

Seat	
No.	

M.Sc. - I (Semester - I) (New C.B.C.S.) Examination, 2016

			_OGY cs (Paper – I)	,	
•	d Date : Tuesday, 10.30 a.m. to 1.00			Total Marks :	70
		1) Question numb 2) Attempt any tw	•	•	
1. MC	Q (Per question 2	2 marks) (Compuls	sory):		14
1)		an important advar of variability and a		phylogenetic research ion.	
	a) Nuclear DNA		b) Mt DNA		
	c) rRNA		d) None of thes	е	
2)	The ICZN stands	s for			
	a) International	Code of Botanical N	lomenclature		
	b) International	Code of Zoological	Nomenclature		
	c) International	Code of Viral Nome	enclature		
	d) International	Code of Zoo Nome	nclature		
3)		on of the evolutioned as	•	relationships among	
	a) Phylogeny	b) Phenetic	c) Cladistic	d) Synthetic	
4)	The term species	s was coined by			
	a) Engler	b) Linnaeus	c) Aristotle	d) John Ray	
5)		ssification of speci logenetic diversity		d populations are the	
	a) Evolution		b) Genetic		
	c) Phylogenetic		d) None of thes	е	



		ogy dealing with the relationships and omparative studies of chromosomes.	
	a) Chemotaxonomy	b) Molecular taxonomy	
	c) Cytotaxonomy	d) Morphological taxonomy	
	 7) The correct sequence of taxa is a) Class – Order – Family – Genus b) Class – Order – Tribe – Family – c) Phylum – Order – Class – Tribe d) Phylum – Tribe – Class – Order 	s – Species – Genus – Species – Genus	
2.	Long answer type question. (Compulso Describe the mechanism of speciation	• /	14
3.	A) Answer the following. Historical resume of systematics.		7
	B) Answer the following. Molecular taxonomy.		7
4.	Explain the following.		
	A) Basic concepts of Taxonomy		5
	B) Dimensions of Speciation		5
	C) Hierarchy of categories.		4
5.	A) Explain in short. History of Biosystematics.		7
	B) Explain in short. Merits and demerits of taxonomical	keys.	7
6.	 Write short notes (any four) (Compuls 1) Construct the phylogenetic trees. 2) Levels of structural organization of t 3) Immunological techniques. 4) DNA-DNA hybridizations. 5) Cytotaxonomy. 6) Keys in taxonomy. 		14



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M.Sc. – I (Semester – I) Examination, 2016 (New C.B.C.S. Pattern) ZOOLOGY Tools and Techniques in Biology (Paper – II

10015 and 1	echniques in biology (Paper – ii)	,
Day and Date: Thursday, 31-3-	-2016	Total Marks: 70
Time: 10.30 a.m. to 1.00 p.m.		
•	n number 1, 2 and 6 are compulsory . any two from question number 3, 4 and	15 .
1. MCQ (Per question 2 mark	(s):	14
1) To enter or leave a cell,	substances must pass through	
a) microtubule	b) the Golgi apparatus	
c) a ribosome	d) the plasma membrar	ne
would	ryotic; in comparison to a typical eukary	otic cell they
a) be smaller		
b) have a smaller nucle		
c) lack a plasma memb	nembranous compartments	
•	most appropriate procedure for preparing	a
for study.	nost appropriate procedure for preparing	9
•	are normally found tightly attached to	neighbouring
b) cells without a function	onal cytoskeleton	
c) isolated organelles		
d) none of the above		
4) The radicals ofgel.	_are polymerized during preparation of po	olyacrylamide
a) acrylamide	b) N-N '-methylene-bis-	-acrylamide
c) TEMED	d) riboflavin	



	5)generates free radicals of	f acry	/lamide.	
	a) TEMED		Acrylamide	
	c) Ammonium persulphate	d)	Agarose	
	6) The index or extent of electrophoretic r	run is	s indicated by	
	a) bromophenol blue	b)	acrydine orange	
	c) methylene blue	d)	methyl green	
	 Sample dissolved in glycine chloride begel buffer exists as zwitterion. 	buffe	r at pH 8-9 in the upper	
	a) chloride	b)	protein sample	
	c) glycine	d)	both (a) and (b)	
2.	Long answer type question:			14
	1) What is chromatography? Describe in its applications.	TLC	and column chromatography and	
3.	Answer the following:			
	A) Electron Microscope – SEM.			7
	B) Freez Drying.			7
4.	Explain the following:			
	A) Sub-cellular fractionation of Mitochond	dria.		5
	B) Importance of tissue culture.			5
	C) NMR.			4
5	Explain in short :			
Ο.	A) Use of cryotomy.			7
	B) FTIR.			7
	·			_
6.	Write short notes (any four):			14
	1) Proteomics			
	2) Cryopreservation of cells			
	3) Autoradiography			
	4) MALDI			
	5) Vectors			
	6) Cell fractionation.			
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c) Myosin

M.Sc. – I (Semester – I) Examination, 2016 (New CBCS Pattern) ZOOLOGY Cell and Molecular Biology (Paper – III)

Day and	d Date : Saturday, 2-4-2016		Total Marks	: 70
Time: 1	0.30 a.m. to 1.30 p.m.			
Ins	tructions: 1) Question numbe	r 1 , 2	2 and 6 are compulsory.	
	2) Attempt any two	froi	m question number 3 , 4 and 5 .	
1. MC	Q (Per question 2 marks) :			14
1) I	Lysosomes contain enzymes that	at c	an	
,	a) Lower the pH of the cytosol	b)	Synthesize protein	
(c) Synthesize ATP	d)	Degrade many type of cellular molecule	
,	Which of the following cell compo cell ?	ner	nts is not part of cytoskeleton of eukaryotic	
į	a) Microfilament	b)	Mitochondria	
(c) IF	d)	Microtubules	
3) /	A signal sequence is located at t	he		
i	a) N-terminus	b)	C-terminus	
(c) Cytosolic face of ER	d)	5' end of m-RNA	
,	Actin filaments in motor element generate cell motion in	s ce	ell can depolymerise and repolymerise to	
i	a) Days	b)	Hours	
(c) Minutes	d)	1-2 milliseconds	
5) I	Microfilaments are composed of			
;	a) Actin	b)	Actin and Myosin	

d) Cellulose

SLR-MN - 645 6) Compared to the microfilaments, intermediate filaments are a) Less stable in detergent and high salt b) Always less abundant regardless of cell type c) More easily dissociated by cytochalasin d) More cell type specified 7) The region of the cell with in the plasma membrane, but outside of organelles is the a) Cytosol b) Matrix c) Vacuole d) Nucleoplasm 14 2. Long answer type question: 1. Give an account on Cytoskeleton. 3. Answer the following: A) Structure and dynamics of Microfilaments. 7 B) Chemical synapses. 7 4. Explain the following: 5 A) Cancer cell morphology and properties B) Flagella: Structure and Dynamics 5 C) Lysosomal assembly and functions. 4 5. Explain in short: A) Cell matrix and cell matrix adhesion 7 B) Actin-binding proteins. 7 6. Write short notes (any four): 14 1) Membrane proteins and other proteins in ER 2) Biogenesis of mitochondria 3) Cell junctions 4) Centriole 5) Biology of Cancer 6) Collagens.



M.Sc. – I (Semester – I) Examination, 2016 (New C.B.C.S. Pattern) ZOOLOGY

		DLOGY nd Evolution (Paper – I\	/)
•	Date : Tuesday, 5-4-2016 .30 a.m. to 1.00 p.m.		Total Marks: 70
Ins	structions: 1) Question numbe 2) Attempt any two	r 1, 2 and 6 are compulsory . from question number 3, 4 a	nd 5 .
1. MCQ	(Per question 2 marks) :		14
-	lembers of the same species wescribed as a(n):	hich are capable of interbree	eding is best
a)) Community	b) Population	
C)) Ecosystem	d) Biosphere	
eo a) b) c)	Which of the following would cause quilibrium? Small population Isolated Random mating Lack of selection pressure no reserved.		einberg
•	he total aggregate of alleles in a	•	
•) The gene pool	b) The allelic frequency	
) The genotypic frequency	-	
,	he effects of natural selection ma	•	
•) Gene flow	b) Genetic drift	
C)) Mutation	d) Inbreeding	
5) M	lating with relatives is called		
a)) Inbreeding	b) Outcrossing	
c)) Random mating	d) Clines	

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	6) The random loss of alleles in a po	pulation is called	
	a) Mutation	b) Selection	
	c) Genetic drift	d) Electrophoresis	
	7) What is the ultimate source of general This is the correct answer	netic variability ?	
	a) Mutation	b) Migration	
	c) Genetic drift	d) Selection	
2.	Long answer type question:		14
	Give an account on the role of Genor	nic studies and its use in Biodiversity.	
3.	Answer the following:		
	A) Describe in detail Migration of bird	ls.	7
	B) Give an account on Microevolution		7
1	,		
4.	Explain the following:		_
	A) Loss of genetic variation.		5
	B) Phylogenetic gradualism.		5
	C) Applications of Hardy-Weinberg e	quation.	4
5.	Explain in short :		
	A) Sympatric speciation.		7
	B) Allopatric speciation.		7
6.	Write short notes (any four):		14
	1) Natural Selection and its parameter	ers	
	2) Reproductive isolation		
	3) Assessment of molecular variation	1	
	4) Estimation of heritability		
	5) Neo-Darwinism		
	6) Meiotic drive.		
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M.Sc. – I (Semester – II) Examination, 2016 Paper – V (New CBCS) ZOOLOGY Computational Biology

		ZOOLOGY Computational Biology	
-	nd Date : Wednesd 10.30 a.m. to 1.00	•	: 70
	-	nswer any two questions from Q. 3 , 4 and 5 .	
1. Mu	ultiple choice ques	stions (per question 2 marks) :	14
i)	The table giving	the frequencies for different class interval is known as	
	a) Mean	b) Frequency table	
	c) Median	d) Bivariate table	
ii) is defined as the value of the middle observations when arranged in order of their magnitude.			
	a) Median	b) Mean	
	c) Mode	d) None of the above	
iii)	by number of obs	s defined as sum of all observations in the distribution divided servations.	
	a) Mean	b) Median	
	c) Mode	d) None of the above	
iv)	If we divide the di	istribution into 100 equal parts, the points of division are	
	a) quartile	b) percentile	
	c) decile	d) none of the above	
v)		tained by taking classes on X axis and corresponding g Y axis is called	
	a) Polygon	b) Histogram	
	c) Frequency cur	ve d) Ogive curve	



	vi)	Coefficient of corr	elation lies withir	າ	_	
		a) – 1 to +1		b) 0 to 1		
		c) -1 to 0		d) none of the	above	
	vii)	Highly –ve correla	ation can be dete	ermined if value of	ris	
		a) -0.64	b) -0.42	c) - 0.52	d) - 0.99	
2.	De	efine correlation. S	tate the formula	for Karl Pearson	coefficient of correlation.	14
3.	Ar	nswer the following	j:			
	A)	Write a note on hi	istogram.			7
	B)	Define coefficient	t of variation.			7
4.	Ex	plain the following	l:			
		Requisites of goo				5
	•	Measures of cent	•			5
	,	Chi square test.	,			4
5		•				
J.		plain in short : Hypothesis test.				7
		Student t-test.				7
	ט)	Student t-test.				,
6.	W	rite short notes on	any four of the	following :		14
	i)	Frequency distrib	ution			
	•	Graphical represe	entation with pie	chart		
	iii)	ANOVA				
	iv)	Elements of proba	ability			
	v)	Normal Distribution	on			
	vi)	Sequencing analy	ytical techniques	for DNA.		



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M.Sc. - I (Semester - II) Examination, 2016 (New CBCS) **ZOOLOGY**

	General an	d Comparative	e Er	idocrinology (F	aper – vi)	
Day ar	nd Date : Friday, 1-	-4-2016			Max. Marks: 7	70
Time:	10.30 a.m. to 1.00) p.m.				
In	structions: 1) Qa 2) At		-	nd 6 are compuls question number 3		
1. M	CQ (Per question 2	2 marks) (Compu	ılsoı	r y) :	1	14
1)	Lactogenic hormo	one inhibits		_development.		
	a) Liver	b) Gonadal	c)	Pancrease	d) Brain	
2)	Sub-oesophagea	l ganglion is respo	onsib	ole for		
	a) Pigmentation	b) Growth	c)	Death	d) Excretion	
3)	Ecdyosone horm	one is secreted by	/			
	a) Corpus cardia	cum	b)	Sorporallata		
	c) Thoracic gang	llion	d)	Abdominal gangli	ion	
4)	Vasopressin is se	ecreted by		pituitary gland.		
	a) Anti-lobe	b) Post-lobe	c)	Vertical	d) Parallel	
5)	MSH secretion is	controlled by		hormone.		
	a) LH		b)	Catacholamine		
	c) Insulin		d)	Parathyroid		
6)	Over production o	of GH hormone du	uring	early post natal de	evelopment leads to	
	a) Blindness	b) Dumb	c)	Gigantism	d) Infertility	
7)	Steroidogenic tiss profoundly affects	•			of steroid hormones	
	a) Lipid		b)	Carbohydrate an	d mineral	
	c) Protein		d)	Fat		



2.	Long answer type question (Compulsory):	14
	Describe in detail biosynthesis of amino acid derivatives of steroid hormones.	
3.	Answer the following:	
	A) Role of parathyroid hormones (in calcium homeostasis).	7
	B) Islets of Langerhans.	7
4.	Explain the following:	
	A) Juvenile hormone.	5
	B) Role of ACTH.	5
	C) Menstrual cycle.	4
5.	Explain in short.	
	A) Classification of hormones.	7
	B) Role of FSH in migration.	7
6.	Write short notes any four (Compulsory):	14
	1) Role of LH.	
	2) Role of MSH.	
	3) Function of oestrogen.	
	4) Prostaglandins.	
	5) Role of calcitonin.	
	6) Role of androgen.	



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M.Sc. – I (Semester – II) Examination, 2016 ZOOLOGY (New) (CBCS Pattern) Paper – VII: Developmental Biology

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•	d Date : Monday, 4- 10.30 a.m. to 1.00 p					Total Marks:	70
ı	Instructions: 1) Q 2) A	o. 1 , Q. 2 and Q. 6 a ttempt any two fro					
1. MC	CQ (per question 2 r	narks) :					14
1)	Superficial cleavag	e is seen in					
	a) isollecithal		b)	centrolecithal			
	c) telollecithal		d)	mesollecithal			
2)	Bottle cells are form	ned during the gast	rula	ation of			
	a) amphibians	b) birds	c)	echinoderms	d)	mammals	
3)	Micropyle is found i	n the eggs of					
	a) insects	b) birds	c)	echinoderms	d)	mammals	
4)	Trophoblast cells in	n mammals give rise	e to				
	a) yolksac	b) allantois	c)	chorion	d)	amnion	
5)	The technique of p replacing the nucle cell from the organ	us of an unfertilized	•			•	
	a) Test tube baby		b)	Cloning			
	c) In vitro fertilizat	ion	d)	All a), b) and	c)		
6)	The anterior – poste	erior axis is specified	l in -	-during oogene	esis	of	
	a) Amphioxus	b) Drosophila	c)	Echinoderms	d)	Mammals	
7)	Primitive streak is f	ormed during the d	eve	lopment of			
	a) reptiles	b) birds	c)	mammals	d)	all of the above	

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2.	Describe in detail the process of gastrulation in frog.	14
3.	Answer the following: A) Acrosome reaction. B) Structure of amphioxus egg.	7
4.	Explain the following: A) Cloning with an example. B) Blastulation in chick. C) Regulation of limb development.	5 5 4
5.	Explain in short: A) How anterior – posterior axis is specified in Drosophila? B) Apoptosis with reference to development of fingers and toes.	7
6.	Short notes (any four): 1) Embryonic Stem cells 2) Oogenesis 3) Cleavages in Chick 4) Cortical reaction 5) Capacitation 6) Fertilisation.	14



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M.Sc. – I (Semester – II) (New CBCS Pattern) Examination, 2016 ZOOLOGY Environmental Physiology (Paper – VIII)

Day and Date: Wednesday, 6-4-2016 Total Marks: 70

Time: 10.30 a.m. to 1.00 p.m.

Instructions: 1) Question 1, 2 and 6 are compulsory.

- 2) Attempt any 2 questions from questions 3, 4 and 5.
- 3) Draw neat labelled diagram wherever necessary.
- 4) Figures to the **right** indicate marks.
- 1. Multiple Choice Questions (Rewrite the sentence with correct answer): 14
 - 1) The term homeostasis in relation to temperature is defined as
 - A) Maintenance of processes to increase the body temperature
 - B) Maintenance of processes to keep a constant body temperature
 - C) Maintenance of processes to keep the skin cool
 - D) None of the above
 - 2) Identify the term that describes what happens to blood vessels when an animal is hot
 - A) Vasoconstriction

B) Vasodilatation

C) None of the above

- D) All the above
- 3) The equipment used for taking an animal's temperature
 - A) Stethoscope

B) Sphygmomanometer

C) Thermometer

- D) None of the above
- 4) Which of the following plays the biggest role in maintaining Homeostasis?
 - A) The liver
 - B) The gall bladder
 - C) The pancreas
 - D) The pancreas and gall bladder are tied



	5) Having abnormally hig which of the following of	,	cose in the blood s	tream can result in	
	•		C) Homeostasis	D) Conjunctivitis	
	6) An enzyme in the stom	nach that break	s down protein		
	A) Amylase B)	Pepsin	C) Lugols	D) Benedicts	
	7) What is the harm fromA) The average tempeB) The oxygen contentC) Increased amount of	erature of earth' t of the atmospl	s surface will increa nere will decrease	ase gradually	
	D) Sea levels will rise				
2.	Write an account on conce	ept of homeost	asis.		14
3.	Answer the following:				
•	A) Environmental stress of	due to noise.			7
	B) BMR.				7
4.	Explain the following:				
	A) Cellular level adaptatio	n.			5
	B) Blood pressure.				5
	C) Industrial health hazard	d.			4
5.	Explain in short :				
	A) Fatigue				7
	B) ECG.				7
6.	Short note (any four):				14
	A) Causes of stress				
	B) Structure of mammalia	ın heart			
	C) Neural regulation of res	spiration			
	D) Mechanism of adaptation	on			
	E) Space physiology				
	F) Occupational diseases	S.			



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M.Sc. - II (Semester - III) (CGPA Pattern) Examination, 2016

	•	ZOOLOGY	/ii, 2010
	Paper – IX :	Molecular Cytogenetics	
-	d Date : Tuesday, 29-3-2016 2.30 p.m. to 5.00 p.m.		Total Marks : 70
ı	Instructions: 1) Q. 1 and Q. 2) Attempt an y	2 and Q. 6 are compulsory . y two from Q. 3 , 4 and 5 .	
1. Sel	ect the correct alternative. (P	er question 2 marks) :	14
1)	The non-coding sequences of	on mRNA is called as	
	a) AUG sequence	b) AUU sequence	
	c) Exon	d) Intron	
2)	is a technique u	used in molecular cytogenetics.	
	a) Northern blotting	b) Southern blotting	
	c) Western blotting	d) Karyotyping	
3)	RNAs that catalyze self-splic	cing introns are known as	
	a) Small non-coding RNAs		
	b) mRNAs		
	c) Both coding and non-codi	ing RNAs	
	d) Ribozymes		
4)	Fully processed mRNA in the	e eukaryotic nucleus is obtained a	fter
	a) Pre transcription of mRN/	A b) Post transcriptional mod	difications
	c) Only splicing	d) Only capping	



	5)	Cytogenetic mapping	
		 a) Requires that the gene have been cloned if in situ hybridization is to be used 	
		b) Is a high resolution method of gene localization	
		c) Can be used to determine relative order of genes located	
		d) All of the above	
	6)	Bacterial DNA is free from	
		a) intron b) exon c) a) and b) d) none of the above	
	7)	Transposons are also called as	
	,	a) Jumping genes b) Transposable elements	
		c) Mobile genetic element d) All the above	
2.	Giv	ve an account on sex determination and dosage compensation in humans.	14
3.	A)	Explain the techniques in human chromosome analysis.	7
	-	Explain the use of plasmids.	7
4.	A)	Explain Chromosome painting technique.	5
		Explain C_value paradox.	5
	•	What is Genomic library ?	4
5	•	Explain the cytogentic implications of numerical alterations of chromosomes.	7
٥.		Explain the genetics of PKU.	7
_	,		
Ö.		ite note on (any four):	14
	-	Application of RFLP	
	,	Restriction endonuclease	
	-	Genomic hybridization	
	-	Transposition	
	-	DNA Sequencing	
	6)	Cell cycle.	



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M.Sc. (Part – II) (Semester – III) (C.G.P.A.) Examination, 2016

		Biochemi Paper No.	istry		
Day an	nd Date : Tuesday,	5-4-2016			
Time :	2.30 p.m. to 5.00 p	o.m.		Max. Marks:	70
	Instruction: Att	empt any two from q	uestion number 3 , 4 a	and 5 .	
	ewrite the following low (Each carries	sentences by choosi two marks) :	ng the most correct a	Iternative given	14
i)	The standard free Kcal/mole.	energy change of hyd	rolysis of ATP to ADP	is	
	a) -35	b) -30.5	c) -15.7	d) -7.3	
ii)	coen	zyme is involved in el	ectron transfer reacti	ons.	
	a) TPP		b) Cobamide		
	c) NAD+		d) Terahydrofola	te	
iii)	The first electron a	acceptor in electron tr	ansport chain from N	IADH is	
	a) FAD	b) Ubiquinone	c) Cytochrome	d) FMN	
iv)	On net gain of AT	P on β -oxidation paln	nitic acid is		
	a) 100	b) 106	c) 120	d) 136	
v)	The most importa	nt epimer of glucose i	S		
	a) Galactose	b) Xylose	c) Arabinose	d) Fructose	
vi)	The enzyme inhib	ition in which Km incre tion.	eases and Vmax rema	ains constant is	
	a) Competitive		b) Uncompetitive	e	
	c) Non-competitive	/e	d) Mixed type		
vii)	Electron transport	chain takes place	of mitochor	ndria.	
	a) Inside matrix		b) In inner memb	orane	
	c) In outer member	rane	d) Inside inter-m	embrane space	



2.	Long answer type question : Describe in detail the IUB classification and nomenclature system of enzymes.	14
3.	Answer the following:	
	A) Discuss the metabolic regulation during hypoxia.	7
	B) Explain in detail pyrimidine biosynthesis pathway.	7
4.	Explain the following:	
	A) Redox potential.	5
	B) Oxidative phase of pentose phosphate pathway.	5
	C) tRNA.	4
5.	Explain in short :	
	A) Structure and role of polysaccharides.	7
	B) Biosynthesis of triacylglycerol.	7
6.	Write short notes (any four):	14
	1) Abzymes.	
	2) Hydrogen bonding.	
	3) Aromatic amino acids.	
	4) A-DNA.	
	5) Concept of free energy.	
	6) Allosteric enzymes.	

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M.Sc. - II (Semester - IV) Examination, 2016

	ZOOLOGY (C.G Paper – XIII:Anim	•	
-	d Date : Wednesday, 30-3-2016 2.30 p.m. to 5.00 p.m.	Total Marks	: 70
	Instructions: 1) Q. 1 and Q. 2 and 2) Attempt any two		
1. Sel	ect the correct alternative. (Per quest	ion 2 marks)	14
1)	contamination in cell cu	lture is difficult to control.	
	a) Fungal	b) Bacterial	
	c) Mycoplasmal	d) All of the above	
2)	Platelets are the cell fragments, lac	king a nucleus, that breaks off from a	
	a) macrophage	b) megakaryocyte	
	c) erythrocytes	d) monocyte	
3)	The lac operon encodes three enzyme	s required for the metabolism of	
	a) glucose b) maltose	c) fructose d) lactose	
4)	RNA polymerase II transcribes		
·	a) small non coding RNAs	b) mRNAs	
	c) both coding and noncoding RNAs	d) all the above	
5)	is a technique widely udetect specific proteins in tissue same	used in molecular biology research to	
	a) Northern blotting	b) Southern blotting	
	c) Western blotting	d) All the above	
6)	DNA sequencing method using the chemethod.	nemical is generally called as	
	a) Sanger-Coulson	b) Maxam-Gilbert	
	c) Enzymatic	d) Dideoxy	



	•	technique which enables selective as the	mp	lification of DNA sequence is known	
		Amplification technique PCR	,	Hybridization technique All the above	
2.	What	is central dogma? Explain with refe	erer	nce to protein synthesis.	14
3.	,	xplain the principle and technique of xplain principle and working of PCR.	nuc	eleic acid hybridization.	7 7
4.	В) Ех	rite note on DNA methylation. cplain mechanism of transposition. mbryonic stem cells.			5 5 4
5.		xplain regulation of gene expression xplain structure of mRNA.	in p	prokaryotes.	7 7
6.	1) E	note on (any four) : Ethical issues in human cloning and b Heterochromatin.	oiot		14
	4) F 5) F	ransposones. Ribonucleoprotein. RNA splicing. DNA methylation.			



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M.Sc. (Part – II) (Semester – IV) Examination, 2016 ZOOLOGY (Paper – XIV) (CGPA) Applied Zoology

Day and Date: Friday, 1-4-2016 Total Marks: 70

Time: 2.30 p.m. to 5.00 p.m.

Instructions: 1) Question 1, 2 and 6 are compulsory.

- 2) Attempt any two questions from questions 3, 4 and 5.
- 3) Answers to the Sections I, II and III are to be written in the same answer book.
- 4) Draw neat labeled diagrams wherever necessary.
- 5) Figures to the **right** indicate marks.

SECTION-I

1.	1)	The protein	is prim	arily responsible for	stimulating platelet	14
		a) Globulin	b) Albumin	c) Keratin	d) Fibrinogen	
	2)		_ is nutrient rich, na	atural fertilizer and s	soil conditioner.	
		a) Urea		b) Indoleacetic ac	id	
		c) Vermicompost		d) All above		
	3)		_ is an antiglobular	test.		
		a) Widal	b) ELISA	c) RIA	d) Coombs test	
	4)	Cryopreserved gam	netes or embryos a	re frozen and maint	ained under	
		a) Liquid nitrogen		b) Liquid paraffin		
		c) DMSO		d) Frozen ice		
	5)	The process of bloofollowing repair of the	•	•		
		a) Hemostasis		b) Homeostasis		
		c) Fibric clot		d) Fibrosis		

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	6)	is a common prer amniotic fluid surrounding the fetus is	natal test in which a small sample of the removed and examined.
		a) Amniocentesis	b) ELISA
		c) HIV	d) All above
	7)	Ex situ conservation of genetic materi	_
		a) Conservation	b) Cryopreservation
		c) Communication	d) Preservation
		SECTIO	N – II
2.	Wr	ite an essay on 'Biological Warfare'.	14
3.	Ex	olain in short :	
	A)	Describe procedure of amniocentesis	and its application. 7
	B)	Give an account on collection and cryc	opreservation of gametes. 7
4.	Ex	olain in short :	
	A)	Humoral immunity.	5
	B)	Monoclonal antibody production.	5
	C)	Development of polyclonal sera.	4
5.		What is an antigen? Define antigenicital affect antigenicity.	ty and explain how various factors
	B)	Routine tests of blood for hepatitis.	7
		SECTIO	N – III
6.	Wr	ite short notes on any four of the follow	wing:
	1)	Chemical Composition of Semen	
	2)	Modern contraceptives	
	3)	Vermiwash	
	4)	IVF	
	5)	Vaccines for controlling diseases	
	6)	Important human parasites-protozoa.	
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Seat	
No.	

M.Sc. (Part – II) (Semester – IV) (CGPA) Examination, 2016 ZOOLOGY

Paper – XV : Env	/ironmenta	I Biology and	Toxicology
Day and Date : Monday, 4-4-201	6		Max. Marks : 70
Time: 2.30 p.m. to 5.00 p.m.			
3) Draw n	et any 2 ques eat labelled	are compulsory . tions from questic diagram whereve tindicate marks.	-
1. Multiple choice questions. F	or each unit	2 marks:	14
 Fluoride pollution mainly 	affects		
a) Kidney b) Brai	n c)	Heart d	l) Teeth
 2) Gas leaked in Bhopal gas a) Potassium iso thiocya b) Phytooxidants c) Methyl isocyanate d) Ethyl isocyanate 	• •	S	
3) Sound becomes hazardo	us at	decibels	
a) Above 30 b) Above	ve 80 c)	Above 20 d	l) Above 50
 4) Ozone layer of upper atm a) SO₂ c) Chlorofluorocarbon 	b)	eing destroyed by Photooxidants Smog	,
5) The study of interaction bea) Ecosystemc) Phytogeography	b)	organisms and en Ecology Phytosociology	vironment is called as



	6) The food chain in which microorga	nisms break down dead producers is called	
	a) Consumer food chain	b) Predator food chain	
	c) Parasitic food chain	d) Detritus food chain	
	7) Taj Mahal at Agra is damaged by		
	a) Sulphur dioxide	b) Chlorine	
	c) Hydrogen	d) Oxygen	
2.	Describe classification of toxicants, t	oxic agents, mode of action.	14
3.	A) Describe food chain and energy fl	ow in an ecosystem.	7
	B) Describe toxic agents in household	ld use.	7
4.	A) Explain in brief conservation of na	tural resources.	5
	B) Describe biology and ecology of p	ond water ecosystem.	5
	C) Describe the effects of noise pollu	ition.	4
5.	Explain in short :		
	A) Explain rain water harvesting syst	tem.	7
	B) Describe management of green ho	ouse.	7
6.	Short notes on any 4:		14
	1) Induced pisciculture.		
	2) Carcinogens.		
	3) Grassland ecosystem.		
	4) Biological indicators of pollution.		
	5) Carbon cycle.		
	6) Biomagnification.		



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M.Sc. (Part – II) (Semester – IV) Examination, 2016 ZOOLOGY (Paper – XVI) (CGPA) Zoo Keeping and Animal House Management

	Animal House Management
Day and Date: Wednesday, 6-4-2016 Time: 2.30 p.m. to 5.00 p.m.	Total Marks : 70
3) Answers to the S answer book. 4) Draw neat labele	6 are compulsory. The stions from questions 3, 4 and 5. The stions I, II and III are to be written in the same The diagrams wherever necessary. The indicate full marks.
	ECTION - I
 1. 1) Identification of missing zoo tigal a) Pug marks c) Band pattern and a photog 	b) Dentition
animals.	disease which infects domestic and wild rial c) Hematic d) Helminth
 3) It is difficult to keep King Cobra a) Food taking cobra is snaked b) King cobra refuses to feece c) King cobra needs a suitabed d) With other animals it become 	s only in captivity e partner
4) Visceral leishmaniasis (VL), aa) Kala azarc) Bird flue	o known as b) Sleeping sickness d) Mad cow disease
5) In India crocodile breeding cera) Kolkatac) Chilica lake	re is located in b) Chennai d) Tiruvanantpuram



	6) Cryopreservation involves storage of gamets in liquid nitrogen at	
	a) 0° C b) 5° C c) -196° C d) 100° C	
	 7) Taxidermy is a technique of a) Skinning the wild animal b) Skinning and stuffing the wild animal c) Preparing wild animal duplicates d) Arranging bones of wild animals in order 	
	SECTION - II	
2.	Give an account of Management of Water birds.	14
3.	Explain in short :	
	A) Bird feeds	7
	B) Laboratory Rat	7
4.	Explain in short :	
	A) Visitor rules regulations and surveillance in a zoo.	5
	B) Crocodile Conservation	5
	C) First aid to the zoo animals	4
5.	A) Discuss housing practices is common zoo Mammals. What special precautions are to be taken in keeping Elephants in Zoo?	7
	B) How to prevent infection of Reptilia?	7
	SECTION - III	
6.	Write short notes on any four of the following:	14
	1) Management of grain eater and birds.	
	2) Avian Diseases	
	3) Elephant and camel management	
	4) Conservation of Tigers	
	5) Veterinary services in zoo	
	6) Snake identification.	