[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 8602 **J**

Unique Paper Code : 32231101

Name of the Paper : Non-Chordates I: Protists to Pseudocoelomates

Name of the Course : **B.Sc. (H) Zoology**

Semester : I

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all including Question No. **1** which compulsory.
3. Please attempt various parts of a question at one place only.

1. (a) Define the following terms **(Any three)** :

   (i) Polyembryony

   (ii) Metachronal rhythm

P.T.O.

(iii) Bilateral symmetry

(iv) Rostellum

(b) Differentiate between the following pairs of ter
(Any Four) :

(i) Protandry and Protogyny

(ii) Endomixis and Autogamy

(iii) Trophocytes and Thesocytes

(iv) Protostomia and Deuterostomia

(v) Gonozooids and Gonophores

(c) Give exact location and functions of the followi
(Any four) :

(i) Penial spicules

(ii) Trichoeysts

(iii) Myonemes

(iv) Pyrenoids

(v) Acetabulum

(d) Write the scientific name of the following organisms and classify each up to classes.

(i) Sea pen

(ii) Venus' flower basket

(iii) Portugese-man-of-war

(iv) Sea anemone (8)

(a) Give a detailed account of the life history of *Plasmodium vivax* in its vector. (6)

(b) Briefly discuss the different modes of asexual reproduction in Protista. (6)

Discuss the canal system present in Porifera and write its importance. (12)

Give a detailed account of different types of coral reefs in Cnidaria. Describe various theories of its formation. (12)

Explain the life cycle of a digenetic cestode with suitable diagrams. Add a note on its adaptations for parasitic mode of life. (12)

P.T.O.

6. What is metagenesis? Explain the phenomenon in with reference to the life cycle of *Obelia*.

7. (a) Describe the life cycle of *Ascaris lumbri* with the help of well labelled diagram.

(b) Give a detailed account of locomotory orga in flagellates. How do these organelles he locomotion?

8. Write short notes on **any three** of the followin

(a) Affinities of Ctenophora

(b) Larval stages of *Fasciola hepatica* in secon host

(c) Polymorphism in hydroida

(d) Conjugation in *Paramecium*

(e) Sexual reproduction in *Sycon*

[This question paper contains 4 printed pages.]

Your Roll No.....

2

Sr. No. of Question Paper : 8622 **J**

Unique Paper Code : 32231102

Name of the Paper : Principles of Ecology

Name of the Course : **B.Sc. (Hon) Zoology**

Semester : I

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all. Question No. **1** is compulsory.

1. (a) Define the following :

(i) Guilds

(ii) Restoration

(iii) Edge Effect

(iv) Hypervolume Niche

(v) Resilience (5)

P.T.O.

(b) Distinguish between the following :

(i) Unitary and Modular population

(ii) Amensalism and Commensalism

(iii) Semalparity and Iteroparity

(iv) Scramble and Contest competition

(c) Explain the following statement :

(i) Dynamic life tables are the most accura types of life tables.

(ii) Shannon-Weiner diversity Index is low in polluted water body.

(d) Name the scientists associated with the followi terms :

(i) Competitive exclusion principle

(ii) Life table

(iii) Climax pattern theory

(iv) Trophic Niche

(e) Fill in the blanks :

(i) The terrestrial biome with highest level primary productivity on earth is _____

(ii) _____ is the process by which plants release phytochemicals directly into their surrounding environment, inhibiting seed germination and growth of established neighboring species.

(iii) In autogenic succession, the biomass/ production ratio will _____ .

(iv) The _____ was the first. Biosphere Reserve established in India in 1986. (4)

(f) Illustrate the following with the help of diagrams (no description required):

(i) Types of survivorship curves

(ii) Exponential growth curve (2)

(a) Describe density dependent regulation of a population.

(b) Briefly describe Shelford's Law of Tolerance with the help of suitable examples. (8,4)

(a) Describe various possible outcomes of inter-specific competition with graphical representation and equations.

(b) Differentiate between r-selected and k-selected species. (9,3)

P.T.O.

4. (a) Describe the Universal energy flow mod
the help of diagrams.

(b) Briefly describe various factors respons
the loss of biodiversity.

5. (a) Describe Lotka-Volterra model for predati
the help of diagrams and equations.

(b) Describe the role of microbes in Nitroge

6. Write short notes on **any three** of the follow

(a) Application of ecology in wildlife conserva

(b) Global climate change and its mitigation

(c) Temperature as a limiting factor

(d) Vertical stratification in an aquatic ecosy

(e) Raunkaier's life forms

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : 7513

Unique Paper Code : 32231301 J

Name of the Paper : Diversity of Chordates

Name of the Course : B.Sc. (Honours) Zoology

Semester : III

Duration : 3 Hours Maximum Marks : 75

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

Answer *five* questions in all, including

Question No. 1 which is compulsory.

Draw labelled diagrams wherever necessary.

1. (*a*) Define the following terms : 4

(*i*) Retrogressive metamorphosis

(*ii*) Osmoregulation

(*iii*) Endemic species

(*iv*) Fossorial Adaptations.

P.T.O.

(*b*) Give the scientific name and classify the following Orders :

(*i*) Rat fish

(*ii*) Glass snake

(*iii*) Acorn worm

(*iv*) Mongoose

(*v*) Mud Puppy.

(*c*) Differentiate between the following terms :

(*i*) Lacertilia and Ophidia

(*ii*) Euryhaline and Stenohaline

(*iii*) Carinatae and Ratitae

(*iv*) Wallace's line and Weber's line.

(*d*) Match the following animals with the Zoogeographical region :

(*i*) Two-horned Rhinoceros	(*a*) Oriental
(*ii*) Orangutan	(*b*) Ethiopian
(*iii*) Bison	(*c*) Neotropical
(*iv*) Koala bear	(*d*) Nearctic
(*v*) Llama	(*e*) Palearctic
(*vi*) Mole rat	(*f*) Australian

(*e*) State whether the following statements are true *or* false : 2

(*i*) Eyelids of snakes are movable.

(*ii*) Perissodactyles have an even number of digits.

(*iii*) In frogs and toads teeth are present in both upper and lower jaws.

(*iv*) Duck-billed Platypus is endemic to Australian realm.

2. (*a*) "Hemichordates are non-chordates". Justify the statement.

(*b*) Discuss the Echinoderm theory for the origin of Chordates. 6,6

3. (*a*) Enumerate the various structural adaptations in birds related to their aerial mode of life.

(*b*) How do fresh water fishes osmoregulate ? 8,4

4. (*a*) Discuss the theories of distribution of animals.

(*b*) Give an account of the mammalian fauna of the Ethiopian realm. 8,4

5. (*a*) Describe the poison apparatus in snakes and explain the biting mechanism.

(*b*) Discuss the mechanics of bird flight.

6. (*a*) Discuss the evolution of terrestrial ectotherms.

(*b*) Write a note on the affinities of Prototheria.

7. Write short notes on any *three* of the following :

(*i*) Migration in fishes

(*ii*) Cursorial adaptations in mammals

(*iii*) Parental care in Amphibia

(*iv*) Affinities of *Sphenodon*

(*v*) General characters of Agnatha.

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : 7514

Unique Paper Code : 32231302 J

Name of the Paper : Physiology : Controlling and Coordinating System

Name of the Course : B.Sc. (Hons.) Zoology

Semester : III

Duration : 3 Hours Maximum Marks : 75

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

Attempt *five* questions in all.

Question No. 1 is compulsory.

1. (A) Define : 4

(*i*) Temporal Summation

(*ii*) Tropic hormone

(*iii*) Oxygen debt

(*iv*) Theca interna.

(B) Distinguish between : 5×2=10

(*i*) EPSP and IPSP

P.T.O.

(*ii*) Fused and Unfused Tetanus

(*iii*) Leydig cells and Sertoli cells

(*iv*) Osteoclasts and Osteoblasts

(*v*) Stratified and Pseudo-stratified epithelium.

(C) Expand the following :

(*i*) 5-HT

(*ii*) CK

(*iii*) PVN

(*iv*) NE

(*v*) LTH

(*vi*) cAMP.

(D) Give the location and function for each of the following :

(*a*) Nebulin

(*b*) Parafollicular Cells

(*c*) Organ of Corti

(*d*) Ependymal Cells.

(E) Give reasons/Physiological significance of the following (any *two*) : 2

(*i*) Blood Testis Barrier.

(*ii*) Amplitude of an action potential once generated is always the same.

(*iii*) Slumping of the head forward on the chest

(F) Fill in the blanks : 4

(*i*) A toxin popularly used in cosmetic surgery is ..... .

(*ii*) Deep grooves in the motor end plate that are rich in receptors are called ..... .

(*iii*) ..... tissue is avascular.

(*iv*) Angiotensinogen, a plasma protein produced by the liver is converted into Angiotensin I by ..... .

2. (*a*) Mention different types of ion channels and describe their role in generation of electrical signals. 8

(*b*) Explain the transmission of nerve impulse across a Chemical Synapse. 4

3. (*a*) Describe the role of troponin, tropomyosin and ca in muscle contraction.

(*b*) Diagrammatically represent the ultrastructur sarcomere.

4. Compare the major changes occurring in the ovary, u and their hormonal regulation during the female reproduc cycle.

5. (*a*) Explain the various mechanisms regulating horm secretion.

(*b*) How does the adrenal cortex and medulla compare wi regard to its structure and function ?

6. (*a*) Describe the process of bone ossification.

(*b*) Enumerate the various types of cells present connective tissue.

7. Write short notes on the following (any *three*) : 3×4=1

(*i*) Molecular events in Contraction cycle

(*ii*) Bleaching and regeneration of photo-pigments

(*iii*) Mechanism of action of water soluble hormones

(*iv*) Spermatogenesis.

s question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

No. of Question Paper : **7515**

ique Paper Code : **32231303** **J**

ame of the Paper : **Fundamentals of Biochemistry**

ame of the Course : **B.Sc. (Hons.) Zoology**

emester : **III**

uration : **3 Hours** Maximum Marks : **75**

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

ttempt *five* questins in all, including Q. No. **1** which is compulsory.

Attempt various parts of a question at one place only.

Draw well labelled diagram wherever necessary.

1. (A) Define : 1×5

(1) Peptide bond

(2) Amphipathy

(3) Epimers

(4) Nucleoside

(5) Plasmalogens.

P.T.O.

(B) Differentiate between :

(1) Reducing and Non-Reducing Sugars

(2) Phi and Psi angle

(3) Isoenzymes and Coenzymes

(4) Alpha helix and Beta pleated sheet struc protein

(5) B and Z DNA.

(C) Give the structures of the following :

(1) Proline

(2) Phosphatidyl Serine

(3) Sucrose

(4) Chondroitin sulphate

(5) Adenine.

(D) Fill in the blanks :

(1) Repeated nucleotide sequence..... chances of its renaturation.

(2) Enzymes speed up reactions by..... activation energy.

(3) Auto-oxidation of lipids exposed to oxygen re in .....

(4) An increase in side chain alkyl groups numb increases the.....of the amino ac

(E) Give contributions of the following : 1×3

(1) Watson and Crick

(2) Linus Pauling

(3) Fredrick Sanger.

2. (*a*) Describe various types of secondary structure of protein taking suitable examples. 8

(*b*) Justify the statement that information of protein folding resides within the sequence of amino acids. 4

3. (*a*) Elucidate the Michaelis-Menten kinetics for a one enzyme-one substrate reaction. 8

(*b*) With the help of well labelled bond angles and bond lengths, diagrammatically explain that peptide bond is rigid and coplanar. 4

4. (*a*) Classify enzymes on the basis of type of reaction catalyzed (International Classification of Enzymes). 4

(*b*) What are different types of DNA ? Briefly discuss different properties of various types of DNA. 8

5. (*a*) Describe the salient features of Clover leaf model of *t*-RNA. 4

(*b*) Give a detailed account of physiologically important carbohydrates. 8

6. (*a*) With the help of structures, classify phospholipids.

(*b*) Briefly discuss about allosteric enzymes.

7. Write short notes on any *three* of the following :

(*a*) Cot Curves

(*b*) Glycolipids

(*c*) Mechanism of enzyme action

(*d*) Protein Denaturation

(*e*) Double reciprocal plot.

s question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

No. of Question Paper : 7516

ique Paper Code : 32231501 J

me of the Paper : **Molecular Biology**

me of the Course : **B.Sc. (Hons.) Zoology**

mester : V

uration : 3 Hours Maximum Marks : 75

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

Attempt *five* questions in all.

Question No. 1 is compulsory.

Illustrate your answers with appropriate diagrams.

(*a*) Define (any *five*) : 5×1=5

(*i*) Okazaki Fragments

(*ii*) Polyribosome

(*iii*) Alternative splicing

(*iv*) Primer

(*v*) Consensus Sequence

(*vi*) Codon.

P.T.O.

(*b*) Differentiate between (any *five*) :

(*i*) B-DNA and Z-DNA

(*ii*) Leading and lagging strands

(*iii*) DNA Polymerase I and DNA Polymerase III

(*iv*) Monocistronic and polycistronic mRNA

(*v*) Prokaryotic and Eukaryotic ribosome

(*iv*) Topoisomerase I and Topoisomerase II.

(*c*) Expand the following (any *four*) :

(*i*) ARS

(*ii*) snRNA

(*iii*) URE

(*iv*) CTD

(*v*) HU Enzyme

(*d*) Give the contribution of the following (any *four*) :

(*i*) Erwin Chargaff

(*ii*) Maurice Wilkins

(*iii*) Arthur Kornberg

(*iv*) Craig C Mello

(*v*) Carol D Greider

(e) Draw neat and well labelled diagrams of the following : 2×2=4

(i) m-RNA structure of Globin protein.

(ii) Trombone model showing arrangement of different proteins during replication.

2. (a) Describe Watson and Crick model of DNA. 6

(b) Describe the salient features of Genetic code. 6

3. (a) Discuss the mechanism of gene regulation in Tryptophan Operon. 8

(b) With the help of suitable diagram describe the mechanism of transcriptional termination in prokaryotes. 4

4. (a) Discuss the process of activation of amino acids, formation of initiation complex and elongation of the polypeptide chain in prokaryotes. 8

(b) Describe different methods of RNA interference. 4

5. (a) Explain the eukaryotic Transcription initiation Factors along with their functions. 6

(b) Describe the structure of Globin gene and its molecular mechanism of Splicing. 6

P.T.O.

6. (*a*) Describe the sequence of events during DNA replication in eukaryotes and explain the role of various enzymes.

(*b*) Enumerate the various differences between prokaryotic and eukaryotic translation.

7. Write short notes on any *three* of the following :

(*i*) t-RNA

(*ii*) Replication of telomeres

(*iii*) Genetic Imprinting

(*iv*) DNA mismatch repair.

s question paper contains 4+1 printed pages]

Roll No. | | | | | | | | | | |

9

lo. of Question Paper : 7517

que Paper Code : 32231502 J

ne of the Paper : **Principles of Genetics**

ne of the Course : **B.Sc. (Hons.) Zoology**

nester : V

ration : 3 Hours Maximum Marks : 75

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

Attempt *five* questions in all, including Q. No. 1 which is compulsory.

(A) Define : 1×5=5

(*i*) Phenocopy

(*ii*) Transgressive variation

(*iii*) Three factor cross

(*iv*) Frame shift mutation

(*v*) Episome.

(B) Distinguish between : 2×3=6

(*i*) Intersex and Gynandromorph

P.T.O.

(*ii*) Sex limited and Sex influenced traits

(*iii*) Intragenic and intergenic recombination.

(C) Expand the following :

(*i*) PAR

(*ii*) SINEs

(*iii*) XIC

(*iv*) ClB.

(D) Explain the following : 2×2=

(*i*) In a family blood group of mother is AB and that of daughter is O.

(*ii*) In *Drosophila*, mother contributes Y chromosome and father contributes X chromosome to the male offspring.

(E) Name the scientists who gave the following concepts :

(*i*) Recombination frequency used as linkage map distance

(*ii*) Gene complementation

(*iii*) Polygenic inheritance

(*iv*) Mutagenicity of X rays.

(F) (*i*) Determine the phenotypes (shell coiling pattern) of the parents and the genotypes and phenotypes of the F1 in the following crosses in *Limnaea* : 3

(*a*) Dd (female) × dd (male)

(*b*) Dd (male) × dd (female).

(*ii*) How many different types of gametes will be formed by a parent having genotype AABbccDdEe ? 1

(*a*) Describe molecular basis of spontaneous mutations. 6

(*b*) In complementation studies of the *r*II locus of phage T4, three different mutations were tested in each group. On the basis of the given data, predict the results of the III experiment for each group. 3

Experiment	Group A	Group B	Group C
I	*d* × *e* – lysis	*g* × *b* – no lysis	*j* × *k* – lysis
II	*d* × *f* – no lysis	*g* × I – no lysis	*j* × *l* – lysis
III	*e* × *f* – ?	*b* × I – ?	*k* × *l* – ?

(*c*) Describe the characteristic features of IS elements.

3. (*a*) For mapping three X linked genes in *Drosophila*, female heterozygous for these genes was crossed with the male having dominant phenotype of these genes. Which sex of the F1 progeny would be used for construction of linkage map ? Why ? 4

(*b*) Define interference. Write the significance of – (negative), 0 (zero) and + (positive) value of interference. 4

(*c*) In a heterozygous female two linked genes A and B are arranged in Transconfiguration. The distance between two genes is 27 cM. If such a female is test crossed, write the genotype of the progeny and percentage of each type of progeny. 4

4. (*a*) Describe the genetic basis of continuous variation, with a suitable example. 6

(*b*) Explain somatic cell hybridization and its application in gene mapping. 6

5. (*a*) How does non-allelic interaction modify the Mendelian dihybrid ratio ? 6

(*b*) Describe Bridges theory of sex determination in *Drosophila*. 6

6. (*a*) Describe the phage λ mediated specialized transduction. 6

(*b*) Describe the experiment of Curt Stern for cytological basis of crossing over. 6

7. Write short notes on any *three* of the following : 3×4=12

(*a*) Retrotransposons

(*b*) Chromosomal inversion

(*c*) Sexduction

(*d*) Inheritance of antibiotic resistance in *Chlamydomonas*.

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7974 **J**

Unique Paper Code : 32237901

Name of the Paper : Animal Behaviour and Chronobiology

Name of the Course : **B.Sc. (H) Zoology : DSE-1**

Semester : V (CBCS)

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **Five** questions in all including Question No. **1** which is compulsory.

1. (a) Define the following :

(i) Reciprocal altruism

(ii) Reinforcement

(iii) Menotaxis

(iv) Infanticide

P.T.O.

(v) Latent learning

(vi) Nidifugous birds

(b) Differentiate between the following :

(i) Innate and learned behaviour

(ii) Altricial and precocial

(iii) Primary and secondary orientation

(iv) Circadian and circannual rhythms

(v) Eusocial and semisocial animals

(vi) Hormone and pheromone (2×6=12)

(c) Give Contributions of the following :

(i) Karl von Frisch

(ii) Oskar Heinroth

(iii) Franz Halberg

(iv) C. O. Whitman

(1×4=4)

(d) State true or false :

(i) Honeybees perform waggle dance to communicate about food source at short distances.

4

(ii) Cheater gene influences infidelity in humans.

(iii) Animals may be brightly colored to advertise to mates or warn potential predators of its toxicity.

(iv) In scan sampling, the behaviour of all individuals of a group of animals are recorded at fixed time intervals.

(v) Movement directed toward a light source is called positive chemotaxis. (1×5=5)

(a) Describe the Pavlov's experiment on classical conditioning. (6)

(b) Draw a neat labelled diagram of different types of dances performed by forager honeybees to communicate about food source. Discuss the advantages of waggle dance for honeybee society. (3,3)

(a) Write a note on Zeitgeber. Describe the factors responsible for its effectivity. (3,3)

(b) With the help of suitable examples, explain exogenous and endogenous rhythms. (6)

4. (a) What is imprinting? Explain the contribution Konrad Lorenz in describing the phenomenon imprinting.

(b) Describe, with examples, the concept of sexu conflict in parental care. Add a note on the benefi and costs associated with parental care.

5. (a) Define altruism and explain how natural selectio will favor altruistic behavior.

(b) Classify and explain various form of orientatio with suitable example.

6. (a) Explain proximate and ultimate causes of behavio with help of suitable examples.

(b) Differentiate between classical and operant conditioning with suitable examples.

7. Write short notes on any **three** of the following:

(a) Kin selection

(b) Biological oscillations

(c) Society organization in honeybees

(d) Parasitic brood care

(e) Role of melatonin

question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

o. of Question Paper : 8122

que Paper Code : 32237909 J

ne of the Paper : Immunology

ne of the Course : B.Sc. (Honors) Zoology : DSE-2

ester : V

ation : 3 Hours Maximum Marks : 75

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

Question No. 1 is compulsory.

Attempt *five* questions in all.

Draw neat labelled diagrams wherever necessary.

(*a*) Define : 5

(*i*) Superantigens

(*ii*) Abzymes

(*iii*) Arthus reactions

(*iv*) Variolation

(*v*) Immunogenicity.

P.T.O.

(*b*) Distinguish between :

(*i*) Neoantigenic and conformational epitopes

(*ii*) Autologous and allogenic antigens

(*iii*) Calnexin and calreticulin

(*iv*) Subunit and recombinant vaccines

(*v*) Plasma and memory cells.

(*c*) Expand the following :

(*i*) ISCOM

(*ii*) PRR

(*iii*) CLIP

(*iv*) HSP

(*v*) ARAM

(*vi*) GPCR

(*d*) Write the contribution(s) of :

(*i*) S.A. Berson and R. Yalow

(*ii*) Wu and Kabat

(*e*) Give the immunological significance :

(*i*) Bence Jones proteins

(*ii*) C3b

(*iii*) Bioactive amines

(*iv*) Chemokines.

(f) Give reasons : 3

(i) Burn victims are immunologically compromised.

(ii) Bivalent nature of an antibody is important.

(iii) Multivalent vaccines are better than monovalent vaccines.

2 (a) Describe the initiation and activation of the alternative complement pathway. 8

(b) Discuss the factors influencing immunogenicity. 4

3. (a) Explain in detail the structure and functions of IgG. 6

(b) Illustrate and discuss the production of monoclonal antibody by hybridoma technology. 6

4. (a) Explain the processing and presentation of endogenous antigens in a cytosolic pathway. 6

(b) Write the general properties of cytokines and chemokines. 6

5. (a) Compare the structure and functions of class I and class II MHC molecules. 6

(b) Describe the role of various barriers involved in innate immune responses. 6

6. (*a*) What are the effector cells of anaphylaxis and their biological responses in immediate type hypersensitivity ? 8122 6

(*b*) Describe the structure and function of primary lymphoid organs. 6

7. Write short notes on any *three* : 3×4=12

(*i*) Clonal selection theory

(*ii*) Inflammatory response

(*iii*) Properties of antigen

(*iv*) Elucidate the structure of antibody.

10

Unique Paper Code	**: 32235908**
Name of Paper	**: Insect Vector and Diseases**
Name of Course	**: Zoology : GE for Honours**
Semester	**: I**
Duration	**: 3 hours**
Maximum Marks	**: 75**

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

Attempt five questions in all. Question No. 1 is compulsory. Draw illustrations or diagrams wherever necessary.

1. (a) Define the following terms:

(i) Reservoir host

(ii) Apterygota

(iii) Opisthognathous mouthparts

(iv) Vectorial capacity

(v) Epidemiology. 5

(b) Name the pathogen and vector for the following diseases:

(i) Epidemic typhus

(ii) Malaria

(iii) Dengue. 6

(c) List one function of the following:

(i) Trachea

(ii) Malpighian tubules

(iii) Halteres

(iv) Organ of Berlese

(v) Hypopharynx. 5

(d) Distinguish between the following:

(i) Epidemic and Pandemic disease

(ii) Carrier and Vector

(iii) Holometabolous and Hemimetabolous insects

(iv) *Aedes* and *Anopheles*. 8

(e) Match the following:

Column A	*Column B*
(i) Maggots	(A) Mosquito
(ii) Wriggler	(B) Butterfly
(iii) Caterpillar	(C) Housefly

3

2. (a) Describe the life cycle of *Culex* mosquito. Elaborate on any *one* disease transmitted by it. 12

(b) List the different types of antennae found in insects with examples. 8+4

Explain different types of biological transmission of diseases by insects. 4

Give the various methods used for controlling insect vectors. Explain the chemical and biological methods in details.

Describe the mouthparts of cockroach with suitable diagram. 8+4

Describe the life cycle of flea and different types of plague transmitted by them. 6

Differentiate between head louse and pubic louse and list the various diseases transmitted by them. 8+4

Describe the mode of infection and epidemiology of *Leishmaniasis*.

What is Myasis and how is it spread? 8+4

te short notes on any *three* of the following:

Compound eye

Chagas disease

Characters of Hemiptera

Life cycle of malarial parasite in man. 4+4+4

11

[This question paper contains 4 printed pages]

Your Roll No. : .....

Sl. No. of Q. Paper : **8381** **J**

Unique Paper Code : 32235906

Name of the Course : **Generic Elective : Zoology**

Name of the Paper : Food, Nutrition & Health

Semester : III

Time : 3 Hours ***Maximum Marks : 75***

Instructions for Candidates :

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

(b) Attempt any **Five** questions in **all**.

(c) Question **NO.1** is compulsory.

(d) **All** questions carry equal marks.

1. (a) Fill in the blanks : 5

(i) Thick, yellowish, viscous liquid secreted by mother soon after delivery is called.....

(ii) A triglyceride has .....and .....

P.T.O.

(iii) The full form of RDA is .....

(iv) Tissues that store fats are called.....

(iv) The major compound present in vitamin E is .....

(b) Define the following terms : 10

(i) Xerophthalmia

(ii) Antioxidants

(iii) Neurocysticercosis

(iv) Amoebiasis

(v) Prophylaxis

(c) State whether the following statements are **True** or **False** and Justify : 6

(i) Alanine is a sulphur containing amino acid

(ii) Blood pressure is reduced when dietary lipids are reduced

(iii) Rice is the richest source of Beta carotene

(iv) Glycogen is an unbranched polysaccharide molecule

(v) Carbohydrate present in milk is known as lactose

(vi) Typhoid fever is spread by mosquito bite

(d) Choose the correct answer : 6

(i) Deficiency/excess of carbohydrates results in ketosis.

(ii) Olive oil is a good example of MUFA/ PUFA.

(iii) Pernicious anaemia is caused by deficiency of iron/Vitamin B_{12}.

(iv) Malaria is spread by mosquito bit/ contaminated water.

(v) The most abundant mineral in the body is Calcium/Phosphorus.

(vi) Cholera/Obesity is a life style disease.

2. Write about mode of transmission, causative agent, sources of infection, symptoms and prevention of any two viral infections studied by you. 12

3. Describe the life cycle, pathogenesis of *Ascaris lumbricoides*. Add a note on prophylaxis and treatment of its infection in man. 12

4. Write a note on Iodine deficiency. Explain the functions and regulation of the thyroid gland. Discuss the key points of the National Iodine Deficiency Disorders Control Program. 12

5. Discuss the social health problems, their causes and prevention through dietary and life style modifications, especially among the youth. 12

6. Give an account of the varied functions of protenin in the human body. What are the rich dietary sources of proteins ? Discuss Protein Energy Malnutrition giving the deficiency diseases. 12

7. Write short notes on any **three** of the following: 4×3=12

   (a) Causes and symptom of AIDS
   (b) Diabetes mellitus
   (c) Food spoilage
   (d) Purification methods of drinking water
   (e) Balanced diet

800