Seat No.	Set	Р

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017

		Zoology BIOSYSTEMATICS	
•		e: Thursday, 16-11-2017 Max. Mark 0 AM to 01.00 PM	s: 70
Instr	ucti	ns: 1) Question number 1, 2 and 6 are compulsory. 2) Attempt any two from Question No. 3, 4 and 5.	
Q.1		choice questions (Per question 2 marks): chthyology is the study of b) Fishes b) Viruses d) Amphibians	14
	2)	The class Mammalia is divided into subclasses and infraclasses based on ————. Reproductive system The presence or absence of mammary glands. The number of appendages. Skeletal system	
	3)	is that branch of biology dealing with the identification and aming of organisms. b) Taxidermy b) Taxonomy d) None of the above	
	4)	is known as Father of Taxonomy. Otto Brunfels b) Andrea Cesalpino d) Carolus Linnaeus	
	5)	axonomy is the Science of) Identification) Survey) Group () Classification and Nomenclature	
	6)	Double ventral Nerve cord is found in b) Leech Carthworm d) Tape worm	
	7)	Cladogenesis is The evolution of a new species from an ancestral species. The diversification of a species into two or more species as groups adapt to different environments. The process by which ultraviolet radiation causes mutations that in turn result in evolution. The evolution of a old species from an ancestral species.	
Q.2		ne species? Describe different concepts, and other intraspecific categories.	14
Q.3	a)	wer the following. mmunological techniques. Taxonomic keys, their merits and demerits.	07 07

		SLR-MT-674
Q.4	Explain the following.a) Biological classification.b) Applications of Biosystematics.c) Binomial Nomenclature.	05 05 04
Q.5	Explain in short:a) Historical resume of Systematics.b) How to Construct Phylogenetic Trees?	07 07
Q.6	 Write short notes on any four of the following: a) International Code of Zoological Nomenclature. b) Systematic publications. c) Sympatric speciation. d) DNA- DNA Hybridization. e) Parsimony methods of Phylogenetic inference. f) Apomictic species. 	14

Seat	Sat	D
No.	Set	

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017 Zoology TOOLS AND TECHNIQUES IN BIOLOGY

		TOOLO AND TEOMINA	O L	O III DIOLOGI		
•		ate: Saturday, 18-11-2017 0.30 AM to 01.00 PM			Max.	Marks: 70
Instru	ucti	ions: 1) Question number 1, 2 and 6 are 2) Attempt any two from Question				
Q.1		ultiple choice questions (Per question The radioactive element used to study r is a) Sodium c) Nitrogen	new b)	-	i	14
	2)	Which would be best to separate a prot substrate? a) Gel filtration c) Cation exchange	ein b)			
	3)	Immunoblotting is introduced in a) Southern blotting c) Northern blotting	b)	technique. Western blotting All of above		
	4)	ELISA is used for a) Separate viral RNA c) Isolate DNA	,	Purify proteins Identify specific protein	ns	
	5)	The best technique to separate isoenzy a) Paper chromatography c) Microscopy	b)	s is Electrophoresis Thin layer chromatogr	aphy	
	6)	Shadow casting is used in microscopy_ a) TEM c) Phase contrast	b)	SEM Fluorescence		
	7)	Hybridomas are produced by fusion of_ a) Selected lymphocytes c) Tumour cells & Hela cells	b)	lymphocytes & tumous Hela cells & plants cel		
Q.2	Dis	scuss the steps in Proteomics.				14
Q.3	a)	nswer the following. Describe the technique used to produce Comment on the uses of cell hybrids?	e M	onoclonal antibodies.		07 07
Q.4	a) b)	xplain the following. Lasers in Biology. Autoradiography Flowcytometry				05 05 04
Q.5	a)	xplain in short : Agarose Electrophoresis. Column Chromatography.				07 07

Q.6 Write short notes on any four of the following:

- a) Radioimmunoassay.

- b) FTIRspectrometer
 c) Cell transformation.
 d) Cryotomy.
 e) Ultracentrifugation.
 f) X- rays in Biology.

Seat No.		Set	Р
-------------	--	-----	---

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017 Zoology CELL AND MOLECULAR BIOLOGY

		CLLL AND MOLLOO	LAN DIOLOGI	
		ate: Tuesday, 21-11-2017 0.30 AM to 01.00 PM	Max. Marks	s: 70
Instr	ucti	ions: 1) Question number 1, 2 and 6 are 2) Attempt any two from Question	•	
Q.1		ultiple choice questions. (Per question Mosaic pattern of plasma membrane is a) Carbohydrates c) Proteins	•	14
	2)	In facilitated diffusion the glucose transpa) Uniport c) Antiport	oorter is a carrier. b) Symport d) Multiport	
	3)	Rough endoplasmic reticulum is chiefly a) Drug detoxification c) Carbohydrate metabolism		
	4)	Integral protein of plasma membrane ar a) Free Ribosomes c) Golgi apparatus	re synthesize on b) Rough ER d) Lysosomes	
	5)	Golgi complex. a) Clathrin coated c) Primary	b) COP II d) COP I	
	6)	A tubulin protein is a a) Monomer c) Trimer	b) Heterodiomerd) Tetramer	
	7)	The kinesin are the motor molecules that a) Intermediate filaments c) Microtubules	at are related to the b) Microfilaments d) Myosin filaments	
Q.2		hat is the passive and active transport? In suitable example.	Describe facilitated passive transport	14
Q.3	a)	nswer the following. Describe Na ⁺ /K ⁺ ATPase. What are microtubule organizing center microtuibules during mitosis.	s? Add a note on the role of	07 07
Q.4	a) b)	plain the following. Describe the role of actin filaments during Describe the structure of Kinesin and the Describe the structure of nucleus	-	05 05 04

Q.5	Explain in short :	
	a) What are the cell junctions? Add a note on desmosomes.	07
	b) Describe post translational modification of proteins.	07
Q.6	Write short notes on any four of the following:	14
	a) Functions of Golgi apparatus.	
	b) Gap junction.	

- c) Plasmodesmata.d) Collagene) Integrinsf) Tight junction

Seat	
No.	

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017 Zoology POPULATION GENETICS AND EVOLUTION

-		ate: Thursday, 23-11-2017 .30 AM to 01.00 PM		Max. Mark	s: 70
Instr	ucti	ions: 1) Question number 1, 2 and 6 are 2) Attempt any two from Question		•	
Q.1		Iltiple choice questions(Per question Darwin's Finches are example of a) Reproduction isolation c) Adaptive radiation	b)		14
	2)	Industrial melanic peppered moth is ca a) Carbonaria c) Lepsima	b)	Glossina Coptoterms	
	3)	Founder principle was proposed by a) Charles Darwin c) Mayr and Sheppered	b)	Lamark Hugo de veris.	
	4)	The random changes in gene frequence called a) Mutation c) Gene pool	b)	chance a small population is Genetic drift Genetic drift	
	5)	Directional selection produces a shift of to a in the environment in a a) Change c) Constant	oart b)	• •	
	6)	Which is the equation of Hardy-Weinberg a) $P \times q=1$ c) $p + q=1$	b)	equilibrium? p ÷ q=1 p - q=1	
	7)	When the population is in genetic equil a) Increase c) Zero	b)	m, the rate of evolution Decreases Constant	
Q.2		plain the Hardy – Weingberg law of gen ample.	etic	equilibrium with suitable	14
Q.3	a)	nswer the following Explain principle of Lamarckism. Describe mechanism of speciation.			07 07
Q.4	a) b)	plain the following Natural selection. Anatomical evidences in evolution. Darwin Finches.			05 05 04

Q.5	Explain in short :	
	a) Describe patterns and mechanism of reproductive isolation.	07
	b) Give detailed account of destabilizing forces.	07
Q.6	Write short notes on any four of the following:	14
	a) Germplasm theory.	
	b) Industrial melanism.	

- c) Evolution in gene family.d) Genetic Drift.

- e) Base substitution.f) Theory of chemical origin of life.

Seat	
No.	

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017 Zoology PROTOZOOLOGY

,		ate: Thursday, 23-11-2017 .30 AM to 01.00 PM		Max. Mark	(s: 70
Instr	ucti	ons: 1) Question number 1, 2 and 6 are 2) Attempt any two from Question			
Q.1		Iltiple choice questions(Per question of the In Paramoecium, the trichocysts are used a) Offense c) Flight or flight response	ed f b)		14
	2)	Which of the following acts as a main rein human beings? a) Man c) Pig	b)	voir of <i>Balantidium coli</i> infection Monkey None of these	
	3)	Sleeping sickness in man is caused by infective a) Male tse-tse fly b) Female tse-tse fly c) Both male and female tse-tse fly d) None of the above	tryp	anosome by the bite of the	
	4)	Single celled eukaryotes are include in_ a) Fungi c) Monera	b)	Archae Protista	
	5)	Pellicle is found in: a) Amoeba c) Euglena and paramecium	,	Euglena All of these	
	6)	Secondary host for malarial parasite is: a) Male anophelesc) Male culex	,	Female anopheles Female culex	
	7)	Giardia lamblia affects mainlya) Upper small intestine c) Colon	,	Caecum Rectum	
Q.2	Giv	ve an account on Methods of feeding in p	orot	ozoa.	14
Q.3	a)	swer the following Give an account on Factors influencing Oxygen, Carbon dioxide. Give an account on Nutritional requirem		,	07 07
Q.4	a) b)	plain the following General morphology of <i>Ichthioptherius</i> i Ecology of free living Protozoa Transmission and Pathology of parasition			05 05 04

Q.5	Explain in short :				
	a) Describe the Life evole of E	ainaivalia			

a)	Describe the Life cycle of E. <i>gingivalis</i> .	07
b)	Structure and life cycle pattern of Balantidium coli.	07

Q.6 Write short notes on any four of the following:a) Morphology of Chilomastix mesnili.b) Parasitism in ciliophora.

- c) Morphology of Trichomonas tenaxd) Amoebae of man and domestic animals.
- e) Classification of Protozoa.
- f) Coccidia of poultry with special reference treatment and control.

Seat	Set	D
No.	Set	

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017 Zoology MOLECULAR CYTOGENETICS

		WOLLGOLAN GTT	UG	LINETICS		
•		ate: Thursday,16-11-2017 .30 PM to 05.00 PM			Max. Marks:	70
Instru	ucti	ons: 1) Question number 1, 2 and 6 are 2) Attempt any two from Question		•		
Q.1		Iltiple choice questions. In Eukayotes Chromatin is formed of a) Nucleic acid and proteins b) Nucleic acids and carbohydrates c) Nucleic acids and lipids d) Only nucleic acids				14
	2)	The linker DNA is associated with a) H2A c) H3		H2B		
	3)	Genetically inactive areas of chromosor a) Euchromatin c) Allochromosome	b)	are called Heterochromatin Telomere	·	
	4)	The intervening nucleotide sequences in a) Exons c) Histones	b)	NA are called Codons Introns		
	5)	Monosomic condition is represented by a) 2n+1 c) 2n-2	b)	2n-1 2n+2		
	6)	An individual with chromosomes compli syndrome. a) Turner c) Edwards	b)	nt 47,XXY is known as Klinefelter Down		
	7)	The sex ratio of a normal female in Dros a) 0.5 c) 1.5	b)	nila is 1.0 0.2		
Q.2	Wł	nat is nucleosome? Describe how eukary	otic/	genome is packed?		14
Q.3	a)	swer the following. Describe the molecular basis of cellular RFLP.	che	ck points during cell cy		07 07
Q.4	a) b)	plain the following. Describe cytogenetic effects of ionizing Transposable elements and their feature Automated Karyotyping.		ation.	(05 05 04

SI	R.	.M	T-	.65	27
OL	- LJ -	· IVI		'U() I

Q.5	Explain in short :a) Chromosomal Structural aberrations.b) Sanger di deoxy method of DNA Sequencing.	07 07
Q.6	 Write short notes on any four of the following: a) Transformation in bacteria. b) Genetic imprinting. c) C-value paradox. d) Telomere. e) Yeast genome. f) PKU. 	14

Seat	Set	D
No.	Set	

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017 Zoology BIOCHEMISTRY

	BIOCHEMISTRY	
•	& Date: Saturday, 18-11-2017 Max. Mark : 02.30 PM to 05.00 PM	s: 70
Instr	uctions: 1) Question number 1, 2 and 6 are compulsory. 2) Attempt any two from Question No. 3,4 and 5	
Q.1	Rewrite the following sentence by choosing the most correct alternative given below: 1) The glycan strand of peptidoglycan is made up of and a) N-acetylglucosamine, N-acetylgalactosamines b) N-acetylglucosamine, N- acetylmuramic acid c) N-acetylgalactosamine, N- acetylmuramic acid d) N- glucosamine, N-galactosamines	14
	 2) is complex is used to load the miRNA onto mRNA. a) DICER b) RISC c) σ-factor d) Ribosomes 	
	 3) The entropy of universe always increases is explained by law of thermodynamics. a) Zeroth b) First c) Second d) Third 	
	4) Citrate is broken down to Acetyl CoA and Oxaloacetate in cytoplasm by a) Citrate lyase b) Citrate synthese c) Acetyl CoA synthese d) Aldolase	
	5) NADPH is produced in pathways. a) Glycolysis b) Purine biosynthesis c) Pentose phosphate d) TCA cycle	
	6) is common co-enzyme in amino acid metabolism. a) Biocyatin b) Folic acid c) UDP d) Pyridoxal phosphate	
	7) The catalysts enhance reaction rates by lowering energies. a) Activation b) Binding c) Gibb's free d) Free	
Q.2	Long Answer Type question Describe in detail the methods and applications of enzyme immobilization.	14
Q.3	Answer the following a) Discuss the reactions of glycolysis. b) Explain in detail β -oxidation of fatty acids.	07 07
Q.4	Explain the followinga) Structure of DNA.b) Energy conservation and release.c) Biosynthesis of pyrimidine.	05 05 04

Q.5	Explain in short:a) Electron transport chain involved in oxidative phosphorylation.b) Site-directed mutagenesis.	07 07
Q.6	 Write short notes on any four of the following: a) t-RNA b) Hydrogen bonding c) Energetics of TCA d) Hypoxia e) Abzymes f) Models of cooperativity 	14

Seat	Sat	D
No.	Set	

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017 Zoology COMPARATIVE ANIMAL PHYSIOLOGY

•		ate: Tuesday, 21-11-2017 30 PM to 05.00 PM			Max. Marks: 70
Instr	ucti	ions: 1) Question number 1, 2 and 6 are 2) Attempt any two from Question		•	
Q.1		ultiple choice questions(Per question : Uricotelic animals excrete nitrogenous v a) Urea c) Guanine	vas b)	•	14
	2)	Labor pain is caused due to a) FSH c) Thyroid		Oxytocin LH	
	3)	HCL secretions in stomach are stimulat a) Gastrin c) Somatostatin	b)	by: Acetylcholine None of the above	
	4)	In circulatory system maximum surface a) Veins c) Arterioles	b)	a is seen in: Capillaries Arteries	
	5)	Ultra filtration is occur in a) Glomerulus c) Collecting duct	,	Pyramid PCT	
	6)	Which of the following gases is diffusion a) O ₂ c) CO ₂	b)	nited? CO N₂O	
	7)	Maximum oxygen is extracted from bloca) Brain c) Kidney	b)	oy: Liver Heart	
Q.2	Ex	plain physiology of muscle contraction			14
Q.3	a)	nswer the following Describe Communication in bees. Write note on Bohr's effect.			07 07
Q.4	a) b)	plain the following Write a note on circadian rhythms. Describe the bioluminescence. Write a note on isoenzymes (LDH)			05 05 04
Q.5	a)	nswer the following Explain the thermoregulation in poikiloth Write a note on chromatophores.	nerr	nic animals.	07 07

Q.6 Write short notes on any four of the following: a) Neural regulation of respiration b) Osmoregulation c) Physiological significance of sleep d) Types of receptors

- e) Neurotransmitters
- f) BMR

Seat	Set	D
No.	Set	

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017 Zoology ECONOMIC ENTOMOLOGY

	LOCITO	mio Livi Oil	iolog i		
•	& Date: Tuesday, 21-11-2017 : 02.30 PM to 05.00 PM			Max. Marks: 70)
Instr	uctions: 1) Question number 1, 2 2) Attempt any two from				
Q.1	Multiple choice questions(Per question 2 marks): 1) Lac is secreted by gland.			14	ļ
	a) Dermal glandc) Malpighian tubules	•	Salivary gland Hepatic caecae.		
	2) Rock bee is species ofa) Apis indicac) Apis melifera	b)	Apis dorsata Apis florea		
	3) Silk protein composed ofa) Carbohydratesc) Glycoprotein	b)	Fibro-sericin Fattiacids		
	4) Anopheles transmits a) Malaria c) Yello fever	b)	Filarial Rifty fever		
	5) Borers are found ina) Leafc) Flower	b)	Legume Fruits		
	Pediculus is of human a) Endoparasite c) Ectoparasite	b)	Facultative Obligatory		
	7) Beetles include n order a) Hymenoptera c) Diptera	b)	Isoptera Coleoptera		
Q.2	Long answer type question (C Describe in detail integrated pes		t in insect.	14	ļ
Q.3	Answer the followinga) Tics and mites.b) Paddy grass hopper.			07 07	
Q.4	Explain the followinga) Brinjal fruit borer.b) Modern bee hive.c) Role of termites.			05 05 04	5
Q.5	Explain in short: a) Hadda beetle b) Culex mosquito as a vector			07 07	

Q.6 Write short notes on any four of the following:

- a) Pheromones
 b) Fumigants
 c) Khapra beetle
 d) Pediculus humanis
 e) Grass hopper
 f) Blow flies

Seat	Sat	D
No.	Set	

M.Sc. (Semester - III) (Old) (CBCS) Examination Oct/Nov-2017 Zoology MOLECULAR CYTOGENETICS

		MOLECULAR CY		GENETICS	
•		ate: Thursday, 16-11-2017 30 PM to 05.00 PM			Max. Marks: 70
Instr	ucti	ions: 1) Question number 1, 2 and 6 ar 2) Attempt any two from Question		•	
Q.1		Iltiple choice questions. (Per question In Eukayotes Chromatin is formed of _a) Nucleic acid and proteins b) Nucleic acids and carbohydrates c) Nucleic acids and lipids d) Only nucleic acids		•	14
	2)	Nucleosome core particle is a a) Tetramer c) Octamer	b)	of basic histones. Hexamer Decamer	
	3)	Genetically inactive areas of chromoso a) Euchromatin c) Allochromosome	b)	are called Heterochromatin Telomere	·
	4)	The intervening nucleotide sequences a) Exonsc) Histones	b)	NA are called Codons Introns	<u>_</u> .
	5)	Monosomic condition is represented b a) 2n+1 c) 2n-2	b)	2n-1 2n+2	
	6)	An individual with chromosomes company syndrome. a) Turner c) Edwards	b)	nt 47,XXY is known as Klinefelter Down	
	7)	"Buckle out" or compensation loop in r formed during a) Duplication c) Translocation	b)	al homologous chromo Deletion Inversion	some is
	8)	is virus – medicated bacte a) Transformation c) Transduction	b)	ONA transfer to genetic Conjugation Translocation	material.
	9)	The sex ratio of a normal female in Dra a) 0.5 c) 1.5	b)	hila is 1.0 0.2	

Q.2 What is nucleosome? Describe how eukaryotic genome is packed?

Q.3	Answer the following.	
	a) Describe the molecular basis of cellular check points during cell cycle.	07
	b) Describe the Genic balance theory of sex determination?	07
Q.4	Explain the following.	
	a) Describe cytogenetic effects of ionizing radiation.	05
	b) Transposable elements and their features.	05
	c) FISH.	04
Q.5	Explain in short :	
	a) Chromosomal numerical aberrations.	07
	b) DNA Sequencing by Sanger.	07
Q.6	Write short notes on any four of the following:	14
	a) Transformation in bacteria.	
	b) Imprinting.	
	c) C-value paradox.	
	d) Centromere.	
	e) Yeast genome.	
	f) Sickle cell anaemia.	

Seat	
No.	

M.Sc. (Semester - III) (Old) (CBCS) Examination Oct/Nov-2017 Zoology BIOCHEMISTRY

	2.00.12.11.01.11.	
•	& Date: Saturday, 18-11-2017 Max. Marks : 02.30 PM to 05.00 PM	: 70
Instr	uctions: 1) Question number 1, 2 and 6 are compulsory. 2) Attempt any two from Question No. 3,4 and 5	
Q.1	Rewrite the following sentences by choosing the most correct alternative given below: 1) According to IUB nomenclature system the lyase enzymes fall in class. a) First	14
	2) The reactions of fatty acid synthesis occurs in a) Cytoplasm b) Mitochondrial matrix c) Smooth endoplasmic reticulum d) Cytoplasm and smooth endoplasmic reticulum	
	3) Glycogen phosphorylase hydrolyses glycosidic bond. a) α - 1,6 b) α - 1,4 c) β - 1,6 d) β - 1,4	
	4) is an example of uncoupler. a) Dinitrophenol b) Cyanide c) Azide d) Antimycin A	
	5) Subtilisin is an enzyme used in laundry is modified by a) Metabolic engineering b) Enzyme engineering c) Immobilization d) Covalent modification	
	6) The net gain of ATP in a cell under aerobic condition is ATP. a) 32 b) 28 c) 7 d) 5	
	7) Histamines are produced by recation of histidine. a) Transamination b) Deamination c) Decarboxylation d) Transketonation	
Q.2	Long Answer Type questions. Discuss in detail metabolic engineering.	14
Q.3	Answer the followinga) Explain in detail reactions of glycolysis.b) Describe in detail electron transport chain.	07 07
Q.4	Explain the followinga) Polysaccharides.b) Energy conversation and release.c) Ribozymes.	05 05 04

Q.5	Explain in short :a) Derivation of Michaeli's-Menten equation.b) Redox potential	07 07
Q.6	 Write short notes on any four of the following: a) Tertiary structure of protein. b) Biological energy transducers. c) Hypoxia. d) Energetic of TCA cycle. e) Micro-RNA. f) Phospholipids. 	14