

BIOLOGY HSSC-II

SECTION - A (Marks 17)

Punjab Text Book Board

Time	allow	/ed: 25	Minutes		runjab lext bo	DOK BO	ard Version	Num	ber 1	8	5 6		
Note:	OMR	Answe	r Sheet which	should	d be completed	in the	o be answered of first 25 minutes d. Do not use lea	on the	separa handed	tely p	rovided		
Q. 1	Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMF Answer Sheet according to the instructions given there. Each part carries one mark.												
	1)	Selec	t the pair of orga	ınisms (excreting uric acid	i.	•						
		A.	Annelids / ins	ects		₿.	Insects / fishes	S					
		C.	Birds / insects	;		D.	Insects / amph	nibi an s					
	2)	Axis v	ertebrae belong	s to wh	ich of the following	g regior	n of vertebral colu	mn?					
		A.	Lumbar	B.	Cervical	C.	Thoracic	D.	Pelv	ic			
	3)	Which	of the following	diseas	e is related to nut	ritional	deficiency?						
		A.	Osteoporosis	B.	Osteoarthritis	C.	Microcephaly	D.	Rick	ets			
	4)	Which	one of the follo	wing is	a short day plant?	7							
		A.	Cucumber	B.	Tobacco	C.	Henbene	D.	Cotto	on			
	5)	Chromosome having centromere in the centre					alled:						
		A.	Acrocentric			B.	Metacentric						
		C.	Sub-metacent	ric		D.	Telocentric						
	6)	Grave	s disease and c	retinism	occur due to abr	normalit	y of the hormone:						
		A.	Insulin	B.	Thyroxine	C.	Parathormone	D.	Gluc	agon			
	7)	In whi	ch of the followir	ng stage	e of prophase I sy	n apsi s	starts?						
		A.	Leptotene	B.	Zygotene	C.	Diakine s is	D.	Diplo	ot e ne			
	8)	Dorsa	l lip of which are	a is reg	jarded as a prima	ry orgar	nizer by Spemanr	1?					
		A.	Neural tube	B.	Notochord	C.	Blastopore	D.	Blast	tomer	е		
	9)	Select	the part of brair	ı respor	nsible for maintair	ning lon	g term memory.						
		A.	Hypothalamus	в В.	Amygdala	C.	Thalamus	D.	Hipp	ocam	pus		
	10)	A coup	ple has four child	dren ha	lood gro	oups. Select the g	enotyp	e of the	coup	le.			
		A.	$I^A i \times ii$	B.	$I^{A}i \times I^{B}i$	C.	$I^BI^B \times ii$	D.	I^AI^B	×ii			
	11)	Which	of the following	codons	reads amino acid	d methic	onine?						
			AAG			C.	AG A	D.	AGU				
	12)										her		
		A.	Zero	B.	25%	C.	50%	D.	70%				
	13)	Select	the example of	comme	nsalism from the	followin	g:						
		A.	Algae and fung	gi		В.	Bacteria and P	ea plar	nt				
		C.	Shark and rem	ora fist	า	D.	Bee and flower	•					
	14)	All fact	tors <mark>are</mark> resp <mark>ons</mark>	ible for	change in the ger	ne frequ	ency EXCEPT:						
		A.	Random-matir	ng		B.	Mutation						
		C.	Migration			D.	Genetic drift						
	15)	Which	one of the follow	ving is a	a renewable resou	ırce:							

C.

C.

C.

Air

Helicase

 $4^{\circ}C - 30^{\circ}C$

D.

D.

D.

Natural gas

Endonuclease

4°*C*−35°*C*

Coal

Polymerase

 $4^{\circ}C - 20^{\circ}C$

16)

17)

A.

B.

B.

B.

Oil

Ligase

Moderate temperature of a temperate deciduous forest ranges between:

 $4^{\circ}C - 25^{\circ}C$

Gene of interest can be joined to a plasmid by the help of enzyme:



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Puniab Text Book Board

Time allowed: 2:35 Hours

Total Marks Sections B, C and D: 68

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

SECTION - B (Marks 21)

(Chapter 15 - 20)

Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. Q. 2

 $(7 \times 3 = 21)$

- (i) How do the plants adapt to survive in high temperature?
- (ii) Describe the types of cartilage.
- (iii) Write down the names and functions of components of Hind brain.
- What is cleavage and how it occurs in a chick embryo? (iv)
- (v) What is gonorrhoea? Describe its cause and symptoms.
- (vi) In growth of plant what significant changes occur in differentiation phase?
- (vii) Complete the table:

Sr. No	Hormone	Function
1	Secretin	
2		Contraction of Uterus and milk ejection
3	Adrenaline	

- Define the following terms: (viii)
 - Parthenocarpy
- b. Osmoconformers
- Nutation C.

- Define point mutation. Give one example. (ix)
- Describe briefly the characteristics of thin myofilament. (x)

SECTION - C (Marks 21)

(Chapter 21 - 27)

Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. Q. 3

 $(7 \times 3 = 21)$

- What are the causes and symptoms of Turner's syndrome? (i)
- (ii) What are the sex-limited traits? How are they controlled? Give one example.
- What is the significance of predation? (iii)
- How molecular biology is providing an evidence of evolution? (iv)
- Describe the cause of Ozone depletion and what are the consequences of its depletion? (v)
- How is sex determined in birds and butterflies? (vi)
- Describe in vivo gene therapy to cure cystic fibrosis. (vii)
- Describe briefly the characteristics of animal life in a desert region. (viii)
- Define following terms: (ix)

b.

- Synecology
- b. Epistasis
- **Necrosis**
- Describe briefly the technique of meristem culture to produce plants. (x)

SECTION - D (Marks 26)

Note:		Attempt any TWO questions. All questions carry equal marks.	$(2 \times 13 = 26)$
Q. 4	a.	What is pituitary gland? Describe various hormones produced by its anterior lobe.	(01+07)
	b.	What are the major functions of skeleton?	(05)

What are the major functions of skeleton? b.

(80)

Q. 5 Explain replication of DNA with the help of a diagram. a.

Describe incomplete dominance.

(05)

Q. 6 Define PCR. Discuss its technique with the help of a diagram. a.

(01+06)

What is meant by acid rain? Enlist its harmful effects. h.

(01+05)



Α.

C.

Human height

Wheat grain colour

BIOLOGY HSSC-II

SECTION - A (Marks 17)

Punjab Text Book Board

Time	allowed: 25 Minutes	Version Number	1	8	6	1
Note:	Section – A is compulsory. All parts of this section are to be a OMR Answer Sheet which should be completed in the first Centre Superintendent. Deleting/overwriting is not allowed. Do	25 minutes and hand				

1)	Δ coc	kroach excretes	nitrogen	oue wastes wit	h the heli	n of:		•		
1)	A.	Nephridia	muogen	ious wastes wit	л иле пец В.	Flame cell				
	C.	Malphigian tu	hule		D.	Nephron				
2)		t the one which		nart of Avial el		мершоп		•		
۷)	A.	Skull	В.	Vertebrae	C.	Sternum	D.	Pelvic girdle		
3)		n hormone cause			_	Otemani	ъ.	1 GIVIO GII GIO		
<i>J</i> ,	A.	LTH	B,	Oxytocin	C.	LH	D.	Prolactin		
.)		t the two minera		=			В.	roladin		
.,	A.	Calcium and			В.	Iron and Cal	eiu m			
	C.	Phosphorus a	-		D,	Sulphur and				
5)		se the function r				•				
,	Α.	Increase in w			В.	Elongation o	f plant			
	C.	Production of			D.	Formation of				
5)		e neurotransmitt		EPT:						
,	Α.	Adrenaline	В.	Acetylcholine	e C.	Corticostero	ne D.	Nor epinephrin e		
7)		se the one which		•						
,	Α.	Auxin	В.	Gibberellin	C.	Ethene	D.	Cytokinins		
3)		e layer is about				ce of earth.		- ,		
,	A.	10 – 20	В.	10 – 30	C.	10 – 40	D.	10 – 50		
9)		phase I crossing								
,	Α. ່	Pachytene	В,	Leptotene	C.	Zygotene	D.	Diplotene		
0)	If a no	If a normal homozygous female is married to a haemophilic male. What is the probability of								
•	her sons to be haemophilic?									
	A.	25%	В.	50%	C.	75%	D.	Zero		
1)	Accor	ding to endosym	nbiont hy	pothesis, proka	aryotic am	noeboid cell dev	eloped n	nit <mark>ocho</mark> ndria by ingestin		
,	A.				В.	Aerobic bact	•	, ,		
	C.	Cyanobacteria	а		D.	Archae bacte	eria			
12)	If a he	eterozygous red or eye colour in	eyed fen f1-gener	nale dr <mark>osop</mark> hila ation?	is crosse	ed with a red ey	ed male.	What is the phenotypic		
	A.	1:2:1	В, •	3:1	C.	1:1:1:1	D.	2:2		
13)	DNA f	fragments produ	ced by tr	•	triction er	nzymes can be	separate	d by:		
	A.	Centrifugation	-	Electrophore		PCR	D.	Genomic library		
14)	In whi	ch form, nitroge	n is MOS	STLY absorbed	by the p	lant roots?				
	A.	Nitrite	B.	Ammonia	C.	Amino a c ids	D.	Nitrates		
15)	Grass	lands in tropica	l climate	s having woody	/ trees ar	e called:				
	A.	Prairies	B.	Pampas	C.	Savanna	D.	Tundra		
16)	Which	of the following	is NOT	an example of	homologe	ous organ?				
	A.	Flipper of a w			В.	Arm of a mai	n			
	C.	Forelimb of a	mamma		D.	Wing of a fly				
				nuous variation						

В.

D.

Tongue rolling

Human skin



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Time allowed: 2:35 Hours

Total Marks Sections B, C and D: 68

NOTE:

Answer any Seven parts each from Section 'B' and 'C' and any two questions from Section 'D' 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 21) (Chapter 15 - 20)

Q. 2 Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines. $(7 \times 3 = 21)$

- Write down the characteristics of xerophytes for osmoregulation. (i)
- Describe any two types of sclerenchymatous cells. (ii)
- Name the types of adaptations which are used by animals for regulation of heat with their (iii) environment. Briefly describe any two.
- Complete the table: (iv)

Sr. No.	Hormone	Function
1	Gastrin	
2		Causes reabsorption of water
		in distal part of nephron
3	Aldosterone	

- Define parthenogenesis and describe diploid parthenogenesis. (v)
- How is light important for the growth of plants? (vi)
- Describe any two types of RNA along with their functions. (vii)
- What is the cause and symptoms of Tetany? (viii)
 - What is meant by ecdysis?
- (ix) Define the following terms:
 - **Biorhythms**
- b. Tendons
- Meristems
- Differentiate briefly between sympathetic and parasympathetic nervous system. (x)

SECTION - C (Marks 21)

C.

(Chapter 21 - 27)

Q. 3 Answer any SEVEN parts. The answer to each part should not exceed 5 to 6 lines.

 $(7 \times 3 = 21)$

- Describe cause and symptoms of Klinefelter's syndrome. (i)
- (ii) Define pleiotropy. Give two examples of it.
- How is sex determined in grass hopper? (iii)
- What are the three possible ways to get the gene of interest? (iv)
- Briefly write down the observations of Darwin for proposing the theory of natural selection. (v)
- (vi) Briefly write down the characteristics of a climax forest.
- (vii) Describe profundal zone of a lake ecosystem.
- What is meant by Eutrophication and how does it occur? (viii)
- Define following terms: (ix)

Q. 4

Q. 5

b.

b.

- Zooplanktons b. a.
- Autecology
- **Necrosis**
- How is anther culture helpful to grow plants? (x)

SECTION - D (Marks 26)

C.

 $(2 \times 13 = 26)$ Note: Attempt any TWO questions. All questions carry equal marks.

What is a synapse? Explain transmission of nerve impulse across a synapse. a.

(01+06)

What are the tropic movements? Describe their various types. b.

(01+05)(08)

Explain the transcription process in detail. Elaborate your answer with the help of a diagram. a. What is a food web? How is it important for an ecosystem?

(01+04)

Explain human female reproductive cycle with the help of a diagram. Q. 6

What is greenhouse effect? Describe its harmful aspects.

a.

(09)(01+03)

- 2HA 1810 (ON) -



BIOLOGY HSSC-II SECTION - A (Marks 17)

National Book Foundation

Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which 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)	Inspira	atory capacity of	lunas is	the sum of		volumes			
.,	Α.	Tidal and Insp			В.	Tidal and Ex	niratory		
	C.	Residual and	-			Tidal and Re			
2)		one of the follow	•	•				ording to Hardy	Mainhar
<i>L)</i>	Theore		wing is it	ioi ille cause	or change	e in allelic nequ	ency acc	ording to nardy	vveniber
	A.	Gene Flow	B.	Mutation	C.	Random Ma	ting D.	Selection	
3)	The co	ondition in which	kidneys	are infected is	called:		-		
	A.	Pyelonephritis	В.	Urethritis	C.	Cystitis	D.	Nephrolithia	sis
4)	All of t	he following faci	ial bones	of head are pa	aired EXC	CEPT:		·	
ŕ	A.	Zygomatic	B.	Maxilla	C.	Lacrimal	D.	Mandible	
5)	Svnde	smoses are fibre			_				
- /	Α.	Skull	oue joint	o minori di o roc	В.	Midd ie ear c	hamher		
	C.	Between teeth	and ho	nes of iaw	D.	Between atla		rie	
3)		PCR, the temp		•		°C in order			
<i></i>	-	•							
7 \	A.	92	В.	93	, C.	94	D.	9 5	
7)		bodies present		ii boay of neur	_				
	Α.	Ribosome and			В.	Golgi body a		hondria	
. .	C.	Ribosome and			D.	Golgi body a	and RER		
3)		y the inhibitory n							
	Α.	Acetylcholine		Epinephrine	C.	Dopamine	D.	Glycine	
9)	During	sewage proces	_	croorganisms a	are used	in	treatr	ment.	
	Α.	Primary	B.	Secondary	C.	Tertiary	D.	Quaternary	
10)	The ch	romosome in w	hich cen	tromer <mark>e</mark> is loca	ted at an	end is called:			
	Α.	Metacentric	B.	Acrocentric	C.	Telocentric	D.	Submetacen	itric
11)	The ur	ncontrolled move	ement of	the arms, head	d, legs, fa	ace and upper b	ody is th	e main sympton	n
	of	disease.							
	A.	Huntingtons			B.	Multiple scle	rosis		
	C.	Parkinsons			D.	Al zhei mer			
12)	Small a	amount of testos	sterone i	s released both	in males	s and females b	ov:		
	Α.	Testes			В.	Adrenal Med	-		
	C.	Thyroid Gland			D.	Adrenal Cort			
13)	If a cat	is exposed to a	particul	ar odour and el				starts to avoid th	ne odour
,		an example of:							10 0000.
	Α.	Classical Cond	ditionina		B.	Reasoning			
	C.	Imprinting	,eg		D.	Habituation			
14)		cells are found:			U.	Habitation			
,	A.	In Seminiferou		7C	B.	Between Se	minal Ve	sicles	
	C.	In Follicles	.s Tubule	<i>5</i> 5	D.				
15)			other is	AD and father:		Between Inte			
15)	AB or (lood group of m D?	otner is	AD and lather t	s O, wna	t will be the cha	ance or or	rsprings with bit	ooa group
	A.	Zero	B.	1/2	C.	1/4	D.	3/4	
16)	"DNA r	eplication is sen	ni conse	rvative". It was	proved b	oy:			
•	A.	Meselson and		•	В.	Watson and	Crick		
	C.	Hershey and C			D.	Correns and			
17)		one of the follow		sed for making					ĺ
,	Α.	Aspergillus	9	g	B.	Saccharomy	ces		
	C.	Acetobacter				•			İ
		ACRIDIACION			D.	Streptococcu	18		

(03)



b.

BIOLOGY HSSC-II

(National Book Foundation)

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

OTE: 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.

SECTIO	N – B (<u>N</u>	larks 42)

_				2	LOTION - D IMMING 42	_					
Q. 2	Answe	er any F	OURTEEN part	s. The a	nswer to each p art sh	ould no	t exceed 3 to 4 lines.	$(14 \times 3 = 42)$			
	(i)	Write about the aetiology, symptoms and treatment of Pulmonary Tuberculosis.									
	(ii)	Differe	entiate between l	Haemog	lobin and Myoglobin. (ar	ny three)	(03)			
	(iii)	Name	Name and briefly explain the Physiological Strategies used in Humans to regulate cold.								
	(iv)	Name	Name and define different types of Neurons.								
	(v)	Define	Define the following terms:								
		a.	Habituation	b.	Animal Aggregation	C.	Instincts				
	(vi)	Write	any three major	causes o	of Male Infertility.			(03)			
	(vii)	Name	the diseases ca	used by	Over Secretion of:			(1+1+1)			
		a.	Insulin	b.	Cortical Hormones	C.	Tri iodothyronine				
	(viii)	Define	e Identical Twins.	Explain	briefly how are they for	med.		(03)			
	(ix)	Write	down any three l	imitation	s of Law of Independen	t Assorti	ment.	(03)			
	(x)	Briefly	explain the med	hanism	of XO-XX type of Sex D	etermina	ation.	(03)			
	(xi)	a.	Define Pneum	onector	y and Spirometry.			(02)			
		b.	What is Chloric	de Shift?)			(01)			
	(xii)	Write about different types of Cartilage. Still Briefly explain the major points of Darwin's theory of Natural Selection.									
	(xiii)										
	(xiv)										
			maintaining R	ИP.				(1+1)			
		b.	What is the dif	ference	between Depolariz ati on	and Hy	perpolarization?	(01)			
	(xv)	Define	and explain brie	fly Allop	atric Speciation.			(03)			
	(xvi)	ii) How is Genomic Library constructed?									
	(xvii)										
	(xviii)										
	(xix)	• • •									
				<u>s</u>	ECTION – C (Marks 26	ì					
Note:	Α	ttempt	any TWO quest	ions. Al	l questions carry eq ua	l marks	5.	(2 x 13 = 26)			
Q. 3	a.	Give a	detailed accour	it of Ultra	a Structure of Sk <mark>eletal M</mark>	luscle. <i>F</i>	Also draw the diagram of				
		a Sarc	comere.					(6+2)			
	b.	Define	and explain Ga	strulatio	n in Humans.			(1+4)			
Q. 4	a.	Descri	ibe four main ph	ases of I	Nitrogen Cycle. Al s o dra	w Nitrog	gen Cycle.	(8+2)			
	b.	Differe	entiate between :	Sex limit	ed and Sex influe nce d t	raits.		(03)			
Q. 5	a.	Explai	n t h e mechanish	n of Trar	ns c ription. Also draw the	diagrar	ns.	(7+3)			

How is Haemodialysis carried out in Kidney patients?