Master of Science – I (Genetics) Examination: Oct / Nov 2016 Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ- 438	Wednesday 16/11/2016	10.30 AM to 01.00 PM	Concepts of Genetics	HCT-1.1	

Instructions:

- 1) Question 1 is compulsory.
- 2) From Section II attempt any four.
- 3) All question carry equal marks.
- 4) Figures to right indicate full marks.
- 5) Draw neat and labeled diagrams.

Q.1	A) Rewrite the following sentences by	e e e e e e e e e e e e e e e e e e e	07				
	1) When the chaiamata occur at two points in the same chromosome, the phenomenon is known as						
	a) Double crossing over	b) Single crossing over					
	c) Multiple crossing over	d) Point crossing over					
	2) The genes which always occupy called as	on same Loci of homologous chromosome are					
	a) Characters	b) Alleles					
	c) Dominant	d) Recessive					
	3) An ichthyosis hystrix gravis hypertrichosis is directly transmitted from father to son because						
	a) It is located on X chromosor	ne b) It is holandric genes					

- 4) UV effect can be reversed by exposing the cells to visible light is known as
 - a) Mutation

- b) Removal
- c) Photo reactivation
- d) Addition
- 5) Crossing over is advantageous because it bring about
 - a) Variation

b) Linkage

c) In breeding

- d) Stability
- 6) In spermatogenesis cells division takes place by
 - a) Reduction division
- b) Mitosis
- c) Educational division
- d) Meiosis
- 7) The name for a chromosome map unit is _

c) It is located on homologous part

a) Centimorgan

b) centistern

c) Millimendel

d) Decibarr

B) Answer the following terms:

- 1) Holandric genes
- 2) Multiple alleles
- 3) Synaptonemal complex
- 4) Linkage
- 5) Mutagene
- 6) Test cross
- 7) Polyplody

07

Total Marks: 70

d) It is located on autosomes

Section-II (Answer Any Four)

Q.2	Explain Mendle's law of independent assortment with suitable examples and add a note on phenomenon of dominance.	14
Q.3	Explain Photo reactivation and Excision repair.	14
Q.4	Explain X-Linked inheritance in Human.	14
Q.5	 Answer any TWO of the following: Explain sex influenced gene with an example. Describe life cycle of S. cerevisiae. Give difference between on mitosis and meiosis. 	14
Q.6	 Answer any TWO of the following: a) Add a note on multiple allele in ABO blood group. b) Write a note ionizing and non-ionizing radiation as mutagens. c) Explain gene entrance and expressivity 	14

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ 439	Friday 18/11/2016	10:30 AM to 01:00 PM	Biostatistics and Population Genetics	HCT 1.2	

10,		01:00 PM	Geneucs				
Instr	uction	2) Answer any four3) Graph paper wi	r questions from sec ll be provided on re a storage calculator	tion II. quest.	l. Total Ma	rks: 70	
Q.1		Rewrite the following sente given below:	Section – I nces by choosing the	e most cor	rect alternat	ive	08
	_	If both variables X and Y coefficient of correlation		simultaneo	ously, then th	e	
		a) Positivec) Zero		Negative One			
	2)	If the critical region is loc distribution of test – statis a) One tailed c) Right	stics, the rest is called b)		_		
	3)	 A failing student is passed a) Type – I error c) Unbiased decision 	b)	s an examp Type – II Difficult t	error		
	4)	A set of all possible dataa) Descriptive statisticsc) A population	b)	nder consid A sample Statistics		lled	
	5)	In isolation to relocation barrier, which a) Climate c) Ethological	b)		reeding.	nysical	
	6)	success of an organism's survival and reproduction a) Group selection c) Kin selection	b)	ost to the or	ganism's ow nental selection	rn	
	7)	According to Neo – Darwa) Fighting between orgc) Killing weaker organ	ganisms b)	Variations			

3) Artificial4) Ecologic5) Pedigree6) Interval 17) ANOVA	mapping				
		Section –	II		
Explain the stati	stical methods for	mapping QTL	in experime	ental cross	populatio
Calculate the ari	thmetic mean, me	edian and mode	form the fol	llowing da	ta.
Seconds	51-55	56-60	61-65	5	66-70
Frequency	2	7	8		4
A) Data on wax	about reproducti	ants were record		e. Calculate	e the
A) Data on wax standard dev	•	ants were record		e. Calculate 45-49	
A) Data on wax standard dev	y endospermic plaintion from the fo	ants were record	led in maize		e the 50-54
A) Data on wax standard dev Class 2 Frequency	y endospermic plantation from the formula of the fo	ants were record llowing data : 35-39 9	ded in maize 40-44 6 lex.	45-49 3	50-54
A) Data on wax standard dev Class 2 Frequency B) Explain in do C) Represent by in different co	y endospermic plantation from the formula of the fo	ants were record llowing data: 35-39 9 9 pted gene comp iagram from fol	ded in maize 40-44 6 lex. llowing data	45-49 3	50-54
A) Data on wax standard dev Class 2 Frequency B) Explain in do C) Represent by in different c	y endospermic plantation from the formula from the formul	ants were record llowing data: 35-39 9 9 pted gene comp iagram from fol Blood B	ded in maize 40-44 6 lex. llowing data I Group AB	45-49 3	50-54 1 blood gro
A) Data on wax standard dev Class 2 Frequency B) Explain in dec C) Represent by in different conditions.	y endospermic plaintion from the formula formu	ants were record llowing data: 35-39	ded in maize 40-44 6 lex. llowing data I Group AB 26	45-49 3	50-54 1 blood gro
A) Data on wax standard dev Class 2 Frequency B) Explain in do C) Represent by in different c	y endospermic plantation from the formula from the formul	ants were record llowing data: 35-39 9 9 pted gene comp iagram from fol Blood B	ded in maize 40-44 6 lex. llowing data I Group AB	45-49 3	50-54 1 blood gro

07

B) Define the following terms

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ – 440	Monday 21/11/2016	10:30 AM to 01:00 PM	Cytogenetic and Genome Organization	HCT 1.3	

Instructions:

- 1) Section I is compulsory.

- From section II attempt any four.
 All questions carry equal marks.
 Figures to the right indicates full marks.
- 5) Draw neat and labeled diagrams wherever necessary.

			I Otti Milliot 70	
		SECTION 1		
Q.1	A	Rewrite the following sentences by using correct alter	natives. 0	7
)	1) The genome of retrovirus is		
		a) ssDNA b) dsDNA		
		c) ssRNA d) dsRNA		
		2) Excessive growth hairs on pinna of ear is		
		a) Colorblindness b) Thalassemia		
		c) Myopia d) Hypertrichosis	S	
		3) The site for mutation on gene is called as		
		a) Muton b) Recon	_	
		c) Cistron d) RecA		
		4) is a result of nondisjunction of the sex c	hromosomes.	
		a) Colorblindness b) Thalassemia		
		a) Colorblindness b) Thalassemia c) Turner syndrome d) Bleeders disea	ase	
		5) Many Lyon proposed in 1961 that the Barr book chromosome.	dy was an inactive	
		a) Y b) B		
		c) X d) Polytene		
		6) When the SRY gene is lost or mutated in XY embryo gonad becomes a	os, the indifferent	
		a) Testies b) Utrus		
		c) Ovary d) Prostate gland		
		c) Ovary a) Trostate giana		
		7) The DNA which contains structural genes but do no as	ot translate is known	
		a) transposons b) pseudogene		
		c) operon d) cistron		
		· · ·		

	B)	Define the following terms. 1) B chromosome 2) Euchromatin 3) LINEs 4) In situ hybridization 5) Chromosome 6) Microsatellite DNA 7) Alu family	07
		SECTION II	
		Attempt any four.	
Q.2		Explain Types, detection, replication, incompatibility, partitioning, copy number control and transfer in Plasmids.	14
Q.3		Describe transposable elements in eukaryotes.	14
Q.4		Describe the organization of genome in animals.	14
Q.5		 Answer any two of the following. 1) Write a note on – Functional genomics. 2) Explain sex determination in plants. 3) Write on – Somatic cell hybridization. 	14
Q.6		Answer any two of the following. 1) Write a note on – Somaclonal variation 2) Write on – Multigene families 3) Explain polytene chromosomes.	14

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ – 441	Wednesday 23/11/2016	10.30 AM to 01.00 PM	Cellular and Molecular Biology	SCT 1.1	

- 1) Section I is compulsory.
- 2) From section II attempt any four.
- 3) Figures to the right indicate full marks.
- 4) Draw neat and labeled diagrams.

Total	Marke	· 70

		SF	ECTION - I	
Q.1		ewrite the following sentence RNA polymerase I is located	s by choosing correct alternative	07
	1)	a) Cytoplasm	b) Nucleus	
		c) Nucleolus	d) Mitochondria	
	2)	is a common sec	cond messenger.	
		a) cAMP	b) cGTP	
		c) cMHC	d) cATP	
	3)	Bacterial DNA primases are	encoded by Gene.	
		a) dnaC	b) dnaG	
		c) dnaB	d) dnaS	
	4)	Transcription process in prok	caryotes is terminated by factor.	
		a) Alpha	b) Beta	
		c) Rho	d) Sigma	
	5)	G-proteins are		
		a) Dimeric	b) Trimeric	
		c) Tetrameric	d) Pentameric	
	6)	In extracellular space, all into	egral membrane proteins as well as	
	•	membrane lipids bear carboh	ydrate projection known as	
		a) Glycocalyx	b) Fibronectin	
		c) Collagen	d) Integral	
	7)		known as sorting unit of cell.	
	•	a) Nucleus	b) Golgi apparatus	
		c) Endoplasmic reticulum	d) Mitochondria	

	B) Definitions:	07
	1) DNA Polymerase	
	2) Osmosis	
	3) Translation	
	4) Paracrine signaling5) Okazaki fragments	
	6) Signal transduction	
	7) Genetic code	
	7) Genetic code	
	SECTION - II	
	Answer any four of the following.	
Q.2	Give detail account on Ras-MAP kinase signaling pathway.	14
Q.3	Describe mechanism of replication in prokaryotes	14
Q.4	Explain different type of passive transport with suitable example.	14
Q.5	Answers any two of the following	14
Ų.S	a) Write a note on RNA polymerase	17
	b) Describe initiation of translation in Eukaryotes.	
	c) Describe antisense RNA technology	
Q.7	Write short note on any two of the following	14
	a) Fluid mosaic model of plasma membrane.	
	b) Properties of genetic code	
	c) GPCR signaling.	

Master of Science – I (Genetics) Examination: Oct / Nov 2016 **Semester – I (New CBCS)**

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ – 442	Wednesday 23/11/2016	10.30 AM to 01.00 PM	Clinical Bioinformatics	SCT 1.2	

- 1) Part I, Question 1 is compulsory.
- 2) Attempt any four questions from Part II.
- 3) Figures to the right indicate full marks.
- 4) Answers to the Part-I and Part-II are to be written in same

		answer Booklet only.		
			Total Marks: 70	
		P	PART I	
Q.1			osing the correct answers from the given	07
		ternative.		
	1)		c project between the European	
			ne Wellcome Trust Sanger Institute.	
		a) NCBI	b) Ensemble	
		c) Swiss-Port	d) BioMart	
	2)	FastOC next generation sequer	ncing tool is tool on platform.	
	,	a) Illumine	b) FASTQ	
		c) GNU Glib	d) CASAVA	
	2)	D is an language.	years typically access it though a command	
	3)	- line interpreter.	users typically access it though a command	
		a) Object oriented	h) Structure oriented	
		c) Interpreted	d) All	
		c) merpreted	<i>a)</i> 1111	
	4)	CPT is a registered trademark	of the medical association.	
		a) American	b) Indian	
		c) Australian	d) All of above	
	5)	International statistical classifi	ication of Diseases is developed by	
			1) ******	
		a) Sanger	b) WHO	
		c) ICHI	d) ICF	
	6)	can be used to file	ter, reformat, or trim your genomic and	
	Í	metagenomic sequence data.		
		a) HTQC	b) QPLOT	
		c) PRINSEQ	d) FASTX	
	7)	The first pathogen genome	that of was sequenced by	
	,	traditional Sanger methods.		
		a) Haemophilus influenza	b) Staphylococcus epidermidis	
		c) Staphylococcus aureus	d) Neisseria meningitides	

	B) Definitions:	07
	1) Pathogen	
	2) Neurodegenerative disorders	
	3) Metobolites	
	4) Clinical trial	
	5) Mapviewer	
	6) Epigenomics	
	7) Annotation	
	PART II	
	Answer any four of the following.	
Q.2	Define NGS. Add a note on its tools and techniques.	14
Q.3	Write a detailed note on pathology informatics with examples.	14
Q.4	Explain the different challenges and applications of pharmacogenomics.	14
Q.5	Answers any two:	14
Q.	a) Add a note on microarray with types	1.
	b) Write a note on medical coding with applications.	
	c) Explain the implications of genome projects in human health & disease.	
Q.7	Write short note on any two	14
	a) Transcriptomics	
	b) System Biology	
	c) Pharmacoviglance	

Master of Science – I (Genetics) Examination: Oct/Nov 2016 Semester – I (Old CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ – 445	Monday 21/11/2016	10:30 AM to 01:00 PM	Cytogenetic and Genome Organization	III	

Instructions:

- 1) Section I is compulsory.
- 2) From section II attempt any four.
- 3) All questions carry equal marks.
- 4) Figures to the right indicate full marks.
- 5) Draw neat and labeled diagrams wherever necessary.

			SEC	TIC	ON 1	
Q.1	A)	Rev	write the following sentences by Human telomeric sequences are a) TTAGGG	usi usi	ng correct alternatives.	07
		-)	a) TTAGGG	b)	TTTGGG	
			c) TTAGGC	d)	TAAGGG	
			unfolds into open loops for inten	se tr		
			a) Chromosomal rings	b)	chromosomal puffs	
			a) Chromosomal ringsc) chiasmata	d)	chromonemata	
		3)	Petite mutants in yeast were first	disc	covered by .	
			a) T. H. Morgan	b)	B. Ephrussi	
			a) T. H. Morganc) Mendel	d)	Johansen	
			Hybrid dysgenesis is observed in drosophila.	1	mating type of	
			a) P Male x M Female	b)	M Male x P Female	
			c) P Male x P Female	d)	M Male x M Female	
		5)	is a Y – linked di	seas	e.	
			a) Hemophilia	b)	Colorblindness	
			c) Hypertrichosis	d)	Night blindness	
			In Human being type present.	oe of	sex determination system is	
			a) $ZZ - ZW$	b)	Haplo – diploid	
			c) XX – XC		XX – XY	
			linked genes of a chromosome is	call	tation of relative distance between ed	
			a) Linkage map	b)	crossing over	
			c) Recombination	d)	none of these	

	B)	Answer the following.	07			
		1) What is B chromosome?				
		2) What are telomeres?				
		3) What is karyotoyping?				
		4) What is Q banding?				
		5) What are plasmids?				
		6) What is C – Value paradox?				
		7) What are transposons?				
		SECTION II				
		Attempt any four.				
Q.2		Describe mechanism of transposition & different types of transposable elements.				
Q.3		Describe maternal inheritance with suitable example.	14			
Q.4		Explain in-situ hybridization and add a note on its applications.	14			
Q.5		Answer any two of the following.	14			
		1) Describe structure of polytene chromosome.				
		2) Explain P elements in drosophila.				
		3) Describe structure of typical X & Y chromosome.				
Q.6		Answer any two of the following.	14			
		1) Explain G banding of chromosomes.				
		2) What are multigene families?				
		3) Describe organization of eukaryotic chromosome.				

Master of Science – II (Genetics) Examination: Oct /Nov 2016 Semester – III (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ - 455	Wednesday 16/11/2016	02:30 PM to 05:00 PM	Immunology	I	

Instructions:

- 1) All questions of Section I are compulsory.
- 2) Answer any Four questions from section II.
- 3) All questions carry equal marks.
- 4) Draw neat and labeled diagrams wherever necessary.

			100011,101115070	
		SECTIO	N - I	
Q.1	A)	Multiple choice questions 1) Widal test is an example of a) Agglutination	type of reaction. b) Precipitation	07
		a) Agglutination c) Flocculation	d) Complement fixation	
		2) Horny outer layer of the skin called		
		a) Sebumc) Keratin	b) Fatty acidd) Cartilage	
		3) Active immunization is done by us	ing	
		a) Readymade antibodies	b) Vaccine	
		c) Immune sera	d) None of these	
		4) Eye lens protein is an example of _		
		a) Isoantigen	b) Autoantigen	
		c) Heterophile antigen	d) Organ specific antigen	
		5) In alternative pathway binding of _ (C ₃ convertase).	Stabilizes the C ₃ bBb	
		a) Serin Protease	b) Lectin	
		c) Properdin	d) C ₁	
		6)blood group persons are	universally acceptors.	
		a) A	b) AB	
		c) O	d) B	
		7) will make iron unavailab	ble which is required for the growth of	
		a) Transferrin	b) Lactoferrin	
		c) Ferritin	d) All of these	
	B)	Define the following terms: 1) Redunduncy 2) Erythroblastosis fetalis 3) Autoimmunity		07
		4) Allergen		
		5) Vaccine6) Agglutination		
		7) Hapten		
		, 1		

SECTION II

Q.2	Explain the complement activation pathway.	14
Q.3	Explain various agglutination tests.	14
Q.4	Explain different types of antigens and factors affecting antigenicity.	14
Q.5	 Write Short notes on any TWO of the following: Write an account on T cell maturation, activation and differentiation. Write in brief on mechanism of allograft rejection. Explain mechanism of inflammation. 	14
Q.6	 Answer any TWO of the following: 1) Explain mechanism of anaphylaxis. 2) Write short note on recombinant vaccines. 3) Write short note on natural killer cells. 	14
Q.7	Answer any TWO of the following: 1) Write in brief on mechanism of autoimmunity. 2) Explain SLE 3) Write an easy on humoral immunity.	14

Master of Science – II (Genetics) Examination: Oct /Nov 2016 Semester – III (New CBCS)

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	SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
	SLR – SQ 459	Wednesday 16/11/2016	02:30 PM to 05:00 PM	Immunology & Immunotechnology	IX	

- 1) All questions of Section I are compulsory.
- 2) Answer any Four questions from section II.
 3) All questions carry equal marks.

			-,	Draw neat and labeled of	8	Total Marks: 70	
				SECT	TION – I		
Q.1	A)	Mult	iple	choice questions			07
	,	i)	•	-	volved in th	e humoral immune response.	
			<u>a)</u>	T		T or B	
			c)	В	d)	T and B	
		ii)	Eye	e lens protein is an examp	le of		
				Isoantigen		Autoantigen	
			c)	Heterophile antigen	d)	Organ specific antigen	
		iii)		is not live attenua	ated vaccine	> .	
			/	Anthrax	,	Cholera	
			c)	Measles	d)	Tuberculosis	
		iv)		blood group persons		• •	
				A	,	AB	
			c)	O	d)	В	
		v)				rform role in target cell killing.	
				Perforins		Granzymes	
			c)	Fragmentins	d)	All of these	
		vi)			available wł	nich is required for the growth	
				microbes.	1. \	I	
				Transferrin Ferritin	,	Lactoferrin All of these	
			C)	remun	u)	All of these	
		vii)		. B12 deficiency is observ	ed in	autoimmune disease.	
				Pernicious anemia		b) Phaconaphylaxis	
			c)	Myasthenia gravis		d) SLE	
	B)			e following terms:			07
) Gra				
				toimmunity			
				ergen			
				ccine glutination			
			_	itope			
				munogenicity			
		,	,	500000			

SECTION II

Q.2	Explain humoral immune response in detail.	14
Q.3	Explain the cytokine receptors with examples.	14
Q.4	Write an account on primary lymphoid organs.	14
Q.5	 Answer any TWO of the following: Write an account on second line of defence. Explain mechanism of anaphylaxis. Write short note on secondary immune response. 	14
Q.6	 Write short notes on any TWO of the following: Write short note on natural killer cells. Write an account on monoclonal antibody synthesis Explain SLE 	14

Master of Science – II (Genetics) Examination: Oct/Nov 2016 **Semester – III (New CBCS)**

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ 460	Friday 18/11/2016	02:30 PM to 05:00 PM	Cancer Genetics and Stem Cell Research	X	

Instructions:

- 1) Section I is compulsory
- 2) From section II attempt any four
- 3) All questions carry equal marks4) Figures to right indicate full marks.
- 5) Draw neat and labeled diagrams.

1)	proteins act like a spool t more compact.	hat DNA	can be wound around to become	
	a) Histonec) Protease	,	Nuclease Helicase	
2)	Hematopoietic stem cells are			
	a) Unipotant		Totipotant	
	c) Pluripotant	d)	Embryonic	
3)	Regulation of epithelial and mesenn			
	a) Platelet Derived Growth Factor	_		
	c) Zymogenic factor		d) Tumor Necrotic factor	
4)	The ability to invade surrounding tis cancer.	ssue and _	is main hallmark of	
	a) Regeneration	b)	Replication	
	c) Metastasis	d)	Motility	
5)	The protease system involved in apo	ptosis pat	thway is called as	
	a) Caspases		CD molecules	
	c) P ⁵³	d)	TGF-B	
6)	are totipotant cells.			
	a) Mesenchymal stem cells	b)	Hematopoietic stem cells	
	c) Liver stem cells	(b	Embryonic stem cells	

	7) The underlying principle of is to kill cancer cells – or stop them	
	growing – by treating them with drugs. a) Immunotherapy b) Hormone therapy	
	c) Chemotherapy d) Gene therapy	
	B) Answer the following terms:	07
	 Epigenetics Oncogene Embryonic stem cell. Benign tumor Hematopoietic Stem Cells Carcinogens Extra Cellular Matrices 	
	Section – II (Attempt any four)	
Q.2	Discuss in detail Tumor suppressor gene.	14
Q.3	Explain in detail isolation of stem cells from tissue.	14
Q.4	Explain in detail event of angiogenesis.	14
Q.5	 Answer any two of the following: a) Write on Mesenchymal Stem Cells. b) Give details mechanism of Metastatic cascade. c) Discuss Radiation Therapy. 	14
Q.6	 Answer any two of the following a) Write a short note on Transplantation Technique. b) Explain Epigenetic in cancer. c) Add a note on physical carcinogens. 	14

Master of Science – II (Genetics) Examination: Oct / Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ-461	Monday 21/11/2016	02:30 PM to 05:00 PM	Analytical Instruments & Techniques	XI	

Instructions:

- 1) Section I is Compulsory.
- 2) Attempt any four Questions from Section II.
- 3) Answers of section I & section II should be written in same answer booklet.
- 4) Figures to the Right indicates full marks.

	5) Draw labelled Diagrams wherever necessary.					
				Total Marks: 70		
		Sec	tion- I			
Q.1 A		Distance between front surface known as				
		a) Resolving distance	b)	Focal length		
		c) Focal point	d)	Working distance		
	2)	A biologically insignificant rad				
		a) ^{15}N		³² P		
		c) ¹⁵ O	d)	³⁵ S		
	3)	Ratio of determines the	stability of	isotope in nature.		
		a) Electron to Neutron	/	Neutron to proton		
		c) Electron to Proton	d)	Proton to Neutron		
	4)	Usually in paper chromatograp	hy stationary	phase is		
		a) Water	b)	Base		
		c) Acid	d)	Alcohol		
	5)	spectrum of a substance	ce is a finger	print for its identification.		
		a) UV	b)	VISIBLE		
		c) AAS	/	IR		
	6)	is present at the uppe	r end of the l	oody tube.		
		a) Mechanical stage	b)	Eyepiece		
		c) Earpiece	d)	Fine adjustment knob		
	7)	When negatron emission takes	place N/Z ra	tio		
		a) Oscillates	b)	Decreases		
		c) Increases	d)	Remains same		

08

	B) Define the following: 1) Convex lens 2) Isotope 3) Electrophoresis 4) Isocratic elusion 5) Lambert's law 6) Eyepiece 7) Curie	07
	Section – II	
	Answer Any four of the following:	
Q.2	Define microscopy and give details of florescence microscope.	14
Q.3	Discuss in detail interaction of radioactivity with matter.	14
Q.4	Describe in detail visible spectroscopy.	14
Q.5	Answer any two of the following:	14
Q.6	 Discuss factors affecting electrophoretic mobility. Explain starch gel electrophoresis Write a note on ionization chamber. Answer any two of the following: Discuss general column chromatographic technique. Explain applications of Colorimetry. 	14
	3) Describe thin layer chromatography.	

Master of Science – II (Genetics)Examination: Oct / Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ - 462	Wednesday 23/11/2016	02:30 PM To 05:00 PM	Bioinformatics, Research Methodology and Scientific Report writing	XII	

- 1) Section I is compulsory
- 2) From Section II attempt any four
- 3) All questions carry equal marks.
- 4) Figures to right indicate full marks.
- 5) Draw neat and labeled diagrams

				Total Marks:70	
		Section -	·I		
Q.1		Multiple choice questions is supplemented database of	f MI	PS containing unverified	07
		sequence. a) Tr-EMBL c) OWL		PATCHx NRDB	
	2)	In similarity across the full end a) Local alignment c) Gapped alignment	xten b) d)	t of the section is considered. Global alignment Ungapped alignment	
	3)	The pseudo sequence that summarizes the multiple alignment is a) First sequence c) Second sequence	b)	Consensus sequence Same as first sequence	
	4)	The principle of searches for a number of changes to explain the different study. a) Parsimony method c) Neighbor joining method	nces		
	5)	a) AMBER c) BLAST	b)		
	6)	Action research means a) A longitudinal research b) An applied research c) A research initiated to solve an immed d) A research with socioeconomic object			
	7)	In the process of conducting research 'Fo followed by a) Statement of objective c) Selection of Research Tools	b)	Analysis of data Collection of data	

	 B) Define the following terms. a) There dimensional structure b) Force field c) Phylogenetic analysis d) SRS e) Query sequence f) Research g) IMRAD system 				
	Section – II				
Q.2	Discuss about the prediction of protein structures from sequences. Add a note on secondary structure prediction.	14			
Q.3	Briefly describe the different steps involved in thesis writing.				
Q.4	Describe in detail the methods, algorithms and tools of pairwise alignment.	14			
Q.5	 Answer any TWO of the following. a) Write a note on elements of phylogenetics b) Write a note on SRS c) Describe in detail GenBank and its file format. 	14			
Q.6	 Write short notes on any TWO of the following a) Hypothesis and its testing b) Research method and research methodology c) Qualities of researcher 	14			

Master of Science – II (Genetics)Examination: Oct / Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SQ - 463	Wednesday 23/11/2016	02:30 PM To 05:00 PM	Human Genetics	XII	

Instructions:

- 1) Section I is compulsory
- 2) From Section II attempt any four

		Sec	ction - I			
Q.1	A) Rewrite the sentence after choosing the correct answer from the given alternatives.					
	1)	Mary Lyon proposed in 1961 that the	he Barry body was an inactive			
		a) Y chromosome	b) B chromosome			
		c) X chromosome	d) Polytene chromosome			
	2)	mutations cause the co	omplete or partial absence of normal			
		function	1			
		a) Gain-of-function	b) Frame-shift			
		c) Non-sense	d) Loss-of-function			
	3)	Cystic fibrosis is an autosomal rece	essive disorder characterized by			
		c) Abnormal sweating	b) Incomplete digestiond) All of these			
	4)	When the SRY gene is lost or muta becomes as	ated in XY embryos, the indifferent gonad			
		a) Testis	b) Uterus			
		c) Ovary	d) Prostate gland			
	5)	has bridged the gap be molecular diagnosis.	etween cytogenetic diagnosis and			
		a) Widal Test	b) PCR			
		c) ELISA	d) Molecular cytogenetic testing			
	6)	Simultaneous occurrence of testicular and ovarian tissue in a single gonad called				
		calleda) Automixis	b) Amphimixis			
		c) Ovotestis	d) Somatogamy			
	7)	describes a family tree trait or disease has been inherited.	diagram that shows a particular genetic			
		a) Cladogram	b) Pedigree			
		c) Dendrogram	d) Phylogenetics			

	B) Define the following terms. a) Monogenic traits b) Molecular pathology c) Thalassemia d) Anomalies of genital duct e) Ultrasound f) Genetic testing g) Chimerism	
	Section – II	
Q.2	Explain in detail mitochondrial inheritance.	14
Q.3	Describe the complex polygenic syndrome with suitable example.	14
Q.4	Discuss genetic basis of male infertility.	14
Q.5	 Answer any TWO of the following. a) Explain in detail mechanism of sex linked inheritance b) Describe in detail loss of function mutations in diseases. c) Discuss in brief genetics basis on phenylketonuria 	14
Q.6	 Write short notes on any TWO of the following a) Pre-implantation genetic diagnosis. b) Recurrent pregnancy loss c) Alzheimer's disease 	14