role of kappa particle in Paramoecium. Mention molecular basis of mutations in relation to UV light.

, **Paper-DSE1**

Fish and Fisheries

Marks 2

1.What is fish?

2. What are the basic difference between placoid and ctenoid scale ?

3. Write the function of swim bladder.

4. What is reti mirabile? Mention its function.

5. Define osmoregulation.

6. What is bioluminescence?

7.Define osmoregulation.

8.Write the difference between chondrichthyes and osteichthyes.

9. What is estuary?

10. What do you mean by Anadromous,and catadromous fish migration?

11. Distinguish between osmoregulator and osmoconfermer?

12. What do you nmean by anadromous and catadromous fish migration?

13. What is transgenic fish ?Give example.

14. What is induced breeding?:

15. What is craft and gear?

16. What is cold water fishery?

17.Write a note on Isin glass.

18. What is poly culture?

19. What do you mean by culture and capture fishery?

20. Write the difference between lentic and lotic ecosystem?

21. What is hapa?

22. What do you mean by nursery pond and rearing pond?

5 marks

1. Write the characters and example of the order perciformes and siluriformes?
2. Describe brifly the structure and function of electric organ in fish?
3. Describe the application of GIS in fishery?
4. The the rolls of DO and temperature of the cultured of thr fishes?
5. Write the name, causal agents and symptoms of one bacterial diseases in fish.
6. Write the difference between pen culture and cage culture
7. Write the characters of fish?
8. Briefly describe the fish byproudcts
9. What is poly culture? Write the merit and demerits of poly culture.
10. Write a short note on composite fish culture.
11. Write a brief account on Bundh breeding.
12. Add a note on EUS
13. Write a short note on fish oil
14. What is fish migration? Mention different types of fish migration.
15. Write the causes of depletion of fishery resoures.
16. Mention different types of feeding habit of fish.
17. Write the role of scales in fish classification Describe the different types of fin in fish.

10 Marks

1. Classify fish upto subclasses according to Romer 1959.
2. What is osmoregulation? Mention osmoregulatory process in chondrichthyes fishes.
3. What is craft and gear? Mention different types of craft and gear used in west coast in India.
4. What is sustainable aquaculture? Write the difference between extensive, semi-intensive and intensive fish culture.
5. Briefly describe the Physostomous and physoclistus swimbladder with suitable diagram.
6. What is induced breeding? What are the different process in induced breeding practice?
7. What is transgenic fish? Write the method of transgenic fish production ? Mention its significance.
8. Why Zebra fish is used as a model organism in research.
9. Briefly describe preparation and management of aquarium.
10. Briefly describe the different fish diseases with its causative organism, symptoms and preventing measures.
11. Describe the methods used in fish processing and preservation.

DSE-2

Animal Biotechnology

2 Marks

1.What is genome?

2.Difference between prokaryotic and eukaryotic genome.

3.What is the most common genome structure of prokaryotic ?

4.What is the basic concept of genomics ?

5.Who coined the name genomics?

6.What is cloning vector?

7.Give example of some phasmid vector.

8.Write the importance of pBR322.

9.Basic difference between phasmid and cosmid vector.

10.What is BAC and MAC.

11. Write the importance of lambda bacteriophage.

12.Write four characters of Expression vectors with example.

13.What is restriction endonuclease, give 2 example.

14.Write the difference between type 1 and type 2 RE.

15.What is cDNA library?

16.Write the principle of sanger method of DNA sequencing.

17.What is nuclear transplantation?

18. What is transgenic animal?

19.Write the application of Transgenic animals.

20.What is knock out mice?

21.What is Microinjection?

22.What is Sickle cell anaemia?

23.Define Genomic DNA?

24.Give the examples of Pharmaceutical products..

25.What is the techniques of Calcium Chloride Method?

26.What is Plasmid?

27.What is plaque hybridization?.

28.Write the example of Cosmid.

29.Write the Characteristic of Expression vector.

30.What is YAC?

31.What is DNA micro-array?

32. Write the principle of gel Electrophoresis

33. What is the main cause of Cystic Fibrosis?

34. What is Retroviral method?

. 5 marks

1.Merit and demerit of PCR.

2.Merit and demerit of fingerprinting method.

3.Write a note on Electroporation.

4.Write a note on cystic fibrosis..

5.Write a note on sikle cell anemia.

6.Describe southern blotting.

7.Write a short note on C-DNA library.

8.Describe what id knock out mice.

9.What is DNA Microinjection…write functions. 3+2

10.Write the application of transgenic animals.

11.Describe the production of pharmaceuticals.

12.Write the procedure of Northern blotting and western blotting. 2.5+2.5

13.Write the merits and demerits of PCR.

14.Write the short note on Sanger Method.

15.Write the procedure of production of donor organs.

10 marks

1.Write the difference between Prokaryotes and Eukaryotes genome? Compare betweencosmid & phasmid? What is plasmid? 4+3+3

2. Write down the different steps of PCR. What is restriction endonucleases with discussthe type-II endonuclease? Write down the application transgenic animals? 4+4+2

3. What is sanger method? Write the different steps of this method. What is the differencebetween sticky end and blunt end?. 4+3+2

4. What is the application of Southern Blotting? What is the difference between southernblotting and western blotting? Write the advantages and disadvantages of Electroporation method.3+4+3

5. What is DNA Finger printing? Write the principle of DNA Finger printing. What isthe application of cell line and write down the primary cell culture and secondary cellculture? 2+2+2+4

6. What is Cystic Fibrosis? Write down the diagnosis of CF. What is the best moleculartechnique to diagnose the Cystic Fibrosis? What is the molecular basis for Sickle cellanemia? What is mammalian gene expression? 2+2+2+2+2

7.Write the procedure of Sanger method of DNA Sequencing. 10

8. What is Knock out mice & transgenic animals. 5+5

9. Difference between Northern & Western blotting Procedure. 10

10.Write a note on cystic fibrosis & sikle cell anemia. 5+5

Paper-CC 13

Developmental Biology

2 mark Question

1. What is implantation?
2. What do you mean by Amniocentesis?
3. What is In-vitro fertilization?
4. Add a note on extra embryonic membrane.
5. What do you mean by Epiboly and Emboly?
6. What is differentiation?

5 mark Question

1. 1.Mention different types of blastula with example.
2. 2. What is Placenta?mention its function.
3. Briefly describe Different patterns of cleavage.
4. 4.Briefly describe fast and slow block to polyspermy in Sea-urchin.
5. Mention the difference between spermatogenesis and oogenesis.

10 mark Question

1.Briefly describe development of brain in vertebrates. Mention different modes of regeneration with example.

2.Mention Spemann and Mangold experiment regarding Organizer. Mention the effects of teratogenic agents on embryonic development.

PAPER-CC-14(Evolutionary Biology)

2 Mark

A. Write the any two limitation of Lamarckism.
B. What do you mean Acquired character are inherited with example?
C. Write the difference between Lamarckism and Darwinism.
D. Add a note on source of variation and their role in evolution.
E. Write the impact of evolution on human brain.
F. Write the similarities & dissimilarities of Apes and human.
G. Write the difference between background and mass extinctions.
H. What is sibling species with example and their one significance.

5 Mark

A. What is Darwinism and write there theories.
B. Write the evidence from Molecular Biology in support of hominid evolution from apes.
C. What is Lamarckism? Write the various theories of Lamarckism with example.
D. What is adaptive radiation? Cause of adaptive radiation and its role in evolution.
E. What is natural selection? Cause of natural selection? How it help evolution.

10 Mark

A. What is isolation? Write the process of isolation. What do you mean by biological species concept. Write the short note theory of biological species concept? (5+5)
B. What is mass extension? Write the cause and their importance. What is K-T extinctions. Add a note on K-T extinctions. (6+4)
C. What is allopatric speciation with example? Write their process of allopatric speciation. What is macro evolution? Write the example basis of Finches bird of Galapagos island. (2+3+1+4)

DSE-3

ENDOCRINOLOGY

2 Marks

1.What is Homeostasis?

2.Define Hormone of emergency.

3.Write two example of steroid hormone.

4.Write four application of Hormone..

5.What is Neurosecretion?

6.Write the location of Pineal gland.

7.Define Neurohormone.

8.What is the actions of Nor-Adrenaline?

9.Write the function of Melatonin.

10. What is the cause of cushing syndrome?

11.What id menstrual cycle?

12.What is cAMP?

13.Write two example of Pituitary hormone.

14.What is the function of MSH?

15.What is Placenta?

16. What is MSH?

17. Explain ADH hormone.

18.Write two function of Hypothalamus.

19.What is Menstrual cycle?

20.What is estrous cycle?

21.Name two non-steroid hormones acting via the mobile receptor model.

5 Marks

1.Write the disorder of pituitary gland.

2. Name four releasing hormones and two inhibiting hormones secreted by hypothalamus. Mention their functions. (3+2)

3.State the functions of vasopressin with reference to its binding to V1 and V2isoreceptors, respectively. What is diabetes insipidus?(3+2)

3.Name 3 important cell types of islets of Langerhans and the hormones secretedby them. Mention one function each of those hormones.(3 + 2)

4. Give one example each of mineralocorticoid and glucocorticoid hormones. State their functions.(2+3)

5. Write a note on exophthalmic goitre. 5

6.Discuss the mechanism of steroid hormone action via the mobile receptor model. 5

7.Discuss the physiological functions of parathormone. 5

8. Write notes on hypo- andhyperparathyroidism. 5

9. Distinguish between estrous cycle and menstrual cycle. 5

10. Define and exemplifymonoestrous, diestrous and polyestrous animals. 5

11. Give an account of estrous cycle with reference to ovarian, uterine and hormonalchanges, in any animal model studied by you. 5

12. What is the basic difference between type-1 and type-2 diabetes mellitus? What do you mean by the terms (i) Hyperglycemia (ii) Polyphagia (iii) Glycosuria? (2 + 3)

13. Give an illustrated account of hypothalamo-hypophyseal portal system. State itsfunctional significance. (4 + 1)

14. How does melatonin maintain the sleep-wake cycle of our body? What is 'lovehormone'? (4 + 1)

15.Write a note on hormonal control of parturition. Name the hormones secreted bythe hypothalamic paraventricular nucleus. (4 + 1)

16. Precisely describe the role of insulin in (i) carbohydrate metabolism and (ii) fatmetabolism. (3+2)

17. What do you mean by second messenger in hormone action? Briefly state the roleof (i) cAMP and (ii) IP3 as second messengers in hormone action. 1+(2+2)

18. State the difference between the pathogenesis of simple goitre and exophthalmicgoitre. what is adrenal virilism? (4+1)

19. Explain short-loop and long-loop feedback control of hormone secretion withexamples. 5

20. Write short note on Mobile receptor. 5

21. “Pituitary is the master of endocrine orchestra”—Discuss.

22.Write a short note on Feedback mechanism. 5

. 10Marks

1. What is neurohormone? Mention six neurohormones with their functions.If posterior pituitary of human beings is cut off then oxytocin and vessopresin will be available or not? Justify your answer with proper reason. 2+5+3

2.What do you mean by ELISA? Mention its types and compare those types with suitable schematic diagram.mentioning merits and demerits. 2+5+3

3. Mention mechanism of hormone action of one steroid hormone and one peptide hormone with schematic diagram in detail. 5+5

4. Mention maximum hormones which are antagonist with each other. Give reasons with function.Why maximum hormone is having more than one function? Justify your answer. 5+3+2

5. Critically comment on hypothalamo-hypophyseal portal system.

6. State the mechanism of action of steroid hormone.

7. Name the adrenocortical sources of aldosterone and cortisol. Describe thephysiological functions of aldosterone and cortisol. Give an account of hormonalcontrol of ovulation in mammals. 1+6+3

8. Describe the working principle of hormone bioassay using RIA. What do you meanby the luteal phase of menstrual cycle? Describe the functions of progesterone.5+2+3

9. With the help of suitable diagram describe the changes found in the uterineendometrium during menstrual cycle s. Briefly point out the hormonal regulationduring these phases. 10

10.Write the location, structure, function Thyroid gland with diagram. 2+5+3

DSE 4

Biology of Insect

2Marks

1.Define entomology.

2.Write some characteristics of insects.

3.What is tegmina?

4.What is halters?

5.Write the difference between carrier and vector.

6.Name any two types antennae.

7.Define moulting.

8.What is pheromone?

9.What is trophollaxis?

10.Write any two genital appendages.

11.What is Spiracle?

12.Add a short note on.

Chitin

Peritrophic membrane

Procuticle

Prognathous head.

13.Define interspecific interaction.

14.Write the function of ocelli.

5marks

1.Write basic structure of wing and wing articulation.

2.Give a detail account on the modification of legs found in Insects.

3.Describe different types of mouth parts in insects.

4.Briefly describe the structure of integument in Insect.

5.Write about hormonal control of metamorphosis in insects.

6.Write a short note on Insect-Plant interaction.

7.What is the reason behind the success of insects on earth?

8.Write the characteristics and significance of trophollaxis in social insects

9.Differentiate allelochemical from semiochemical insect-plant interaction.

10.Discuss the role of house fly as an important vector.

10 Marks

1.What is pheromone? Describe the difference types of pheromone . Mention it's significance.

2.Write important taxonomic characters of any four insect order with atleast two example.

3.Enlist the major pests of rice giving it's damage symptoms and control methods.

4.Describe the structure and functioning of respiratory system in generalized insect.

5. Give an account on circulatory organs in insect.

Paper-CC 1 (Non Chordata)

Mark-2

a. What do you mean by Law of Priority?
b. What do you mean by synonymy and homonymy?
c. Write the difference between polyp and medusa.
d. What do you mean by polymorphism?
e. Mention the systematic position of Liver fluke.
f. Mention the name of primary and secondary host of Plasmodium sp.
g. Add a note on trophozoite stage of Entamoeba sp.
h. What is Loeffler's syndrome?

Mark-5

a. Mention the reproduction process of Paramoecium sp by conjugation.
b. Write down the function and conservation of coral reefs.(3+2)
c. Describe the locomotion mechanism of Amoeba sp (Sol-gel theory).
d. Mention Syconoid types of canal system with flow diagram.
e. Write the life cycle of Ascaris lumbricoides.
f. Mention the parasitic adaptations in helminthes. Differentiate between parasite and saprophyte. (3+2)

Mark-10

a. State the distinguishing characteristics and classification of phylum Cnidaria.Mention the difference between male and female Ascaris sp. (8+2)
b. Discuss the lifecycle of any digenetic parasite studied by you. Write a note on pseudocoelom. What is Signet ring? (6+2+2)

Paper-CC 2 (Ecology)

Mark-2

a) What is Red data book?
b) What is species dominance?
c) Write the theories of food web.
d) What is fecundiity table?
e) What do you mean Biomass pyramids.
f) What is National park?
g) Difference between Ex situ and In situ conservation.
h) What do you mean Gaia hypothesis.

Mark-5

a) Briefly describe nitrogen cycle.
b) Write the Gause's principal with experiment.difference between J and S shaped curve.
c) Write the Logistic growth,equation and patterns of populations.
d) What do you mean Y shaped model. Difference between grazzing and detritus food chain.(3+2)
e) Write the vertical statification on aquatic system. What is ecotone? (3+2)
f) Explain the law of minimum in ecology.

Mark-10

a) Write the short note of Lotkavoltera equation. Write the level of Tiger conservation. What do you mean wild life Protection Act (1972) (4+3+3=10)
b) Write the process of hydrosere. Diffarencebetween primary and secondary succession.Diffarence between Habitat and nitch. (6+2+2=10)

Sem II

paper CC 3 (Non-chordates II)

2marks

1.What is Coelom?

2.Define metamerism.

3.What is ommatidium?

4.Define commissure and connective.

5.Write the difference between Schizocoelic coelom and enterocoelic coelom.

6.What is osphradium?

7.What is Metamorphosis?

8.Add a note on.

Nephridia

Trochophore larva

Torsion

Radula

Stone canal

Madreporite

Tubefeet

Dipleura larva

Acoelomate

Pseudocoelomate

9. Write the two characteristics of phylum Arthropada.

10.

5marks

1.Write the function of water vascular system in star fish.

2.Add a short note on different larval forms of Echinodermata.

3.Write the characteristics of of phylum Mollusca.

4.What is torsion?How it is occur? Mention it's significance.

5.Write the respiratory organs of Pila and short note on aerial respiration.

6.Define Metamorphosis.Write different types of metamorphosis in insects.

7.Write the role of hormones in insect metamorphosis.

8.Disguish between true metamerism and pseudo metamerism.

10 Marks

1.Write the characteristics of phylum annelida and classify it upto subclasses.

2.Write the general characteristics and evolutionary significance of onychophora.

3.Discuss the general characters of phylum Arthropada.Classify Arthropada upto subclasses with one example of each class.

4.Wat is metamorphosis?What are various stages of metamorphosis in insects? Diagrammatically explain the stages of metamorphosis in any one insect.

5.What is ecdysis? Discuss the endocrine control of metamorphosis in insects.

6.What was the evolutionary significance of metamerism and the coelom to its earliest possessors.

7.Illustrate the process of torsion and detorsion in gastropods.

8.Discussthe general characters of phylum Mollusca.Classify it upto class with one example of each.

9.What is Water vascular system? Explain it's significance in Echinodermata.

10.Diagrammatically explain the various structure of water vascular system in Asterias.What are functions of each structure.

Paper- CC 4

Cell Biology

2 marks question

1. What do you mean mycoplasma?

2. Write the difference between SER and RER.

3. Define Tumor Supressor gene with Example.

4. Why Mitochondria is called semi-autonomous organelles

5. What is Go Phase with example?

6. Write the difference between Euchromatin and Heterochromatin.

7. What is Crossing Over? Mention the significance.

8. What is Zone of Exclusion?

5 marks question

1.Briefly describe polymorphism of lysosome.

2. Describe the ultrastructure of Mitochondria with suitable diagram.

3. Briefly describe the regulation of cell cycle by different kinds of cyclin and CDK.

4. Describe the chemi-osmotic hypothesis.

5. Briefly describe the protein sorting mechanism.

6. Describe the structure of nucleosome with suitable diagram.

7. Differentiate between apoptosis and necrosis.

8. Briefly describe the structure of GPCR.

10 marks question

1. Briefly describe the activation of RAS. Why p53 gene is called guardian of gene?
2. Describe the endo-symbiotic hypothesis. Describe the ultrastructure of centrosome with suitable diagram.
3. Briefly describe the intrinsic and extrinsic pathway of apoptosis. Mention the importance of ECM.
4. Describe the ultrastructure of plasma membrane with suitable diagram. Add a note on molecular motors.

SEMESTER III

Chordates

PAPER-CC5.

2Marks

1.Write the scientific name of two protochordates.

2.what is echolocation?

3.Mention two characteristics of prototheria.

4.what is continental drift theory?

5.Name the fishes having accessory respiratory organ.

6.Name the major flight muscles in birds.

7.Define metamorphosis.

8.Write the two characteristicsof p[rotochordates.

9.Differentiate metatheria and eutheria.

10.what is preen gland and rhamphotheca?

11What is endostyle

12.Differentiate holobranch and hemi branch gill

13Write the diagnostic characters of cyclostomata.

14.What is cranial kinesis.

5 marks

1. "All vertebrates are chordates but all the chordates are not vertebrates" ----JUSTIFY THE STATEMENTS
2. Give an account on retrogressive metamorphosis.
3. Describe the structure of poison apparatus of snake.
4. Mention the salient features of cetaceans with example.
5. Describe the structure of swimbladder of fish and state its significance.
6. Enumerate the echinoderm theory of origin of chordates.
7. Write a note on fish migration.
8. Describe the process of feeding in branchiostoma.
9. "Archeopteryx a connecting link"------justify the comment.
10. Disscus the distribution of vertebrates in Australian realms.
11. Describe the bitting mechanism of poisonous snake.
12. Write a note on adaptive radiation in mammals based on locomotory appendages.
13. Write a note on fish migration.

14. Differentiate echolocation between bat and whales.

10 marks

1. Discuss the process of metamorphosis in amphibia.Explain how is amphibian metamorphosis different from that of ascidian metamorphosis.

2. Briefly discuss the parental care of fish.what is calamus and rachis?

3. Classify amphibia upto living orders with example.

4. State the advance features of vertebrates over protochordates.write an explanatory note on the parental care in amphibia.

Paper-CC6

Animal Physiology

2 mark Question

1. What is ossification?
2. What do you mean by haversian system?
3. Mention the names of two Steroidal hormone.
4. What do you mean by Schwann cell?
5. Mention the names of two placental hormones.
6. Add a note on synapse.

5mark Question

1. Briefly describe the ultra structure of skeletal muscle with suitable diagram.
2. Mention the mechanism of action of protein hormone.
3. Briefly describe different nuclei involve in neuroendocrine system.
4. Briefly describe the histological structure of testis with diagram.
5. Difference between bone and cartage
6. Mention the mechanism of muscle contraction regarding sliding filament theory.

10 mark Question

1. Briefly describe the nerve impulse propagation through unmyelinated nerve fibers. Mention characteristics of muscle fibre.
2. Add a note on neuromascular junction. What is fixative?Mention its function.
3. Briefly describe different types of simple epithelial tissue. Highlight the functions of epithelial tissue.

Paper-CC 7

(FUNDAMENTALS OF BIOCHEMISTRY)

Mark-2

a) What is Isoenzyme?
b) Difference between nucleotide and nucleosides.
c) What is Epimer?
d) Write the structure of steroids.
e) Difference between essential and non essential amino acid
f) What do you mean Chargaffs rules.
g) What is ketogenic amino acid?
h) Write the function of mRNA and tRNA

Mark-5

a) I. A DNA segment content 200 Nucleotide base pair.

- Calculate the number of spirals in the molecule?
- what is the length of DNA segment?
- if there is a total of 60 Guanine base calculate the number of adenin present in the segment.

II. Difference between purine and Pyramid in base (3+2)

b) Write the process of complementary DNA formation. Write the structure of Moltose. (3+2)
c) Write the structure of alpha and beta pleated sheet of protein.(2.5x2)
d) Define HMP? Give a schematic diagram of the reaction involved in HMP define RNA? (1+3+1)

Mark-10

a) What is co factor? What is Q10? Define Km? Write the lock and key model. What do you mean the Lineweaver Bark plot. (1+1+2+3+3)
b) b)What is gluconeogenesis? Write the schematic diagram gluconeogenesis Of the reaction involved in gluconeogenesis. Write the process of Electron transport chain. (1+4+5)
c) Write the process of transamination. What is hnRNA? Write the process of Beta oxydation of fatty acid. (3+2+5)

APICULTURE (sec-1)

3RD SEMESTER

2 MARKS

1. What do you mean by Bee bread ?
2. Add a note on Wagtail dance.
3. Mention the importance of honey.
4. What do you mean by propolis and mention its function.
5. Mention the importance of Bee wax.What is Apiary?
6. Mention different enemies of honey bee.
7. What is apitoxin?Mention its function.
8. Mention the role on worker in honey bee colony.
9. Write two scientific names of Indian honey bee species.
10. Write the chemical components of honey.
11. Define Swarm.
12. Write the name of four commercial honey bee species.
13. What is Nuptial flight of honey bee ?
14. What is Royal jelly ?
15. What is honey?
16. What do you mean by bee pasturage.

. 5 MARKS

1. Describe the structure of Langstroth box with labeled diagram. 2. Mention different disease and preventive measures of honey bee.

3. Describe the extraction process of honey(indigenous and modern).

4. Describe modern methods in employing artificial Beehives for cross pollination in horticulture gardens.

5. What efforts are being made to preserve honey bee.

6. Describe the Langstroth box for rearing of honey bee.

7. Write down the advantages of movable frame hive.

8. What is bee wax ? Write the uses of bee wax.

. **10 MARKS**

1.Write down the names, symptoms, and control measures of disease causedby virus and protozoa in honey bee.

2.(a) Describe major bee keeping equipments.

(b)Write a short note on : Wegtail dance.

3. (a)Write a short note on : Bee hive.

(b) Write down the social behaviour of honey bee.

4.(a) Write the name, nature of damage and control methods of natural enemiesof honey bee.

(b) Describe the modern extraction methods of honey bee.

5. (a) What is honey ? Write the economic importance of honey.

(b) Write a short note on : Bee pasturage.