B.Sc. Part-II (Semester-III) Examination 3S: MICROBIOLOGY

			(Molecular Biology an	id Genet	ic En	igincering)			
Time: Three		Hou	ars]	[Maximum Marks: 80					
Note :—(1)		AL	ALL questions are compulsory.						
	(2)	Dra	w well labelled diagrams wh	nerever no	ecess	ary.			
1. (A)	Fill	in th	ne blanks :						
	(i)	The	mode of DNA replication is	s					
	(ii)	The genetic unit of function is called as							
	(iii)	Agr	transgene in						
	(iv)	Enz	yme that synthesises RNA fi	rom DNA	tem	plate is called as 2			
(B)	Cho	ose '	the correct alternative :						
	(i)	Out	of 64 codons in genetic cod	de	codo	ns are chain termination codons.			
		(a)	61		(b)	3			
		(c)	1		(d)	6			
	(ii)	Ban	n HI enzyme is obtained from	m					
		(a)	Bacillus subtilis		(b)	Pseudomonas putida			
		(c)	Bacillus amyloliquifaciens		(d)	Escherichia coli			
	(iii)	вт	cotton possess trans	gene.					
		(a)	Bacillus thuringensis		(b)	Bacillus subtilis			
		(c)	Bacillus amyloliquifaciens		(d)	None of the above			
	(iv)	Res	triction endonucleases are _						
		(a)	Joining enzyme		(b)	Cutting enzyme			
		(c)	Polymerizing enzyme		(d)	None of the above 2			
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(i) What are GM plants? (ii) What is silent mutation? (iii) What is silent mutation? (iii) What is Pfr? (iv) What is primer? 2. (a) Describe the mechanism of DNA replication with enzymes involved in it. OR (b) Describe the transcription and translation event of protein synthesis. 12 3. (a) Describe genetic suppression. 4 (b) Describe induced mutation by nitrous oxide. (c) Give schematic diagram of Lac operon. OR (d) Describe in brief physical mutagens. (e) Define silent mutation, muton and nonsense mutation. (f) Give schematic diagram of Trp operon. 4 (a) What is transduction? Describe in detail mechanism of generalized transduction. OR (b) Explain Lederberg and Tatum experiment. Describe in detail conjugation between P ⁻ and P ⁻ cells. 12 OR (c) Briefly describe the basic technique of genetic engineering. (d) Explain in brief restriction enzymes. (e) Briefly describe p ^{RRS12} cloning vector. OR (d) Explain in brief enzyme topotsomerases. (e) Explain with suitable example role of bacteriophages as cloning vector. 4 UNW—27437 2 (Contd.)		(C)	Answer in one sentence:	
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6.	Exp	plain the following:				
	(a)	DNA sequencing.	4			
	(b)	Gene library.	4			
	(c)	Southern hybridization.	4			
		OR				
	(d)	Agarose gel electrophoresis.	4			
	(e)	Gene mapping.	4			
	(l)	PCR.	4			
7.	(a)	What is gene therapy? Describe its applications.	4			
	(b)	How hepatitis vaccine is produced using recombinant DNA technology?	4			
	(c)	Describe Bt cotton as transgenic plant.	4			
		OR				
	(d)	Describe in brief DNA probes for disease diagnosis.	4			
	(e)	Describe in brief biotechnological aspect of Insulin production.	4			
	(f)	Explain in brief role of genetically engineered microbes in pollution control.	4			

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