Reg. No.

B.Tech. DEGREE EXAMINATION, NOVEMBER 2019 Third Semester

18BTB101T	_	BIOLOGY

Note:	$18 { m BTB} 101 { m T} - { m I}$ (For the candidates admitted during the a		
(i) (ii)	Part - A should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45 th minute.		
Time:	Three Hours	Max. Marks: 100	
	PART – A (20 × 1 Answer ALL		
Hilliam	(C) Produce ribosomes	(B) Regulate calcium in muscle cens(D) Destroy toxic substances	
2.	5'AUGUGUGAAGGU 3'. (A) Meth-Ser-Asn-Gly (C) Met-Phe-Asn-Val	(B) Met-Tyr-Gln-Leu (D) Met-Cys-Glu-Gly	
3.	Theoretical yield of total ATP per glucose (A) 30 (C) 36	(D) 38	
4.	duplication? (A) G ₀ check point (C) G ₂ check point	there is a fault in DNA replication and chromosome (B) G ₁ check point (D) M check point	
5.	Which of the following disease is due to n (A) Scurvy (C) Cholera	(D) Tuberculosis	
6.	Waxes are (A) Esters of single chain, highly complexed alcohol and long chain	(B) Esters of trihydric alcohol and fatty acids	
	fatty acids (C) Esters of tetrameric cycloalkyl	(D) Esters of flavanols and long chain fatty acids seems paired with tripler codon of mRNA 'CAG' and a wisting pentide.	
7.	it attaches amino acid to amino acid acid acid acid acid acid acid acid	(B) GUC, glutamine (D) UGC, cysteine	
	(C) CUG, leucine	28\A3/18BTB101T	

age I nf 3

estible restriction recognition	I sites are present at t and the pairs of DNA f_0	r
11. How many possible restriction recognition the restriction endonuclease EcoRI?	(B) 3	•
the restriction of	(D) 5 (D) 5	
(A) 2 (C) 4	(D) 3	
12. Calvin cycle involves	(B) Oxidative carboxylation	
(A) Oxidative phosphorylation (C) Reductive carboxylation	(D) Reductive phosphorylation	
(C) Reductive Carboxy latters		
13. Microfilaments are composed of	(D) (E. 1. 1)	
(A) Actin	(B) Tubulin	
(C) Myosin	(D) Fibers	
the miles are accepting unit of hacterial flag	ellar motor is	
14. The torque-generating unit of bacterial flag	(B) MS-ring	
(A) C-ring (C) HOOK	(D) Mot-A	
(c) nook	(D) Wot-11	
15. Piezo-electric devices detect		
(A) Potential differences	(B) Angle of emitted electron waves	
(C) Emitted fluroscence light	(D) Electric current	
C		
16. Which of the following enzyme activity sen	ises plucose concentration?	
(A) Glucose oxidase	(B) Glucose synthase	
(C) Glucose reductase	(D) Cluss 1:	
	(D) Gluco kinase	
17. Axon is surrounded by a fatty material calle		
on sheath		
(C) Mucus	(B) Pleura	
10 -	(D) Dura	
18. Transmission of an electrical signal from on (A) Glutamate (C) Oxytocin		
(A) Glutamate (A) Glutamate	e neuron to the next is not effected by	
(C) Oxytocin	(B) Acetylcholine	
19. The distinctive most	(a) Carbon-di-surprinde	
19. The distinctive markers on antigens that trig(A) Paratope(C) Idiotope	(tar on in	
(C) Idiotope	(D) F	
	2phope	
	(D) Isotone	

- 20. The infillance cell that allow for subsequent recognition of an antigen resulting in secondary response's called
 - (A) Antigen presenting cell
 - (C) Basophils

- (B) Plasma cell
- (D) Memory cell

$PART - B (5 \times 4 = 20 Marks)$ Answer ANY FIVE Ouestions

- 21. Write the structural components of nucleotides.
- 22. Write about the structure and functions of mitochondria with a neat diagram.
- 23. How is matured mRNA being generated after transcription in eukaryotic organisms?
- 24. Write a note on specificity of enzyme actions.
- 25. Classify biosensors and write their components with schematic diagram.
- 26. Explain how impulse is being transported through nerve cells.
- 27. Write a short note on types of intercellular signaling.

$PART - C (5 \times 12 = 60 Marks)$ Answer ALL Questions

28. a. Describe the structure of protein and its functions.

(OR)

- b. Explain the autosomal cell division with a neat diagram.
- 29. a. Discuss about stem cells and their applications.

(OR)

- b. Explain the translation of a protein with a neat schematic diagram.
- 30. a. Write in detail about restriction endonucleases and their applications in rDNA technology.

(OR)

- b. Describe the stages involved in photosynthesis.
- 31.2. Discuss about the structure and mechanism of action of F_0F_1 ATP synthase motor with a neat diagram.

(OR)

- b. Explain the types of bioremediations and types of microorganisms involved in them.
- 32. a. Write in detail about neural network in the brain and discuss about computer based neural networks.

(OR)

b. Explain how acquired immunity is developed in our body.

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20NA3/18BTB101T

(U) UUC, cysteine

B. Tech. DEGREE EXAMINATION, DECEMBER 2017

First / Second Semester

15BT101 BIOLOGY FOR ENGINEEERS

(For the candidates admitted during the academic year 2015 - 2016 onwards)

	(For the canalagues admitted		cover should be handed
Note:	Part - A should be answered in OMR sheet within the end of 45th minute.	in f	irst 45 minutes and OMR sheet should be
(i)	Part - A should be answered in Off 45th minute. over to hall invigilator at the end of 45th minute.		
	Part - B and Part - C should be answered in answ	wer	booklet.
(ii)	Part - B and Part - C shows		Max. Marks: 100
			1,1,2,00
Time: Th	aree Hours		
	$PART - A (20 \times 1)$	= 2	0 Marks)
	Angwer ALL O)ue:	stions
	ants produce energy from sunlight with the h		Calderaphyll which is present in
181197119111	to produce energy from sunlight with the h	ielp	of chlorophyn white
. Pla	ants produce energy (B	3)	Chromoplast
(A) Chromosome (D))	Centromere
(C)) Chloroplast		
	the end of 2^{nd} meiotic division how many hat	apl	oid cells are produced
2. At 1	the end of 2 nd meiotic division now many	3)	3
(A)	4))	1
(C)	2	')	1
(C)	2		1
	ormer of proteins are linked together by whi	ich	DONU 1 at bond
3. Poly	mer of proteins are the band (B	3)	Covalent bond
(A)	Polypeptide bond (D))	Amino bond
(-)	the enine	dle	fibers during which stage of the mitotic
1 The	Non-covalent bond chromosomes are pulled apart by the spinor	uio	
4. The	ion (D	• `	Anonhase
divis	10II (B	3)	Anaphase
(A)	Prophase (D))	Metaphase
(C)	Telophase		Inging from level to level. Molecular; Micro
	· of functions	: ra	nging fromlevel to
5 Dentai	ins are essential for a variety of functions) \) \	Molecular: Micro
5. Protei	Micro)) ->	Minam Major
(A)	Macro; Micro (D))	Minor; Major
(C) 1	Molecular; Macro		
	troduction of can disrupt entire (E	PCI	osystem
The im	traduction of can disrupt entire	2/	The beide
). The in	(E	3)	Hybrids
(A) N	vative species (T))	Familiar species
			· continue
(0)			is held together by interactions. Non-covalent
	of the DNA in the double help	1X 1	Is held together of
. The tw	o strands of the Division (E	3)	Non-covalent
(A)	OVAICH	Ù	Hydrogen gas
(C) H	ydrophilic interactions (1)	
(C) Π	y di opinii o		
	ner Cell Mass (ICM) is surrounded by a	an	outer layer called
The Inr	ner Cell Mass (ICM) is suitounded by	3)	Ectoderm
	doderm) ->	Manadama
(A) Er	ndoderm (I))	Mesoderm
(C) Tr	ophoblast		
(-)	A		

		cture but the same function are calle
	which have different so a	cture but the same function are calle (B) Proenzyme (D) Haloenzyme
9.	Enzymes	(D) Haloenzyme
	(A) Apoetro	
	(C) Isoenzyme When the temperature increases in Internal and kinetic energy	the evetern it leads to increase in
	more increases in	(B) Kinetic and potential
10.	When the temperature	(D) Internal energy only
,	When the temperature increases (A) Internal and kinetic energy and notential energy	(D) Internal energy only
	t-tagnal allo	
	Which of the following enzyme is p	oresent in papaya:
11.	Which of the following	(B) Amylase
1	(A) Kemii	(D) Cellulase
	(C) Papain	
		μm.
12.	The length of the chloroplast is	(B) 5
	(A) 3	(D) 9
	(C) 7	
	F0F1 – ATP synthase is present in th	ne of animal cells.
13.	F0F1 – ATP synthase is present in on	(B) Mitochondria
	(A) Cytopiasm	(D) Endoplasmic reticulum
	(C) Nucleus	,
	Which is the key ion responsible for t	the ion-motive force?
14.	Which is the key ion responsible 191	(B) K+
	(A) Na ₊ (C) Ca ²⁺	(D) Mg^{2+}
15.	Which of the following can be a senso	or element in a biosensor?
, ,	(A) Microbe	(B) Temperature
	(C) Polysaccharide	(D) Nucleic acid
16.	Kinesin and dynein transport cargo alo	
	(A) Microfilaments(C) Intermediate filaments	(B) Microtubules
	(C) Intermediate mamerits	(D) Actin
17.	The basic structural unit of the nervous	s system is called as
	(A) Axon	(B) Nephron
	(C) Neuron	(D) Glia
1.0	Which of the Call	
16.	Which of the following is not an auto in (A) Type 1 diabetes	
	(C) Tuberculosis	(B) Multiple sclerosis
		(D) Lupus erythromatous
19.	pH of the skin is	
	(A) Basic (above 7)	(B) Acidic (below 7)
	(C) Neutral (pH 7)	(D) Modifies frequently
20.	Antibodies are produced by	
	1 lylliphocytes	(B) B lymphocytes
	(C) Macrophages	(D) Neutrophils
		-

PART - B (5 × 4 = 20 Marks) Answer ANY FIVE Questions

- 21. List down the stages of cell cycle.
- 22. Write the importance of macromolecules.
- 23. Differentiate ionic and covalent bonding.
- 24. Explain the process of splicing.
- 25. Give an account of classification of enzyme by Enzyme Commission of IUBMB.
- 26. Define glucose biosensors.
- 27. Write short note on peripheral nervous system.

$PART - C (5 \times 12 = 60 \text{ Marks})$ Answer ALL Questions

28. a. Explain with a neat diagram of the cell structure and functions.

(OR)

- b. Differentiate between intrinsic and extrinsic homeostatic system.
- 29. a. Explain the structure of t-RNA with neat diagram. Describe its role in the process of translation.

(OR)

- b. Elaborate on the method of human embryonic stem cells isolation and culturing.
- 30. a. Describe in detail about the factors affecting enzyme activity and its applications.

(OR)

- b. Write detail note on the light-dependent reactions in photosynthesis.
- 31. a. Describe in detail about the flagellar motor with neat structure.

(OR)

- b. What is bioremediation? Enlist different techniques of bioremediation.
- 32. a. Explain computer based neural network and how is it useful to human beings.

b. What is an antigen and how do T and B cells interact with an antigen to cause the destruction of an antigen?

* * * * *

$PART - A (20 \times 1 = 20) \text{ Mat Bas})$

Answer ALL	Questions	,
TXIIO	r an outh	endoplasmic

Answer ALL Questions Answer ALL Questions					
	Answer ALL	, 200	a and anic reticulum?	110	
	Answer ALL Questions Answer ALL Questions Answer ALL Questions Answer ALL Questions (B) Regulate calcium in muscle cells (B) Regulate calcium in muscle cells (D) Destroy toxic substances				
min	h of the following is NOT the fare	(B)	Regulate calcium Destroy toxic substances		
V DIC	Produce membrane lipids Produce membrane lipids	(D)	Destroy toxic soco	c PNA	
4)	Produce ribosomes	7	the given strete	ch of micros	
)	Produce membrane lipids Produce ribosomes the of the following peptide is being lighted to the following peptide in the following peptide is being lighted to the following peptide in the following peptide is being lighted to the following peptide in the following peptide is being lighted to the following peptide in the	tran	islated from the g		
	h of the following peptide is being	2	at Leu		
hic	JGUGUGAAGGU 3'.	(B)	Met-Tyr-Gln-Leu		
AL	Gly	m	Met-Cys-Glu-Gly		
A)	Meur-Scraphe-Asn-Val	(-)	der gerohic col	nditions is	
C)	Meth-Ser-Ash-Giy Met-Phe-Ash-Val retical yield of total ATP per glucose of	hirins	catabolism under across		
	at a larield of total ATP per glucose	(B)	32		
heo	retical yield of	(D)	38		
A)	30 36 Sh check point is being activated when t	(1)	L'action at	nd chromosome	
C)	36	harei	is a fault in DNA replication as	1	
	int is being activated when i	nero	15 00		
Vhic	ch check point is being	(12)	G ₁ check point		
	A2110111	(B)	M check point		
4)	Go check point				
C)	G2 check point		in the gene coding?		
~/	G ₂ check point the of the following disease is due to m	utatio	on in the gene		
Whic	th of the following disease	(B)	Cysuc north		
A)	Scurvy	(D)	Tuberculosis		
ውን ሮጎ	Cholera			* 1	
<i>-</i>)			s. indeic alcohol a	nd fatty acids	
Vovi	es are	(B)	Esters of trihydric alcohol a		
AJ	Esters of single chain complexed alcohol and long chain		Esters of flavanols and long	chain fatty acids	
		(D)	Esters of flavanois and long		
01	Esters of tetrameric cycloalkyl				
C)	Esters of tetrament cycles hydroxyl compounds and fatty acids			NA 'CAG' and	
	hydroxyr component	4	ired with tripler codon of mr	CALL	
	that ge	ets pa	ting nentide.		
\nti-	-codon of tRIVA is amino acid to th	ie exi	CUC glutamine		
att	hydroxyl compounds and fatty acids -codon of tRNA is that geaches amino acid to the GAG. Glutamic acid	(B)	UGC, cysteine		
A)	GAG, Glutamic acid	(D)	UGC, CJ WELL		
C)	CUG, leucine			20NA3/ISBTB101T	
,					

Which of the following is neuro degenerat	ive dis	ense?
(A) Cerebral palsy		Neuralgia
(C) Neuropathy		Parkinson's disease
Phenyl ketomuria is due to the deficiency of		
(A) Dopamine β-hydroxylase		Tyrosine hydroxylase
(C) Phenyl alanine hydroxylase	(D)	Cholesterol 7-alpha-hydroxylase
 The amino acids involved in catalytic trial are 	l form	ation in the active site of the serine protease
(A) Serine, histidine and aspartic acid	(B)	Scrine, proline and aspartic acid
(C) Serine, cysteine and aspartic acid	(D)	Serine, histidine and glycine
		g-7
11. How many possible restriction recognition the restriction endonuclease EcoRI?	sites	are present in 17 kilo base pairs of DNA for
(A) 2	(B)	3
(C) 4	(D)	5
10 Calain male (mark)		
12. Calvin cycle involves(A) Oxidative phosphorylation	(B)	Oxidative carboxylation
(C) Reductive carboxylation		Reductive phosphorylation
(C) Reductive Carboxyration	(D)	Reductive phosphorytation
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(C) Myosin	(D)	Fibers
	` '	
14. The torque-generating unit of bacterial flag	gellar	motor is
(A) C-ring	(B)	MS-ring
(C) HOOK	(D)	Mot-A
	` ,	
15. Piezo-electric devices detect		
(A) Potential differences	(B)	Angle of emitted electron waves
(C) Emitted fluroscence light	•	Electric current
(C) Ellitted Harosonio ingin	(30)	22000, 10 10 10 10 10 10 10 10 10 10 10 10 10
16. Which of the following enzyme activity ser	nses o	ducase concentration?
(A) Glucose oxidase	_	Glucose synthase
		•
(C) Glucose reductase	(D)	Gluco kinase
100		
17. Axon is surrounded by a fatty material call	ed	
(A) Myelin sheath	(B)	Pleura
(C) Mucus	(D)	Dura
	()	
8. Transmission of an electrical signal from or	ne ne	uron to the next is not effected by
(A) Glutamate	~	Acetylcholine
(C) Oxytocin	(D)	Carbon-di-sulphide

18.

response's called

- (A) Antigen presenting cell
- (C) Basophils

(B) Plasma cell

(D) Memory cell

$PART - B (5 \times 4 = 20 Marks)$ Answer ANY FIVE Questions

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