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Printed	Page:-04 Subject Code:- BBT0201
	Roll. No:
	NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
	(An Autonomous Institute Affiliated to AKTU, Lucknow)
	B.Tech
	SEM: II - THEORY EXAMINATION (2023- 2024)
Time:	Subject: Introduction to Biotechnology 3 Hours Max. Marks: 100
	Instructions:
	ify that you have received the question paper with the correct course, code, branch
etc.	The state of the s
1. This C	Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice
Question	ns (MCQ's) & Subjective type questions.
2. Maxin	num marks for each question are indicated on right -hand side of each question.
	ate your answers with neat sketches wherever necessary.
	ne suitable data if necessary.
	rably, write the answers in sequential order.
	neet should be left blank. Any written material after a blank sheet will not be
evaluate	
	SECTION A 20
1. Atten	npt all parts:-
1-a.	Who proved that plant cells are totipotent? (CO1)
	(a) Steward
	(b) Muir
	(c) Haberlandt
	(d) Maheshwari
1-b.	Prokaryotic cells do not possess: (CO1)
	(a) Cell wall
	(b) Cytoplasm
	(c) Cell membrane
	(d) Nucleolus
1-c.	The spindle apparatus is formed during the phase of mitosis. (CO2) 1
	(a) Telophase
	(b) Metaphase
	(3)

	(c) Prophase	
	(d) Anaphase	
1-d.	The best stage at which the total number of chromosomes can be counted in any species is? (CO2)	1
	(a) Telophase	
	(b) Metaphase	
	(c) Late anaphase	
	(d) Late prophase	
1-e.	Who proposed the the DNA as genetic material? (CO3)	1
	(a) Griffith	
	(b) Robert hook	
	(c) Robert brown	
	(d) Harshey and Chase	
1-f.	Which of the following nitrogen base are pyridines ? (CO3)	1
	(a) T and C	
	(b) T and A	
	(c) Aand C	
	(d) Gand T	
1-g.	Allergy involves: (CO4)	1
	(a) IgA	
	(b) IgE	
	(c) IgD	
	(d) IgG	
1-h.	Barrier created by saliva and tears is released to:(CO4)	1
	(a) Physiological barrier	
	(b) Cellular barrier	
	(c) Cytokine barrier	
	(d) Physical barrier	
1-i.	Hirudin is? (CO5)	1
	(a) Protein from Hordeum valgare	
	(b) Toxic molecules from Gossypium	
	(c) Protein from transgenic Brassica napus	
	(d) Antibiotic from GM Escherichia	

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1-j.	Reagent used in ELISA test is (CO5)	1			
	(a) Endonuclease				
	(b) Polymerase				
	(c) Ligase				
	(d) Peroxidase				
2. Atten	2. Attempt all parts:-				
2.a.	Explain the main points of cell theory? (CO1)	2			
2.b.	Describe the prophase of mitosis? (CO2)	2			
2.c.	Write down the contribution of F. Griffith? (CO3)	2			
2.d.	What is the process by which immune cells recognize and destroy abnormal cells in the body? (CO4)	2			
2.e.	Write down the function of DNA ligases? (CO5)	2			
	SECTION B	30			
3. Answ	er any <u>five</u> of the following:-				
3-a.	Give an account of structure and functions of endoplasmic reticulum? (CO1)	6			
3-b.	Describe the structure of cell wall and state its functions? (CO1)	6			
3-c.	Discuss somatic cell division and mention its importance? (CO2)	6			
3-d.	Give an account of cell cycle? (CO2)	6			
3.e.	Why is DNA a better genetic material when compared to RNA? (CO3)	6			
3.f.	Explain the type of immunity is developed after recovering from a disease? (CO4)	6			
3.g.	Discuss the three critical research areas of Biotechnology? (CO5)	6			
	SECTION C	50			
4. Answ	er any <u>one</u> of the following:-				
4-a.	Write a detailed notes on amino acids and proteins? (CO1)	10			
4-b.	What are carbohydrates? Give the properties of carbohydrates? (CO1)	10			
5. Answ	er any <u>one</u> of the following:-				
5-a.	Discuss the importance of meiosis cell division in sexually reproducing organisms? (CO2)	10			
5-b.	How cytokinesis is different in an animal cell division and plant cell division? (CO2)	10			

6. Answer any <u>one</u> of the following:-

6-a.	Enlist the salient features of the double helix structure of DNA? (CO3)	10
6-b.	Discuss the Harshey and Chase experiment. Write the conclusion drawn by the scientist after their experiment? (CO3)	10
7. Answ	er any <u>one</u> of the following:-	
7-a.	Write down the difference between primary lymphoid organs and secondary lymphoid organs with suitable example? (CO4)	10
7-b.	Draw a labelled diagram of an antibody? Discuss the different types of antibodies? (CO4)	10
8. Answ	er any <u>one</u> of the following:-	
8-a.	What is bioreactor? With the help of diagram discuss the components of bioreactors? (CO5)	10
8-b.	Mention any six fields of application of biotechnology for human welfare. (CO5)	10