Seat	Set	D
No.	Set	

	IVI.	Sc. (Semester - I) (New) (CBC) GENET)	-		
		Concept of	Gen	etics	
•		e: Monday, 13-02-2023 0 PM To 06:00 PM		Max. Mark	s: 80
Insti	uctio	ns: 1) Question 1 and 2 are compulso 2) Attempt any Three from Q.3 to 3) All questions carry equal marks 4) Draw neat and labeled diagram	Q.7 3.	erever necessary.	
Q.1	A) 1)	Choose Correct Alternative. The <i>A. thalianagenome</i> was sequen approximately protein coding a) 1997, 27000 c) 2000, 30000		10	
	2)	In the absence of embryonic into an ovary. a) SRY c) X chromosome	b)	dal tissue would normally develop maleness producing factor genital-determining factor	
	3)	An individual with two different forms a) Heterosexualc) Heterodyne	b)	nallele is called Heteroptical Heterozygous	
	4)	The ratio of X chromosomes to hapl in a) Humans c) Drosophila		ets of autosomes determines sex Crocodiles Chickens	
	5)	Because of dominant epistasis, the a) 12:3:1 ratio c) 9:3:4 ratio	b)	ical 9:3:3:1 ratio becomes 12:4 ratio 15:1 ratio	
	6)	The two most commonly used base aminopurine. The pyrimidine 2-amin a) both guanine and adenine c) Adenine	opuri b)		
	7)	Male honey bees are known to deversible are therefore haploid. a) self-fertilization c) parthenogenetically	b)	from unfertilized eggs and haploid allele transfer self-apomixis	
	8)	The multiple effects of a single general called a) multiple phenotypic interaction c) epigenetic effects		pleiotropy	
	9)	Sickle cell anemia is caused by a) Nonsense mutation c) Missense mutation	 b) d)	Silence mutation Frameshift mutation	

	10)	Accurate mapping of genes can be done using a) Two point mapping b) Linkage map c) Single gene mapping d) Three point mapping	
	B)	Fill in the blanks: 1) Change of a single nucleotide is called as 2) In Chinchilla fur colour, Pigmentation is absent. 3) Crossing over is advantageous because it brings about 4) The phenotypic ratio of a dihybrid cross is 5) The cross between heterozygous F1 hybrid and is known as the test cross. 6) Alleles are nothing but	06
Q.2	Ansv	 wer the following. 1) Explain Aneuploidy 2) What are sex limited genes? 3) What will be the phenotypic ratio when Purple coloured flowered plant (Pp) crossed with white coloured flowering plant (pp) 4) What is X-Y linkage? 	16
Q.3	Ansv a) b)	wer the following. Describe the <i>E. coli</i> genome in brief. Describe the crossing over with suitable example.	16
Q.4	Ansv a) b)	wer the following. Explain the structural and numerical changes in chromosomes. Explain the structure of sex chromosomes and genetics of colorblindness.	16
Q.5	Ansv a) b)	wer the following. Describe the induced and spontaneous mutations. Describe the components of genetic counseling.	16
Q.6	Ansv a) b)	wer the following. Describe the nucleotide excision and mismatch repair mechanisms. Explain the sex limited and sex influenced genes.	16
Q.7	Ansv a) b)	wer the following. With suitable examples explain co-dominance and incomplete dominance. Explain various mutagenic agents and their action mechanism.	16

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M.Sc. (Semester - I) (New) (CBCS) Examination: Oct/Nov-2022

		((GENETIC	S)	
				Cellular and Molecu	•	Biology
•				16-02-2023 :00 PM		Max. Marks: 80
Instr	uctio	ii)	Attem	ion No 1 and 2 are compulso pt any 3 questions from Q. N e to right indicate full marks.	•	o Q. No. 7
Q.1	A)	Choo 1)		orrect alternatives (MCQ) Karyotes tRNA is transcribed RNA polymerase I RNA polymerase III	b)	RNA polymerase II
		2)	During codor a) c)	g eukaryotic translation n. UAA UGA	_ cod b) d)	lon identified as initiation AUG UAG
		3)	In pro a) c)	karyotes is responsib DNA polymerase I DNA polymerase III	b)	
		4)	a)	n is polymer of Tubulin dimer Albumin	b) d)	Globular actin Myosin
		5)	a) c)	proposed the Fluid mosaid Watson & Crick Temin & Baltimore	b)	lel of plasma membrane Singer & Nicolson Jacob & Monad
		6)	a) b) c) d)	is an example of active trangle diffusion Facilitated diffusion Osmosis Na-K ATPase pump	sport	•
		7)	In pro a) c)	karyotic transcription proces Sigma factor Pol- α	s pror b) d)	noter recognition is by Rho factor Core enzyme
		8)	a) c)	are also known as macula Desmosomes Gap junctions	adhe b) d)	erens. Hemi-desmosomes Tight junctions
		9)	a) c)	are known as secondary r Ca ⁺⁺ Cl	nesse b) d)	enger molecule. Mn+ Fe+
		10)	Cdk2/ a) c)	cyclinE functions in G2/M transition M	b) d)	G2 G ₁ /S transition

	B)	Fill in the blanks-	06
		 enzyme required for joining of Okazaki fragments during replication. 	
		 Dyenins are minus end directed motor proteins associated with proposed Sandwich model of plasma membrane. enzymes required for aminoacylation of tRNA molecule. are known as Zonula occludes in animal cells. identified as universal transcription factor. 	
Q.2	Ans a) b) c) d)	wer the following Describe different types of RNA polymerases in eukaryotes. Write a note on Clover leaf model of tRNA. Explain structure and functions of myosin molecule. Write a note on hemi-desmosomes.	16
Q.3	Ans a) b)	wer the following Describe rolling circle model of replication. Describe mechanism of transcription in eukaryotes.	16
Q.4	Ans a) b)	wer the following Explain properties of genetic code with suitable examples. Describe structure and functions of microtubules.	16
Q.5	Ans a) b)	wer the following Explain process of vesicular transport between ER and Golgi apparatus. Describe different types of active transport.	16
Q.6	Ans a) b)	wer the following Describe mechanism of protein synthesis in prokaryotes. Describe structure, assembly and functions of F-actin.	16
Q.7	Ans a) b)	wer the following Explain G-protein coupled signal transduction pathway. Write a essay on eukaryotic cell cycle	16

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Seat	Cat	D
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	IVI.	SC. (seme		BCS) EX NETICS)	amination: Oct/Nov-2022				
			C	Cancer Genetics ar	nd Stem	Cell Research				
-				, 20-02-2023 6:00 PM		Max. Mark	s: 80			
Instr	uctio	2) Atte	los. 1 and 2 are compul mpt any three question are to right indicate full r	s from Q. I	No. 3 to Q. No. 7				
Q.1	A)	Cho 1)	Norr or di	seased.	y to	_ when they become damaged	10			
			a) c)	self destruct over populate	b) d)	self proliferate become malignant				
		2)		• •	ir control o	f the regulated division,				
			a)	Tumor cell	b)	Immune cell				
		۵)	c)	Platelets	d)	Stem cells				
		3)	norn a) c)	is the process throun nal region. Transformation Apoptosis	ugn a mali b) d)	gnant cell spread throughout Invasiveness Progression				
		4)		is the process of transition from normal cells to cancerous cells.						
			a) c)	Ubiquitylation Transformation	b) d)	Polymerization Metastasis				
		5)	Whica)	ch of the following muta Point mutation Deletion	ation cause b) d)	es Burkitt's lymphoma? Chromosomal translocation Duplication				
		6)	The a) c)	most common types of Chemotherapy Radiation Therapy	treatment b) d)	of Cancer are Surgery All the above				
		7)	Nerv a) c)	ve cell is a type of Unipotent Multipotent	cell. b) d)	Pluripotent Totipotent				
		8)	orga a) c)	cells are the only conism. Pluripotent Totipotent	ells which b) d)	can develop into whole Multipotent Unipotent				
		9)	prov		id a local e	aterial-based porous to environment for cells to enable 2D scaffolds Agar plate				

		 10) BMP stands for a) Bone morphology protein b) Bone muscle protein c) Bone Morphogenesis protein d) Bone Makeup Protein 					
	B)	Fill in the blanks OR Write True/False. 1) All tumor cells are malignant cells. a) True b) False 2) Caspase 8 is an initiator caspase. a) True b) False 3) Cancer is an inherited disease. a) True b) False 4) Stem cell treatments are risk-free if they come from your own body. a) True b) False 5) Renal stem cells are present in 6) Retinoblastoma is a cancer of the	06				
Q.2	a) b)	swer the following. Write short note on Cancer Vs Normal cell. Write short note on Hematopoietic stem cell. Add a note on Caspases. Write about structure of P ⁵³ gene.					
Q.3	Ans a) b)	eswer the following. Explain in detail processes of Angiogenesis with suitable diagram. Explain role of Epigenetic in cancer.					
Q.4	Ans a) b)	wer the following. Write a note on Metastasis. Explain different types of Tumor viruses.	16				
Q.5		ewer the following. Explain in detail processes of apoptosis. Write a note on Chemotherapy on Cancer.	10 06				
Q.6	Ans a) b)	wer the following. Write a note on Stem Cells in Eye Diseases and Disorders. Add a note on Regeneration of Bone and Cartilage.	16				
Q.7	Ans a) b)	wer the following. Explain detail about Tissue Engineering and Transplantation Technique. Add a note on Extra Cellular Matrices.	10 06				

Seat No.	Set	Р
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M.Sc. (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2022

		5 0. (\	(GENET	•		
			Analytical Instrument	•	Techniques	
•			esday, 21-02-2023 To 06:00 PM		Max. Marks	s: 80
Instr	uctio	2) Question Nos.1 and 2 are comp) Attempt any three questions fro) Figure to right indicate full mark	m Q. N		
Q.1	A)	Cho 1)	ose correct alternative. (MCQ) In the stationary phase phase is forced through it unde a) Column chromatography c) Liquid chromatography	held in r pressu b)	ure. Planar chromatography	10
		2)	a) Longest wavelength of visb) an objective with minimumc) shortest wavelength of vis	ible ligh n numer ible ligh ible ligh	ical aperture	_•
		3)	In Thin layer chromatography, tand the mobile phase is made (a) Solid, liquid c) Liquid, gas	of		
		4)	NMR is the study of the absorp field. a) Radioactive radiation c) Radio frequency radiation	b)	IR radiation	
		5)	In fluorescence microscopy, removing all light except the blua) Exciter filter c) Dichroic mirror	ue light.		
		6)	 is used to separate mo a) Column chromatography b) Ion exchange chromatograph c) Thin layer chromatography d) Affinity chromatography 	aphy	based on affinity.	
		7)	If proteins are separated according then the type of electrophoresis a) SDS PAGE c) Electro focusing	_	heir electrophoretic mobility Affinity Electrophoresis Free flow electrophoresis	
		8)	Image formation in electron mid a) column length c) differential scattering	croscopo b) d)	e is based on electron number specimen size	

	9)	a)	Boiling point	s gas, moven	b) d)	Melting point Volatility	
	10)	colle a)	ected by specimen		back b) d)	in scanning microscope is anode cathode	
В)	Fill i 1) 2) 3) 4) 5)	In Den Res In gas. For cent In	state of management sity gradient ceroller of electrons can be separation of electrons can be separation of electrons can be spectrons of the separation of electrons of the separation of the s	ntrifugation us on microscope ohy, ga of genetic mate is used as l copy, UV light	es e is ne is use erial ir liquid	sugar. ear ed as mobile phase is an inert n density gradient density gradient.	06
a) b)	wer the following. What are Optical principles of Microscopy? Brief on Raman Spectroscopy. Write note on Liquid Scintillation counting. Describe in short Dot Blot technique.						16
Ans a) b)	swer the following. Discuss Phase contrast microscope with respect to: Principle, construction, working and applications. Discuss Scanning electron Microscope with respect to: Principle, construction, working and applications.						16
Ans a) b)	Give	the p	rinciple and app				16
Ans a) b)	Take	deta	iled account on				16
Ans a) b)	Desc	ribe p	orinciple and app				16
Ans a) b)	Expla Princ	ain pr iple, _l	inciple, working procedure and a				16
	Ansa) b) Ansa) b) Ansa) b) Ansa) b) Ansa)	B) Fill i 1) 2) 3) 4) 5) 6) Answer th a) What b) Brief c) Write d) Desc Answer th a) Discus worki b) Discus const Answer th a) Give b) Expla Answer th a) Desc b) Expla Answer th a) Desc b) Expla Answer th a) Desc b) Expla	a) c) 10) The colle a) c) B) Fill in the 1) In 2) Den 3) Res 4) In gas. 5) For cent 6) In emit Answer the for a) What are 6 b) Brief on R c) Write note d) Describe i Answer the for a) Discuss P working are b) Discuss S construction Answer the for a) Give the pub by Explain mode and Discuss the for a) Explain mode and Describe pub by Explain in Answer the for a) Describe pub Explain in Explain in Answer the for a) Describe pub Explain in Explain prob) Principle,	a) Boiling point c) Solubility 10) The secondary elect collected by a) specimen c) vacuum chamb B) Fill in the blanks. 1) In state of m 2) Density gradient cer 3) Resolution of electro 4) In gas chromatograp gas. 5) For the separation of centrifugation 6) In spectrosof emitted light is meas Answer the following. a) What are Optical principles b) Brief on Raman Spectrosof c) Write note on Liquid Scinti d) Describe in short Dot Blot Answer the following. a) Discuss Phase contrast m working and applications. b) Discuss Scanning electror construction, working and Answer the following. a) Give the principle and app b) Explain methods of sample Answer the following. a) Take detailed account on a b) Discuss the Principle and app b) Explain in detail Western B Answer the following. a) Describe principle, working Answer the following. a) Describe principle, working	a) Boiling point c) Solubility 10) The secondary electrons radiated collected by	a) Boiling point c) Solubility d) 10) The secondary electrons radiated back collected by a) specimen b) c) vacuum chamber d) B) Fill in the blanks. 1) In state of matter mass spectrons and applications of SDS-P b) Explain principle, working and applications of Highr	a) Boiling point c) Solubility d) Volatility 10) The secondary electrons radiated back in scanning microscope is collected by a) specimen

Seat	Set	Р
No.		-

M.Sc. (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2022

		,		(GENETI	-		
			Α	griculture Science and	•	d Technology	
•				day, 22-02-2023 00 PM		Max. Marks: 80	Э
Instr	uctio	2) Atter	os. 1 and 2 are compulsory. npt any three questions fron re to right indicate full marks		o. 3 to Q. No. 7	
Q.1	A)	Cho 1)		orrect alternative. Reason for Seed Dormancy Starch Ethylene	is b) d)	 Glucose Abscisic acid	D
		2)	•	End Product of the Calvin C PGA RuBP	,		
		3)	The a)	process of Seed drying is ve Viability and vigour Oil content	-	ortant to maintain its Protein content Chemical composition	
		4)	Fung a) c)	gi and Bacteria usually enter Stomata Hydathodes	throug b) d)		
		5)	Optir a) c)	num growth of bacteria occu Acidic Neutral to slightly alkaline	b)	Alkali	
		6)	The a) c)	nitrogen fixers is found in ric <i>Tolypothrix</i> <i>Anabaena</i>	e field b) d)	s associated with <i>Azolla</i> is <i>Frankia</i> <i>Spirulina</i>	
		7)		non-symbiotic biofertilizer is VAM Anabaena	b) d)	 Azotobacter Rhizobium	
		8)	Com a) b) c) d)	posting is the process of Recycling of paper Burning of garden waste Drying of Waste in Sun Decomposition of waste b		obes	
		9)	Tran a) c)	spiration occurs through leaves roots	b) d)	stems all aerial parts	
		10)		e processes which occurs ir temperature is respiration transpiration	b) d)	es, the one which may lower photosynthesis hydrolysis	

	B)	vvrit	ite True/Faise.	06
		1)	Pre-treatment of the wastes by composting leads to greenhouse effect.	
			a) True b) False	
		2)	Green plants generally contain chlorophyll.	
			a) True b) False	
		3)	Seeds are just treated with low temperature for stratification.	
		4)	a) True b) False	
		4)	The amount of water retained in the soil after drainage is called as field capacity.	
		- \	a) True b) False	
		5)	The process by which turgidity of cell is maintained is called as wall pressure.	
		٥)	a) True b) False	
		6)	Gibberellins promote root elongation.	
			a) True b) False	
Q.2	Ans	wer th	the following.	16
	a)	•	lain Photo oxidative stress.	
	p)		lain process of Bio composting.	
	c)	•	lain Terminator Technology.	
	d)	Expia	lain breeds of indigenous and exotic cattle.	
Q.3			the following.	16
	a)	-	lain Physical properties and chemical constitution of plant cell	
	b)	•	oplasm. Iain Mineral and organic constituents of soil and their role in crop	
	IJ)	•	duction.	
Q.4	Ans	wer tl	the following.	16
	a)		lain process of Transpiration.	
	b)	Expla	lain Chemical, physical and microbiological properties of soil.	
Q.5	Ans	wer th	the following.	16
	a)		lain any three Plant Growth hormones and its role in plant growth.	
	b)	Expla	lain Plant responses to pathogen and herbivores.	
Q.6	Ans	wer tl	the following.	16
	a)		lain New seed policy and seed control order.	
	b)	Expla	lain Seed dormancy and germination.	
Q.7	Ans	wer tl	the following.	16
	a)	•	lain process of Fruit ripening process and its control.	
	b)	Expla	lain concept of Bio fertilizer with any one example.	

Seat No. Set P

M.Sc. (Semester - IV) (New) (CBCS) Examination: Oct/Nov - 2022

		.o. (o		(GEN	ETICS)		
	Re	eseai	rch M	•	•	Report Writing and IPR	
•			•	, 23-02-2023 :00 PM		Max. Mark	s: 80
Instr	uctio	2)	Atten	os. 1 and. 2 are compulent any three questions e to right indicate full m	from Q. N	o. 3 to Q. No. 7	
Q.1	A)	Fill i		is associated with som To test hypothesis of o To gain familiarity with in to it.	cy with whith whith the control of the control	rnatives given below. ch something or with which it tionship between variables non or to achieve new insights teristic of particular individual,	10
		2)	errors a) c)	of data is process of s and omissions and to Coding Classification		g the collected raw data to detected ese when possible. Decoding Editing	t
		3)	Chi-s a) b) c) d)	quare test is often used as a test of dependend significance of popular heterogeneity as a test of misfit with	ce tion varian	ce	
		4)	Which a) b) c) d)	h is the most difficult ste Logical analysis Preparation of final ou Rewriting and polishin Nil report writing is ea	tline g of rough	-	
		5)	Wher range a) b) c) d)			will always fall within what	
		6)	a) c)	is plagiarism checke Sound forge turnitin	r. b) d)	grammarly fast pencil	
		7)	Intelle a) c)	ectual property rights ai social commercial	m is to pro b) d)	tect ideas that of value. moral ethical	

		8)	a) ´	marks in I 1999 2001	ndia ena	acted in	b)	2000 2002				
		9)	b) I	icy is Illegal use Illegal trar Exploitatio Exploitatio	nsfer of long of the second of	knowled nt and a	ge inimals					on
		10)	a) 3	any years 30 40	a pater	nt is vali		a? 20 10				
	В)	1) 2) 3)	Researce researce Tabula Footno	tion provi tes shoul	on how des a ba d be pla	people asis for v ced abo	feel or t arious s	statistica itle of pa	ıl compu ıge.	ıtation.		06
		4)5)6)	with ne A trade produc	rism in resew objectivemark is retented to the control of the cont	ves. ecogniza es of a	able sigr particula	n, desigi ar source	n or exp	ression nose of o	which id others.	entifies	
Q.2	Writ a) b) c) d)	Rese Samp Roles		•	-		tion					16
Q.3	Ans a) b)	Desc A res plead	earch so ler who	wing different t cholar has is only ea statement	s to work ger to p	k as a ju rove his	dge and case in	favours	our of h	nis plaint		10 06
Q.4	Ans a)		ne follow ulate the	wing mean, m	edian, n	node, Sl	D and S	E of me	an follov	wing data	a.	10
			lass erval	10-19	20-29	30-39	40-49	50-59	60-69	70-79		
		Fred	quency	5	19	10	13	4	4	2		
	b)	Expla	ain role d	of ANOVA	in bio-r	esearch	۱.					06
Q.5	Ans a)			wing ng is more	an art t	hat hing	jes upor	n practic	e and e	xperienc	e".	10
	b)	Expla	in the te	echnique a						esearch		06

			SLR-GK-17
Q.6		swer the following	
	a)	Write a note on - Intellectual property rights in India.	10
	b)	Give details on criteria and procedure of patenting.	06
Q.7	Ans	swer the following	
	a)	Explaining:	10
	•	1) Bio Piracy	
		2) Breeders exemption	
	b)	Give an account of 'plant breeders rights'	06