

Seat	
No.	

M.Sc. – I (Semester – I) Examination, 2015 MICROBIOLOGY (Paper –III) (New CGPA) Recent Trends in Virology

Day and Date : Time :	Total Marks : 7	70
3) Part I and	Part I is compulsory. II attempt any four questions. Part II should be written in same answer book. labeled diagrams wherever necessary.	
	PART-I	
1. A) Rewrite the sentence by cho	osing correct alternative form the following:	7
 In LHT system RNS virus 	ses are included into class.	
a) Retroviruses	b) Retroviridae	
c) Ribivira	d) Deoxyvira	
2)is antiv	riral substance produced in human body.	
a) Interferon	b) Antigen	
c) Antibody	d) Immunogen	
3)discove	ered Prions.	
a) Prusnier	b) Diener	
c) Raymer	d) Cohen	
4) The only virus which has	double stranded RNA is	
a) Bunyavirus	b) Reovirus	
c) Calcivirus	d) Rhabidovirus	
5)is tempe	erate phage.	
a) mu	b) T4	
c) T3	d) _θ X174	



	6) Multiplication of influenza virus occurs in a) Cytoplasm b) Nucl c) Mitochondria d) Ribo 7) Crystallization of the TMV was first time demonstrated by Chaster c) Stanely d) Sang	leus osome onstrated by se
	 B) Answer the questions or define the following: a) Oncogenesis b) Neoplasm c) Capsid d) Latent period e) Phage immunity f) Provirus g) Reverse Transcriptase. 	7
	PART – II	
At	ttempt any four questions form the following:	
2.	. Explain in detail multiplication of influenza virus.	14
3.	. Take a detail account of Viral Taxonomy.	14
4.	. Explain in detail pathogenesis of animal viruses.	14
5.	 Write short answer on any two of the following: a) Describe in detail Pathogenesis of viruses to algoby b) Briefly describe Picorna virus. c) Prions. 	14 ae and fungi.
6.	Write short notes on any two of the following:a) Satellite virusesb) Slow virusesc) TMV.	14



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M.Sc. – I (Semester – I) (New C.G.P.A.) Examination, 2015 MICROBIOLOGY (Paper – IV) Microbial Chemistry and Enzymology

Day and Date : Time :	Max. Marks : 70
2) Atte 3) Figu 4) Ans	er – I question 1 is compulsory. Inpt any four questions from Part – II. Itees to the right indicates full marks. Iteer to the two parts should be written in the same Iteer book.
	PART – I
Rewrite the sentences af alternatives.	er choosing the correct answer from the given
1) Glycogen and starch a	re
a) monosaccharide	b) disaccharide
c) heteropolysacchar	de d) homopolysaccharide
The nonprotein low menzyme is known as _	olecular weight dialysable substance associated with
a) cofactor	b) coenzymes
c) isoenzyme	d) apoenzyme
3) Vitamin β_1 contain	and molecules.
a) Purine and thiamin	b) Purine and thiazole
c) Pyrimidine and this	zole d) Thiamine and thiazole
4) Two sugars differ in the	e configuration around one specific carbon are called
a) isomers	b) isotopes
c) epitopes	d) epimers



5)	α helix protein structure is stabiliz	ed by	bonding.
	a) hydrogen	b) sulfur	
	c) carbon-carbon	d) ionic	
6)	Muscle contain		
	a) Mycolic acid	b) Mycoglobulin	
	c) Myoglobulin	d) Mixoglobulin	
7)	is not globular proteir	١.	
	a) Collagen	b) Ovalbumin	
	c) Pancreatic and amylase	d) Hemoglobin	
8)	is an example of isc	enzyme.	
	a) Malate dehydrogenase	b) Malate synthase	
	c) Lactate dehydrogenase	d) Lactate synthase	e
9)	Zwitter ions are in	nature.	
	a) acidic b) basic	c) neutral d)	amphipathic
10)	Terpenes containing three isoprer	e units are called	
		b) diterpenes	
	c) triterpenes	d) sesquiterpenes	
11)	One gram of lipid on oxidation rele	ases	kilocalorie heat.
	a) -9.3 b) +9.3	c) -9.9 d)	+9.9
12)	Red colour of heme is due to		
	a) Photoporphyrin	b) Photophosphopo	orphyrin
	c) Protoporphyrin	d) Protophosphopo	rphysin
13)	is allosteric enzyme.		
	a) Acetyl choline esterase		
	b) Acetyl transferase		
	c) Aspartate transcarbomoylase		
	d) Acylase		
14)	are channel pro	teins involved in t	ranspen across cell
	mebrones.		
	a) Prostaglandins	b) Terpenes	



	c) Interlenkins d) Pe	orins	
	PART –	II	
2.	Give an account of types of lipids and their	structural aspects.	14
3.	Explain in detail basic concept, kinetics and inversible inhibition.	-	14
4.	Give an account of types and structure of c	arbohydrates.	
5.	Attempt any two of the following:	1	14
	a) Classification of amino acids.		
	b) Lock and key and induced fit hypothesis	S.	
	c) Terpenes and prostaglandins.		
6.	Attempt any two of the following:	1	14
	a) Chemistry of leghemoglobin and bacteria	al rhodopsin.	
	b) Role of metal ions in enzyme function.		
	c) Account of enzyme specificity.		



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M.Sc. (Part – I (Semester – II) Examination, 2015 MICROBIOLOGY (Paper – V) Microbial Genetics

Day and Date: Thursday, 16-4-2015	ax. Marks : 70
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Time: 11.00 a.m to 2.00 p.m.

- **N.B.**: 1) Part I question 1 is compulsory.
 - 2) Attempt any four questions from Part II.
 - 3) Figures to the **right** indicates **full** marks.
 - 4) Answer to the **two** Parts should be written in the **same** answer book.

PART-I

1.	Rewrite the sentences after choosing the alternatives.	ne correct answer from the given	14
	1) In B form of DNA, one turn of helix of	consists of base pairs.	
	a) 10	b) 11	
	c) 9.33	d) 8	
	2) The coding sequences on the eukar	yotic genes are termed as	-
	a) Introns	b) Exons	
	c) Split genes	d) Interrupted genes	
	3) Beadle and Tatum used	in their experiment.	
	a) <i>E. Coli</i>	b) Neurospora crassa	
	c) S. Typhimurium	d) Drosophila	
	DNA sequences containing transport are called	osase gene flanked by inverted repeat	S
	a) IS elements	b) Simple transposons	
	c) Composite transposon	d) Bacteriophage elements	P.T.O.



5)	Distance between two adjacent nucle DNA is A°	otides in Watson and Crick's model of
	a) 4.0	b) 3.4
	c) 34	d) 6.0
6)	The term plasmid was coined by	
	a) Tatum	b) Ocho
	c) Lederberg	d) Delbruck
7)	The law of purity of gametes is also ke heredity.	nown as Mendel's law of
	a) First	b) Second
	c) Third	d) Fourth
8)	Amplification of plasmids is carried ou	t by
	a) Penicillin	b) Streptomycin
	c) Chloramphenicol	d) Tetracyclin
9)	In folded fiber model of E. Coli chromoso	ome, DNA folds are held by
	a) DNA	b) RNA
	c) Proteins	d) Enzymes
10)	Transposon Tn3 carries gene for	resistance.
	a) Tetracyclin	b) Ampicillin
	c) Penicillin	d) Chloramphenicol
11)	enzyme produces ne positive superhelicity developed durin	gative superhelicity and removes the greplication.
	a) Topoisomerase	b) DNA gyrase
	c) DNA polymerase I	d) DNA polymerase II
12)	Cairn's model of DNA replication eDNA.	xplains mode of DNA replication in
	a) Single stranded linear	b) Double stranded linear
	c) Single stranded Circular	d) Double stranded Circular



	13) Proof reading and mismatch repair in	DNA is carried out by	
	a) DNA polymerase I	b) DNA polymerase II	
	c) Exonuclease	d) None of the above	
	14) Mendel for his experimental study	is frequently used.	
	a) Groundnut	b) Garden pea	
	c) French bean	d) Soyabean.	
	PART	- II	
2.	Explain types, properties and mechanism elements.	n of transposition of transposable	14
3.	Describe in detail methods of DNA seque applications.	encing. Discuss in brief its	14
4.	Give the detailed account of deciphering	of genetic code and its properties.	14
5.	Attempt any two of the following:		14
	a) Explain the techniques and application printing.	ns of DNA foot printing and DNA finger	
	b) Describe in detail nucleic acid as a g	enetic material.	
	c) Discuss in detail Alternative forms of	DNA.	
6.	Attempt any two of the following:		14
	a) Explain the technique and application	s of PCR.	
	b) Discuss the process of transcription	in prokaryotes.	
	c) Describe in detail the evolution of one	gene one polypeptide hypothesis.	



Seat	
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M.Sc. – I (Semester – II) Examination, 2015 MICROBIOLOGY (Paper – VI) Microbial Physiology and Metabolism

	Mic	crobial Physiolo	ogy and Metabolis	sm
-	nd Date : Saturday : 11.00 a.m. to 2.00			Max. Marks : 70
li	3) A 4) Fi	ection I is compul s rom Section II atte II questions carry c igures to right indi raw neat and label	mpt any four . equal marks. icate full marks.	
		SEC ⁻	TION – I	
1. R	Rewrite the following	g sentences by usi	ng correct alternative	s. 14
1) Mitochondria are	discovered by		
	a) Monod	b) Robert Hook	c) Khorana	d) Eugene Kennedy
2)is not	thing but microbial	hormone.	
	a) Provitamin	b) Pheromone	c) Phospholipids	d) Porphyrins
3) Osmosis is flow concentration.	of solvent from	region of to	o solute
	a) low, low	b) low, high	c) high, low	d) high, high
4) Omega oxidation	of hydrocarbons I	eads to formation of	
	a) dicarboxylic	b) tricarboxylic	c) monocarboxylic	d) polycarboxylic
5) Monooxygenase	s are involved in de	egradation of	
	a) aliphatic amin	o acids	b) proteins	
	c) carbohydrates	8	d) aromatic amino a	acids



6)	First step in pyrin	nidine biosyntnesis	SIS	catalysed by		
	a) aspartate kina	se	b)	aspartate lyase		
	c) aspartate synt	hase	d)	aspartate transca	rba	mylase
7)	One gram lipids o	n oxidation releas	es_	kilocal	orie	s of heat.
	a) -9.3	b) + 9.3	c)	-9.9	d)	+ 9.9
8)	Emulsification is t	he property of		when they ar	e ac	dded in water.
	a) fats		b)	carbohydrates		
	c) proteins		d)	amino acids		
9)	is sto	ereospecific.				
	a) Facilitated diff	usion	b)	Simple diffusion		
	c) Active transpo	ort	d)	Passive transport	t	
10)	The best function across plasma me	of phosphotransf embrane.	era	se system is trans	por	rt of
	a) amino acids	b) sugars	c)	Na ⁺	d)	K ⁺
11)	In biosynthesis of	f saturated fatty ac	ids	basic adding unit	is	
	a) Malonyl CoA	b) Acetyl CoA	c)	Adenyl CoA	d)	Malonate CoA
12)	Cytochromes are group.	conjugated proteir	ns c	onsisting of		_ as a prosthetic
	a) amino	b) acyl	c)	formyl	d)	haeme
13)	In AT	Ps are synthesized	d fro	om ADP and inorga	anic	phosphate.
	a) Heterotactic fe	ermentation	b)	Homolactic ferme	nta	tion
	c) Oxidative phos	sphorylation	d)	Photosynthesis		
14)	ATP r	molecules are gen	erat	ted in TCA cycle.		
	a) 12	b) 30	c)	38	d)	10



SECTION-II

Attemp	ot anv	r four.
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2.	Write an essay on different permeation systems in E. coli.	14
3.	Write an essay on mitochondrial electron transport chain.	14
4.	Give an account of amino acid synthesis of Pyruvate family.	14
5.	Write an essay on 'oxidation of alkanes'.	14
6.	Answer any two of the following.	14
	i) Group translocation.	
	ii) Components of electron transport system.	
	iii) Valerate pathway.	
7.	Answer any two of the following.	14
	i) Aerobic and anaerobic electron transport chain.	
	ii) Energy gain and amphibolic nature of TCA cycle.	
	iii) β keto adipate pathway.	



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M.Sc. (Part – I) (Semester – II) Examination, 2015 MICROBIOLOGY (Paper – VII) Biophysics and Bioinstrumentation

Day and Date: Tuesday, 21-4-2015 Max. Marks: 70

Time: 11.00 a.m. to 2.00 p.m.

- **N. B.**: 1) Part I question 1 is compulsory.
 - 2) Attempt any four questions from Part II.
 - 3) Figures to the **right** indicates **full** marks.
 - 4) Answers to the **two** parts should be written in the **same** answer book.

PART-I

1.		write the following sentence by selectin ernatives :	g th	ne correct answer from given 1
	1)	X-ray penetrate human body because i	t is	radiation.
		a) Electromagnetic radiation	b)	Longer wavelength
		c) Shorter wavelength	d)	Invisible
	2)	The region of an infrared spectrum who	ere	many absorption takes place is
		a) fingerprint region	b)	functional group region
		c) foot print region	d)	hand print region
	3)	The direct ELISA test requires		
		a) known antibody	b)	known antigen
		c) complement	d)	patients antibody
	4)	In instrument intensity of tranof concentration of substance.	nsn	nitted light is used for measurement
		a) Nephalometry	b)	Turbidometry
		c) Raman	d)	None of these



5)	Photomultiplier tube	e amplifies the qu	uantity	of	
	a) photon		b)	electron	
	c) proton		d)	negatrons	
6)	lamp	is used in atomi	c abso	rbance spectr	oscopy.
	a) Hallow cathode		b)	Hydrogen	
	c) Mercury		d)	U.V.	
7)	Western blotting ted	chnique is used f	or dete	ection of	
	a) DNA	b) RNA	c)	Protein	d) Lipid
8)	¹⁴ C is weak				
	a) β-emitter	b) α -emitter	c)	γ -emitter	d) none of these
9)	The dihedral angle	in the protein str	ucture	are studied by	/
	a) Fischer plot		b)	Raman techni	que
	c) Wilbert technique	е	d)	Ramchandrar	n plot
10)	The 3-D structure of	f protein can be d	determ	ined by	
	a) NMR		b)	X-ray crystalle	ography
	c) Both a) and b)		d)	Spectroscopy	1
11)	The most common p	protein seconda	ry struc	cture is	
	a) α -helix		b)	β -pleated she	eet
	c) β -pleated sheet	parallel	d)	β -pleated she	eet non parallel
12)	All the following are	associated with	weste	rn blot except	
	a) gel electrophore	sis	b)	sheep red blo	od cells
	c) Nitrocellulose me	embrane	d)	an enzyme la	belled antibody
13)	In Raman spectrosc	оруI	lamp is	used for the so	ource of wavelength.
	a) Mercury lamp		b)	cathode	
	c) Tungsten		d)	U.V.	
14)	was t	the first protein s	equen	ced by sanger	
	a) Haemoglobin		b)	Myoglobin	
	c) Insulin		d)	Myosin	



PART-II

2.	Explain with respect to principle, instrumentation and application infra-red spectroscopy.	14
3.	What is the principle of ELISA? Explain the different types of ELISA methods and give their applications.	14
4.	What is the importance of ionization in mass spectrometry? How sample is ionized, separated and detected in mass spectrometry?	14
5.	Write short answers (any two):a) Define pH. Comment on working of combined pH electrode.b) Describe the importance of gas sensing electrode.c) What is Ramchandran Plot ? Give its significance.	14
6.	Write short notes on (any two): a) Quaternary structure of protein. b) Principle and application of NMR. c) Applications of tracer technique.	14

SLR-OP - 434

Seat	
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	MICR	OBIOLOGY Dial Ecology and Diversity
-	d Date : Thursday, 23-4-2015 1.00 a.m. to 2.00 p.m.	Max. Marks : 70
	N.B.: I) Part I question 1 is a II) Attempt any four question 1 III) Figures to the right IV) Answer to the two parts	uestions from Part II .
	PA	ART – I
	write the following sentences by s ernatives :	selecting the correct answer from given
i)	is a modern app	roach for bacterial taxomy.
	a) Biochemical propertiesc) Staining properties	
ii)	is a free living h	netero trophic N ₂ fixer.
	a) Streptococcusc) Azotobacter	b) Rhizobiumd) Clostridium
iii)	Usnea is a common example of	
	a) Lichens	b) Algae
	c) Fungi	d) Bacteria
iv)	VAM help the plants in	In a Albana and the confine and the
	a) Phosphate nutritionc) Nitrogen fixation	b) Absorption of mineralsd) CO₂ fixation
,,,\	,	
v)	a) Mesosome	b) Mitochondria
	c) Cell wall	d) Cytoplasmic membrane



vi)	VAM was discovered by		
	a) Barbera Moose	b)	Alexander
	c) Dr. Norman Borlang	d)	Haberlant
vii)	A better idea of the productivity of ar	ec	osystem can be obtained by
	a) Pyramid of energy	b)	Pyramid of biomass
	c) Pyramid of number	d)	Inverted Pyramid
viii)	The term ecosystem was first introdu	uce	ed by
	a) Aurther Stanely	b)	Aurther Tansely
	c) Alexander	d)	Rachel Carson
ix)	An ecosystem refers to		
	a) The part of earth and atmosphere	сар	able of inhibiting the living organisms
	b) The biotic factor in a habitat		
	c) The community of organism togeth	er v	vith the environment in which they live
	d) A community of organisms interaction	ctin	g with one another
x)	represent the largest p	ор	ulation in an ecosystem.
	a) Decomposers	b)	Consumers
	c) Top consumers	d)	Producers
xi)	Lichens are described as indicators	of	
	a) Air pollution	b)	Xerophytic succession
	c) Water pollution	d)	Mesophytic succession
xii)	Marine bacteria grow best at salt con	cer	ntration%.
	a) 0.5 to 1.5	b)	2.5 to 4
	c) 1.5 to 2.0	d)	0.1 to 1.25
xiii)	Rhizobium in legume root nodules fix	kes	nitrogen in the form of
	a) Nitrate	b)	Nitrite
	c) Ammonia	d)	Glutamic acid
xiv)	In a grass land top consumers are		
	a) Carnivores	b)	Fungi
	c) Herbivores	d)	Bacteria



PART – II

At	Attempt any four questions:					
2.	Write an essay on Microbe-plant interactions.	14				
3.	Give general characteristics of purple and green sulphur bacteria.	14				
4.	Give an account of Alkalophilic and thermophilic microorganisms.	14				
5.	Write short answers (any two):	14				
	a) List out general characteristics of Yeast and Lichens.					
	b) Give identification methods for uncultured organisms.					
	c) Explain microbes in acid mine drainage.					
6.	Write short notes on (any two):	14				

- a) Xenobiotics.
- b) Concept of autotrophy.
- c) Magneto tactic bacteria.



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M.Sc. – II (Semester – IV) Examination, 2015 MICROBIOLOGY (Paper – XIII) (New CGPA Pattern) Immunology and Immuno-Technology

Immunology and	• •	nology
Day and Date : Thursday, 16-4-2015 Time : 3.00 p.m. to 6.00 p.m.		Max. Marks: 70
3) Figures to rig h	our (4) questions front out indicate full mark out – I and Part – II a	om Part – II .
F	PART-I	
Rewrite the sentences after choosing	g correct answer fro	m the given alternatives. 14
 i) Immunity mediated by antibodies as plasma or lymph is known as _ a) Cell mediated c) Natural active 	•	unity.
 ii) Treatment of autoimmune diseas a) Metabolic control b) Use of anti-inflammatory drug c) Use of immunosuppressive d d) All of these 	gs	
iii)antibody produc	ction is resulted in h	persensitivity.
a) lgG b) lgE	c) IgA	d) IgM
iv) Allergy of infection is an example a) Type – I b) Type – II		
v) Autoantibodies against acetyl-choa) Rheumatoid arthritisc) Goodpasture's syndrome	bline receptors are po b) Myasthenia go d) Pernicious and	ravis



vi)	Cytokines	
	a) are lymphokines	
	b) are monokines	
	c) help to control and regulate	immune response
	d) all of these	
vii)	Cytokines produced by virally in	fected cells are called
	a) interferons	b) chemokines
	c) interleukins	d) IL-42
viii)	The ability of an antigen to reac	t with antibody produced by it is referred to as
	a) Immunogenicity	b) Immunogens
	c) Antigenic determinants	d) Immunologic specificity
ix)	cell has maxim	num phagocytic activity.
,	a) Mast cells	b) Basophil
	c) Monocyte	d) Macrophage
x)	In an autoimmune disease pernic	ious anaemia, antibodies are produced against
	a) folic acid	b) vitamin B12
	c) intrinsic factor	d) none of these
xi)	The MHC is a collection of gene humans.	es located on chromosome Noin
	a) 15 b) 17	c) 6 d) None of these
xii)	IgM is produced by	cells.
		c) B cells d) Mast cells
xiii)	T-helper cells carry	molecules as its specific marker.
·		c) CD9 d) CD3
xiv)	is secondary lym	ohoid organ.
	a) MALT	b) Spleen
	c) Lymph node	d) All of these



PART – II

Attempt any	y four	(4) questio	ns from	Part –	II.
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2.	Write essay on "Cytokines".	14
3.	Write in detail on "Major Histocompatibility (MHC) antigens and genes of human".	14
4.	Write in detail on "Innate/natural and acquired immunity and differentiate between active and passive immunity".	1 1 4
5.	Write in short on any two of the following:	14
	a) Theories of origin of autoimmunity	
	b) Characteristics of cancer cell	
	c) Physical and mechanical factors in innate immunity.	
6.	Write short notes on any two of the following:	14
	a) Antibody diversity	
	b) Lymphocytes	
	c) HLA typing.	



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MICROBIOLOGY (Paper	 – IV) Examination, 2015 – XIV) (New CGPA Pattern) cs and Biometry 			
Day and Date : Saturday, 18-4-2015 Time : 3.00 p.m. to 6.00 p.m.	Max. Marks : 70			
3) Figures to right	Ir questions from Part – II. indicate full marks. t – I and Part – II are to be written in same			
P	ART – I			
Rewrite the sentences after choosing alternatives :	g correct answer from the given			
i) DNA microarrays allow detection	of Gene mutations using?			
 a) Polymerase Chain Reaction 	b) Cloning			
c) Southern Blotting	d) Hybridization			
ii) The mean of 100 observations is each observation?	50. What is the new mean of 5 is added to			
a) 5	b) 105			
c) 100	d) None of these			
iii) The process of finding relative location of gene on a chromosome is called				
a) Gene tracing	b) Genome mapping			
c) Genome walking	d) Chromosome walking			
iv) The computational methodology t two molecules, a receptor and liga	that tries to find the best matching between and is called			
a) Molecular matching	b) Molecular docking			
c) Molecular fitting	d) Molecular affinity checking			

- x) Literature databases include _____
 - \ MEDITAL ID IMED
 - a) MEDLINE and PubMED
- b) MEDLINE and PDB
- c) PubMED and PDB

c) SWISS PROT

- d) MEDLINE and PDS
- xi) Which of these would not be a valid reason that use of microarray technology to differentiate between closely related bacterial species and subspecies is important?
 - a) Certain strains of bacteria are more pathogenic than other related strains

d) EMBL

- b) Some strains of bacteria are more active in bioremediation that other related strains
- c) Infection by different strains of bacteria may require different therapeutic approaches
- d) In many cases, critical information about characteristics of a bacterium causing an infection needs to be immediately available



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a) Distillery

c) Paper and pulp

M Sc. (Part - II) (Semester - IV) Examination 2015

MICROBIOLOGY	(New CGPA Pattern) Technology (Paper – XV)
Day and Date : Tuesday, 21-4-2015 Time : 3.00 p.m. to 6.00 p.m.	Max. Marks : 70
3) Figures to the ri g	r questions from Part – II. ght indicates full marks. o Parts should be written in the
P.A	RT-I
Rewrite the following sentences by sealternatives :	lecting correct answer from given 14
i) In industrial waste treatment separation.	method is used for liquid-solid
a) Activated sludge process	b) Sedimentation
c) Flocculation	d) Oxidation ponds
ii) Generally textile waste is deficient	in
a) Carbon	b) Nitrogen
c) Phosphorous	d) Sulfur
iii) <u>Zoogloea ramigela</u> organism play process.	mportant role in treatment
a) Oxidation ponds	b) Trickling filter
c) Screening	d) Activated sludge process
iv) The lake rich in nutrient is called _	lake.
a) Eutrophic	b) Oligotrophic
c) Mesotrophic	d) All of these
v) Melanoidin pigments are present i	nindustry waste water.

b) Textile

d) Cyanide



vi)	In activated sludge process, the floc formation is enhanced by						
	a)	Dyes		b)	Metal ions		
	c)	Proteins		d)	Spargers		
vii)	Str	atospheric zor	ne is very importa	ınt k	oecause it acts a	s	
	a)	Bacteria proo	f filter	b)	Dust filter		
	c)	U. V. Filter		d)	All of these		
viii)	Ve	ntriflume meth	od is used for me	asu	rement of		
	a)	Clarification		b)	Total nitrogen		
	c)	Total solids		d)	Turbidity		
ix)	Fo	r vermicompos	sting	_a	re used.		
	a)	Plants		b)	Night soil		
	c)	Worms		d)	Earthworms		
x)	Th	e primary tech	nique used in gat	her	ing audit informat	tion	is
	a)	Documentatio	n	b)	Presentation		
	c)	Public disclos	ure	d)	Audit interviews		
xi)		celeration of bi	iodegradation of s	spe	cific compounds	ino	culating bacterial
	a)	Bioaccumulati	ion	b)	Bioaugmentation	า	
	c)	Biofilteration		d)	Biomagnification	1	
xii)		tolerance limi		stria	al effluents disch	arg	ed into public sewer
	a)	2000	b) 500	c)	200	d)	100
xiii)		e solubility of a temperature.	atmospheric oxyg	en	is very high at		
	a)	4	b) 20	c)	30	d)	37
xiv)		me	ethod have been p	оор	ularly used for slu	ıdge	e dewatering in
	wa	ste treatment.					
	a)	Sludge drying	beds	b)	Anaerobic sludge		
	c)	Sedimentation	1	d)	Vacuum filteration	on	



PART – II

Answer any four questions :				
2.	Discuss in detail types of characteristics of industrial wastes.	14		
3.	Write an essay on 'Water Tracing'.	14		
4.	Discuss in detail characteristics and treatment of textile industry waste water.	14		
5.	Write short answers (any two):	14		
	a) Global warming and EL Nino			
	b) Characteristics of distillery wastes			
	c) Preservation and applications of genetically engineered microorganisms.			
6.	With short notes on (any two):	14		
	a) Impact of pollutant on biotreatment			
	b) Eutrophications			
	c) EIA and EA.			



Seat	
No.	

M.Sc. – II (Semester – IV) (New CGPA Pattern) Examination, 2015 MICROBIOLOGY (Paper – XVI) Agricultural Microbiology

Day and Date: Thursday, 23-4-2015 Max. Marks: 70

Time: 3.00 p.m. to 6.00 p.m.

1.

N.B.: 1) Part – **I**, Q. **1** is **compulsory**.

- 2) Attempt any four questions from Part II.
- 3) Figures to the right indicates full marks.

PART-I

	Rewrite the following sentences by selecting correct answers from given alternatives :				
i)	is the major component of Bordeaux mixture.				
	a) Sodium chloride	b) Copper sulphate			
	c) Calcium chloride	d) Magnesium sulphate			
ii)	i)is smallest particle of soil.				
	a) Sand	b) Silt			
	c) Loam	d) Clay			
iii)	i)is non-symbiotic nitrogen fixer.				
	a) Azotobacter	b) Rhizobium			
	c) Bacillus	d) Vibrio			
iv)	r) is the product of composting by various species of worms.				
	a) Compost	b) Manure			
	c) Vermicompost	d) Humus			



v)) Iron sulphides and manganese oxides gives		_ color to the	
	soil.			
	a) Black	b) Red		
	c) Yellow	d) White		
vi) The organic matter content of soil is approximately			%.	
	a) 10-15	b) 3-5		
	c) 40-50	d) $60-70$		
vii)	Nodules of legumes are red in cold	or because of		
	a) Leghaemoglobin	b) Nitrogenase		
	c) Ammonia	d) Rhizosphere		
viii)	Mycorrhizae are mutualistic symbi	iotic association between _		
	and plant roots.			
	a) Bacteria	b) Viruses		
	c) Algae	d) Fungi		
ix)	Okon's medium is used for the cul	Itivation of		
	a) Rhizobium	b) Azospirillum		
	c) Azotobacter	d) Nitrobacter		
x)	x) is free living bacterial biofertilizer.			
	a) Rhizobium	b) Nostoc		
	c) Azolla	d) Azotobacter		
xi)	In tissue culture technique of starting material.	is used for surf	face sterilization	
	a) NaCl	b) H ₂ SO ₄		
	c) NaOH	d) Mercuric chloride		
xii)	Conversion of ammonia to nitrite and nitrite to nitrate is called			
	a) Denitrification	b) Ammonification		
	c) Nitrification	d) Carboxylation		



×	iii)	A crop that is grown and incorporated in called	ntc	the soil to increase the fertility is	
		a) Compost	o)	Humus	
		c) Green manure	(k	Manure	
Х	iv)	Azolla is used as biofertilizer for			
		a) Rice	o)	Soyabean	
		c) Maize	(k	Sugarcane	
		PART –	II		
2.	De	scribe in detail "Production and applicati	or	of Bioinsecticide".	14
3.	De	scribe in detail root modulation process.			14
4.	De	scribe in detail composting process.			14
5.	De	scribe any two of the following :			14
	a)	Microbial composition of soil			
	b)	Production and applications of Green Ma	an	ure	
	c)	Carbon cycle.			
6.	De	scribe any two of the following :			14
	a)	Vermiculture and its uses			
	b)	Frankia induced nodulation			
	c)	Nitrogen cycle.			