NRJ/KW/17/4057

Master of Science (M.Sc.) Third Semester (C.B.C.S.) (Microbiology) Examination

ELECTIVE—MICROBIAL DIVERSITY, EVOLUTION AND ECOLOGY (MDEE)—I

Optional Paper—3

Paper—III

[Maximum Marks : 80 Time : Three Hours] N.B. :- ALL questions are compulsory and carry equal marks. Discuss the evidences that support the concept of a period of RNA life and why RNA life 16 evolved to modern life. OR 16 Describe various methods of determining evolutionary relationship. 16 Define extremophiles with examples and add a note on heat stable biomolecules. OR Write notes on : 8 (a) Energy metabolism in sulfolobales 8 (b) Halophilic archea. 8 3. Write a note on free living N₂-fixing bacteria. Describe characteristics of bacteria belonging to phylum planctomyces. 8 OR Explain various properties and environmental significance of sulphur reducing bacteria. 16 16 Describe the general characteristics of green sulphur bacteria. • 4. OR 8 (a) Describe general characters of Deinococci. 8 (b) Write a note on nitrification by nitrospira bacteria Explain the following in brief : 4 5. (a) Bacterial speciation 4 😽 Methanogens 🕥 4 (9) Ecological significance of cyanobacteria 4 (d) Physiology and habitat of Aquifex.

AHK/KW/19/1627

Master of Science (M.Sc.) Third Semester (CBCS) (Microbiology) Examination ELECTIVE : MICROBIAL DIVERSITY, EVOLUTION AND ECOLOGY (MDEE)-I

Optional Paper-3

Paper-III

Time : Three Hours]

[Maximum Marks : 80

16

8

8

N.B. :- All questions are compulsory and carry equal marks.

Give a detailed account on evolution of earth and resulting development of early life forms. 4 16 L OR

Discuss the evidences that support the concept of a period of RNA life and why RNA life evolved to modern life. 16

Explain the process of autotrophic fixation of CO₂ in Archaeobacteria. 2.

OR

- Discuss various heat stable biomolecules. (a) (b) Give the salient features of thermoplasma.
- What are Proteobacteria ? Explain with suitable examples, the diversity of sulphate and sulphur 3. 16 reducing bacteria.

OR

Discuss microbial diversity and ecological significance of cyanobacteria. 16 *16

Write detailed account on branching Hyperthermophiles. 4.

OR

Write note on : 8 Thermotoga and Aquifex 8 (a) (b) Green sulphur bacteria. Write notes on : 5. (a) Chemotaxonomy (b) Desulfolobales Verrucomicrobia (c)

(d) Nitrospira.

S.S.E.S. Amt's Science College, Congress Nagar, Nagpur Terminal Examination					
M.Sc.II Semester	(Microbiology)				
Semester III (Winter 2019) Paper III- Microbial Diversity,Evolution And Ecology (MDEE)					
	(MDEE)				
Time: 3hrs Note: All the questions are compulsory and carry equal marks. Draw diagrams wherever necessary.					
Q.1. Discuss the evidence that support the conc	ept of a period of RNA life and why RNA life evolved				
to modern life.	16				
OR					
Describe various methods of determining e	evolutionary relationship. 16	5			
Q.2) Define extremophiles with example and OR	add a note on Heat stable biomolecules.	16			
Write short notes on:	1				
a) Energy metabolism in sulfolobales		8			
b) Halophilic archaea		8			
Q.3) A) Write a note on free living nitro		8			
B) Write a note on Planctomyces	•	8			
OR					
A) Write a note on verrucomicrol	nia 8				
B) Write a note on sulphate redu	_				
Q.4) Describe Deinococci in detail.	16				
· · · · · · · · · · · · · · · · · · ·	ì				
OR	·				
Write notes on:	8				
 A) Nitrification by Nitrospora. 	8				
B) Green sulphur bacteria.					
Q.5) Write notes on:	4				
1. Bacterial speciation	4				
2. Methanogens	4				
3. Cyanobacteria	4				
4. Physiology and habitat of ac	quifex				

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(Dhanshri Badwaik)

S.S.E.S. Amt's Science College, Congress Nagar, Nagpur Terminal Examination M.Sc.II (Microbiology) Semester III (Winter 2019) Paper III- Microbial Diversity,Evolution And Ecology (MDEE)			
Time: Sins			Marks: 100
		All the questions are compulsory and carry equal marks. Draw diagrams wherever necessary.	
		s the evidence that support the concept of a period of RNA life and why RN	IA life evolved 16
to	modern li	OR	
•	Describ	e various methods of determining evolutionary relationship.	16
:	2.2) Defir	ne extremophiles with example and add a note on Heat stable biomolecule OR	es. 16
	Write s	short notes on:	: 8
•		Energy metabolism in sulfolobales	8
• •	b)	Halophilic archaea	
		A) Write a note on free living nitrogen fixing bacteria.	8 8
	Q.3)	B) Write a note on Planctomyces.	0
		OR	8
÷		ta en vorrucomicrobia.	8
		A) Write a note on vehicle index of the sector of	
		B) Write a liste short	16
	Q.4)	Describe Deinococci in detail.	ì
Ó.	Q. 17	OR	
		the state of '	8 8
		Write notes on: A) Nitrification by Nitrospora.	0
		A) Nitrification allB) Green sulphur bacteria.	
		B) Green Surpar	
	1	Write notes on:	4
	Q.5)		4
		1. Bacterial speciation	4
		2 Methanogens	4
		 Cyanobacteria Cyanobacteria Physiology and habitat of aquifex 	

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S.S.E.S. Amt's Science College, Congress Nagar, Nagpur			
Terminal Examination			
M.Sc.II (Microbiology)			
Semester III (Winter 2019)			
Paper III- Microbial Diversity, Evolution And Ecology (MDEE)			
Paper me microsial en anti-	arks: 100		
Time: 3hrs			
Time: 3hrs lote: All the questions are compulsory and carry equal marks.			
Draw diagrams wherever necessary.	life evolved		
Discuss the evidence that support the concept of a period of RNA life and why RNA	16		
Discuss the evidence that support and	dar e.		
modern life. OR Istanchin	16		
OR Describe various methods of determining evolutionary relationship.			
Describe various metricules.	16		
 Define extremophiles with example and add a note on Heat stable biomolecules. OR 			
OR			
Write short notes on:	8		
a) Energy metabolism in sulfolobales	,		
b) Halophilic archaea			
		8	
Q.3) A) Write a note on free living nitrogen fixing bacteria.		8	
 A) Write a note on Planctomyces. B) Write a note on Planctomyces. 			
		-	
OR		8	
 A) Write a note on verrucomicrobia. 		8	
 A) Write a note on sulphate reducing bacteria. B) Write a note on sulphate reducing bacteria. 		16	
r - Diseessi in detail.		10	
Q.4) Describe Deinococci in detail.			
OR			
			8
Write notes on: A) Nitrification by Nitrospora.	;		8
A) Nitrification by rule of B)B) Green sulphur bacteria.			
B) Green sulphul boots			
() 5) Write notes on:			
Q.5) Write notes on:			4
1. Bacterial speciation			4
			4
			4
3. Cyanobacteria			
 Physiology and habitat of aquifex 			



SPM/KW/22/1653

Master of Science (M.Sc.) Third Semester Choice Based Credit System (CBCS) (Microbiology) Examination ELECTIVE : MICROBIAL DIVERSITY, EVOLUTION AND ECOLOGY (MDEE)–I Optional Paper–3

Paper–III

[Maximum Marks : 80

16

16

Time : Three Hours]

Write notes on :

Note :--- All questions are compulsory and carry equal marks.

1. Discuss evolution of earth and add a note on origin of early organic compounds. 16

OR

Discuss different characteristics of domain of life. 2/ Define extremophiles with examples and add a note on heat stable biomolecules. 10

OR

8 (a) Energy metabolism in sulfolobales. 8 (5) Halophilic archea. Write in detail about free living N_2 -fixing bacteria and its importance. 16 OR Write in detail properties and environmental significance of sulphur reducing bacteria. 16 Write notes on : 4. 8 (a) Nitrospira and Deferribacter. 00 8 Green non sulphur bacteria. (b) OR 8 Thermotoga and Aquifer. (a) 8 (b) Green sulphur bacteria. Write in brief : 5. 4 Signature sequences (a) 4 Nanoarchaeum (b) 4 Cyanobacteria (c) 4 Deinococci (d)

SSES Amaravati's Science College, Nagpur

PRELIMINARY EXAMINATION

WINTER 2023

M.Sc. Semester -III

MICROBIOLOGY

Paper-III (Microbial Diversity Evolution and Ecology)

Time:- Three Hours	Max Marks- 80
 All questions are compulsory and carry marks as indicated. Draw diagram wherever necessary. 	
Q.1 Describe the Methods of determining evolutionary relationship.	16
OR	
Explain the characteristics of domains of Life.	16
Q.2 a) Halophilic Archaea.	8
b) Thermoproteales.	8
OR	
c) Methanogens	8
d) Heat stable biomolecules and extremophiles	8
Q.3 a) Free living N2 fixing bacteria.	16
OR	
a) Prochlorophytes and cyanobacteriab) Verrucomicrobia.	8 8
Q.4 a) Green sulphur bacteria.	
b)Thermotoga and Aquifex	8
OR	
 c) Green non – sulphur bacteria d) Cytophaga 	8 8
Q.5 Write a short note on following.	4×4=16
 a) Bacterial speciation. b) Nanoarcheum c) Planctomyces d) Deinococci 	

Master of Science (M.Sc.) Third Semester Choice Based Credit System (Microbiology) Examination	em (CBCS)
Master of Science (M.Sc.) Initial (Microbiology) Examination ,	Y (MDEE)–I
(Microbiology) Examination ELECTIVE : MICROBIAL DIVERSITY, EVOLUTION AND ECOLOG	
Optioner = 1	
Paper—III	Marks : 80
	laximum Marks : 80
Time : Three Hours]	
ND . All questions are collipuisory and the	16
 Describe evolution of earth and the development of early life forms. OR 	
ON and phyllogenetic pr	robes for determining
Give a detailed account on Ribosomal RNA Sequencing and physics	16
evolutionary relationship.	16
2. Explain extremophiles and heat stable biomolecules. OR	
	8
(a) Give the salient features of thermoplasma.	8
 (a) Give the salient reatilies of description of the salient reatilities of description of the salient reatility of the salient of t	16
3 Discuss in detail properties	
	f sulphate and sulphur
What are proteobacteria ? Explain with suitable examples, the diversity of	16
reducing bacteria. 4. Give comparative account of green sulphur and green non-sulphur bacteria v	with suitable examples.
4. Give comparative account of green sulphur and green non our part	16
OR	
Write notes on :	8
(a) Thermotoga and Aquifex	8
(b) Deferribacter.	
5. Write notes on :	4
(a) Chemotaxonomy	4
(b) Methanogens	Δ
(c) Verrucomicrobia	
(d) Nitrospira	