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Answer Sheet No		4nx	
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-11			

# BIOLOGY HSSC-II SECTION - A ( Marks 17)

Time allowed: 25 Minutes

Q.

NOTE:- Section-A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Circle	the co	orrect option i.e. A / B / C / D. Ea	ch part carries	s one mark.
(i)		maximum speed of Nerve Impulse		
	A.	100 metres/second	B.	110 metres/second
	C.	120 metres/second	D.	130 metres/second
(ii)	Wha	t are called the animals who lay sh	nelled eggs to p	protect the developing embryo from
	harsl	n terrestrial conditions?		
	A.	Viviparous	В.	Ovoviviparous
	C.	Oviparous	D.	Metatherians
(iii)	Ever	y protein starts with an amino acid	methionine en	coded by an initiation codon
	Α.	UAA	B.	UGA
	C.	AUG	D.	UAG
(iv)	Inap	opulation with two alleles for a pa	rticular locus A	and a, the allele frequency of A is 0.6.
	What	t would be the frequency of hetero	zygote if the po	pulation is in Hardy – Weinberg equilibrium
	A.	0.36	B.	0.16
	C.	0.24	D.	0.48
(v)	The t	term niche was first proposed in 19	917 by Joseph	Grinnell an American
	A.	Embryologist	В.	Ornithologist
	C.	Ecologist	D.	Physiologist
(vi)	Durin	ng which phase of meiosis the Nor	n-sister chroma	tids of homologous chromosome exchange
	their	segments due to the formation of	chiasmata?	
	A.	Pachytene	B.	Leptotene
	C.	Diplotene	D.	Diakinesis
(vii)	Whic	h of the following is NOT a sex-lin	ked disease in	humans?
	Α.	Hypophosphatemia	B.	Colour-blindness
	C.	Sickle cell anemia	D.	Haemophilia
(viii)	When	n a haemophiliac carrier woman m	narries a norma	I man, who among her offspring
	may	be affected?		
	A.	All her children	В.	All her daughters
	C.	Half of her daughters	D.	Half of her sons
(ix)	In an	ecosystem, the second trophic lev	vel is constitute	ed by the
	A.	Producers	B.	Decomposers
	C.	Primary consumers	D.	Secondary consumers
(x)	The e	enzyme luciferase is produced by	an insect comn	nonly called
	Α.	Housefly	B.	Butterfly
	C.	Firefly	D.	Dragonfly

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### DO NOT WRITE ANYTHING HERE

	blood	group O?			
	A.	25 %	В.	50 %	
	C.	75 %	D.	Zero %	
xii)	In the	human liver, ammonia and citrullin	e chemically	combine together to form	
	A.	Ornithine	B.	Creatinine	
	C.	Creatine	D.	Arginosuccinate	
xiii)	Whic	h of the following is a degenerative	disease?		
	A.	Alzheimer	B.	Arteriosclerosis	
	C.	Cretinism	D.	Kwashiorkor	
xiv)	Whic	h phenomenon reduces the chance	s of genetic re	ecombination and variations an	nong offspring
	A.	Linkage	В.	Crossing over	
	C.	Independent assortment	D.	Dominance	
xv)	Photo	onasty and thermonasty are the type	es of		
	A.	Haptonasty	B.	Hyponasty	
	C.	Nyctinasty	D.	Epinasty	
xvi)	pSC	101 plasmid has antibiotic resistanc	e gene for		
	A.	Tetracycline	B.	Ampicillin	
	C.	Streptomycine	D.	Penicillin	
xvii)	In lim	netic zone, phytoplankton includes_			
	A.	Algae	В.	Bacteria	
	C.	Mosses	D.	Cyanobacteria	
or Ex	camine	r's use only:	A SEPTEMBER OF		
			Total	Marks: 17	
			Mark	s Obtained:	



b.

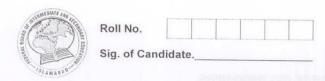
### BIOLOGY HSSC-II

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

Student Bounty.com Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

#### SECTION - B (Marks 42) Attempt any FOURTEEN parts. The answe to each part should not exceed 3 to 4 lines. (14 x 3 = 42) Q. 2 Specify the part of nephron associated with each of the following functions: (i) 03 b. Reabsorption C. (ii) Write down three methods for the excretion of waste materials in plants. 03 03 (iii) Define Epistasis What are the causes of rapid movement of leaflets of Mimosa plant? 02 a. (iv) 01 Define Nutation. Define Synovial joints. List the types of synovial joints. (v) With the help of graph, show the sequence of membrane potential changes associated (vi) 02 with an action potential. 01 What is the cause of Addison's disease? What is the importance of evolution of pollen-tube in Spermatophytes? 11/2 (vii) What is Parthenocarpy? Also write its cause. 11/2 (viii) How is birth controlled by maternal and foetal hormones in human female? 03 Differentiate between Apical meristem and Lateral meristem. 03 (ix) What is DNA polymerase III ? Write down its main features. 03 (x) How is Phragmoplast formed? What is its importance for future daughter cells? 02 (xi) 01 Write briefly about Anaphase? 03 (xii) What is Test cross? Differentiate between Incomplete dominance and Codominance with examples. 03 (XIII) What are the causes of insulin dependent diabetes mellitus? 02 (xiv) Write down the side effects of diabetes. 01 03 What are the two primary goals of human genome project? (xv) 03 Show diagrametically the two hypothesis on the evolution of Eukaryotic cell. (xvi) Differentiate between: 1+1 a. Population and Community b. Autecology and Synecology Biotic components and Abiotic components C. Define Succession. Differentiate between Primary Succession and Secondary Succession. 03 (xviii) 01 (xix) a. What is Acid rain? 02 Write any four damages caused by acid rain. SECTION - C (Marks 26) Note:-Attempt any TWO questions. All questions carry equal marks. $(2 \times 13 = 26)$ Q. 3 Describe the structure and function of the different parts of human Brain. Also draw the diagram. 6+2 a. b. Define Synapse. How does a nerve impulse communicate across a synapse? 1+2+2 09 0.4 Describe the developmental process of chick. a. What is meant by Abnormal development? Write down its causes. 04 b. How can you get multiple copies of a gene by recombinant DNA technology? 09 Q. 5 How is the SCID Syndrome cured by gene therapy?



1	Tide	
	1.2	
Answer Sheet No	GOLINE	
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# BIOLOGY HSSC-II SECTION - A ( Marks 17)

Time allowed: 25 Minutes

NOTE:- Section—A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

1 Cir	rcle the o	correct option i.e. A / B / C / D. Each pa	rt carrie	es one mark.
(i)	Wh	ich of the following joints allow free move	ment an	nd contain a cavity filled with fluid?
	Α.	Fibrous Joints	B.	Cartilaginous Joints
	C.	Pivot Joints	D.	Synovial Joints
(ii)	Edv	vard syndrome is because of trisomy of _	Marine .	chromosome pair.
	A.	12	B.	13
	C.	18	D.	21
(iii)	The	study of Aging is called		
	A.	Gerontology	B.	Palaeontology
	C.	Ethology	D.	Teratology
(iv)	Sick	le cell disease is a mutation that replaces	a single	e thymine with a/an
	A.	Adenine	B.	Guanine
	C.	Cytosine	D.	Uracil
(v)	The	endosymbiont hypothesis was first propo	sed by_	and the second second
	Α.	Malthus	B.	Carolus Linnaeus
	C.	Lynn Margulis	D.	Lyell
(vi)	Whic	ch of the following is included in Macronu	trients?	
	Α.	Iron	B.	Sulphur
	C.	Zinc	D.	lodine
(vii)	When	n a single gene affects two or more traits	the phe	enomenon is called
	A.	Epistasis	B.	Pleiotropy
	C.	Co-dominance	D.	Gene linkage
(viii)	In 19	58 A.D, F.C.Steward grew a complete co	rrot plar	nt from a tiny piece of
	Α.	Xylem	В.	Phloem
	C.	Meristem	D.	Mesophyll
(ix)	Short	-day plants (SDPs) show flowering when	critical I	length is less than
	Α.	8.5 hours	B.	10 hours
	C.	11 hours	D	15.5 hours

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	blood	d group AB?		
		25 %	В	50%
	Α.			
	C.	75 %		
(xi)	Whic			ich eliminate excretory waste with feces?
	Α.	Flat worm	В.	Mammals
	C.	Insects	D.	Reptiles
(xii)	The	plants that grow without light, become	extremely	long and fail to form chlorophyll, are
	calle	d		
	A.	Etiolated	B.	Chlorosis
	C.	Ebony	D.	Nutation
(xiii)	Whic	h of the following glands is Activated	by the low l	evel of blood $Ca^{++}$ ions?
	Α.	Adrenal gland	В.	Gut
	C.	Thyroid gland	D.	Parathyroid gland
(xiv)	2-am	nino, 6 oxy purine is		
	A.	Adenine	В.	Cytosine
	C.	Guanine	D.	Uracil
(xv)	In Pa	akistan, temperate deciduous forests	are found in	
	A.	Shogran and Neelam valley	В.	Kara-koram and Hindukush
	C.	Gilgit and Kashmir	D.	Mianwalli and Bakhar
(xvi)	A ne	rve fiber contracts on receiving the ne	erve impulse	which is carried from the sarcolemma to
	every	myofibril by the		
	Α.	Sarcoplasmic reticulum	В.	Sarcomere
	C.	T-tubules	D.	Calcium ions
(xvii)	Taq-	polymerase is isolated from the bacte	rium	La representation of the
	A.	Treponema pallidum	В.	Clostridium Tetani
	C.	Thermus aquaticus	D.	None of these
		nertice to		
For E	xamine	er's use only:	S Inches	
		water Of Total	Tota	I Marks: 17
				ks Obtained:
			210 (ON)	



# **BIOLOGY HSSC-II**

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

Student Bounty.com NOTE:- Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

		SECTION - B (Marks 42)					
Q. 2	Attem	Attempt any FOURTEEN parts. The answer to each part should not exceed 3 to 4 lines. (14 x 3 = 42)					
	(i)	How do cartilaginous fish maintain their lower internal salt concentration in marine environment	ment? 03				
	(ii)	How do plants get support from various types of tissues?	03				
	(iii)	Draw a labelled diagram of metanephridium.	03				
	(iv)	a. Name the process through which Arthropodes reform their Exoskeleton. Also					
		write different stages of this process.	2.5				
		b. Name the hormone involved in this process.	0.5				
	(V)	Write down the commercial applications of Auxin.	03				
	(vi)	What are Receptors? List any four types of Receptors.	1+2=03				
	(vii)	Define Instinctive behaviour. Explain briefly with an appropriate example.	03				
	(viii)	How does Discoidal cleavage differ from Cleavage?	1.5				
		b. How is Primitive streak formed in chick embryo?	1.5				
	(ix)	a. What do you mean by Nucleosome?	01				
		b. How is Heterochromatin different from Euchromatin?	02				
	(x)	Differentiate between Alkaptonuria and Phenylketonuria. Also write their causes and symptonuria	toms. 03				
	(xi)	a. How does centriole take part in the formation of mitotic apparatus?	02				
		b. Write the chemical composition of microtubules.	01				
	(xii)	Define Probability. Derive $9:3:3:1$ $F_2$ ratio of independent assortment through product rule.	03				
	(xiii)	a. Define Nullo gamete. How is it formed?	02				
		b. What does SRY stand for? Write down its function.	01				
	(xiv)	Write a brief note on Bombay Phenotype.	03				
	(xv)	Write down three uses of Transgenic bacteria.	03				
	(xvi)	Define Recombinant DNA technology. What are the basic requirements to form					
		recombinant DNA?	1+2=03				
	(xvii)	Differentiate between:					
		a. Food chain and Food web b. Predator and Prey	1+1				
		c. Mutualism and Commensalism	01				
	(xviii).	What are the main observation of Darwin's theory?	03				
	(xix)	a. List the different zones of lake ecosystem.	1.5				
		b. Write down the effects of the depletion of ozone layer.	1.5				
		SECTION - C (Marks 26)					
Note:-	Α	tempt any TWO questions. All questions carry equal marks. (2 x	13 = 26)				
Q. 3	a.	Describe the structure of skeletal muscle. Also explain the process of contraction.	04+03+02				
	b.	Explain the repair process of simple fracture.	04				
Q. 4	a.	Explain the process of Translation. Also draw diagrams.	06+03				
	b.	Define Mutation. Discuss its various types briefly.	01+03				
Q. 5	a.	Define Succession. What are the two types of succession? Discuss succession on dry land	.01+02+0				
	b.	Explain the main steps of nitrogen cycle-	04				