#### PSG COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

#### **BSc DEGREE EXAMINATION MAY 2024**

(Second Semester)

#### Branch - MICROBIOLOGY

## MICROBIAL DIVERSITY AND TAXONOMY

Time: Three Hours

Maximum: 75 Marks

## SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks  $(10 \times 1 = 10)$ 

The basic taxonomic group in microbial taxonomy is a) Family b) Genus c) Species d) Order  Biochemical tests are used to determine a) Aminoacid sequence b) Nucleic acid sequence c) Enzymatic reactions d) Staining characteristics  Where are bacteriochlorophyll present in the cell? a) chloroplast b) cytoplasm c) mesosoma d) membrane  Heterocyst in Anabaena participates in a) Fragmentation b) Resting stage c) Nz fixation d) Floating  What is the primary mode of reproduction in bacteria? a) Budding b) Cojugation c) Sporulation d) Binary fission  For what purpose do mycoplasma use sterols? a) growth b) reproduction c) membrane fluidity d) cytoplasm  An extremotolerant organsim is a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures? b) Pyrolobus fumarii c) Tetragenococcus d) Pyrodictium  Which of the following is an example of RNA virus? b) T4 Phage c) TMV d) Adenovirus	ıest	(				Q	Ques	estio	n							Le		СО
a) Aminoacid sequence b) Nucleic acid sequence c) Enzymatic reactions d) Staining characteristics  Where are bacteriochlorophyll present in the cell?  a) chloroplast b) cytoplasm c) mesosoma d) membrane  Heterocyst in Anabaena participates in  4 a) Fragmentation b) Resting stage c) N2 fixation d) Floating  What is the primary mode of reproduction in bacteria?  a) Budding b) Cojugation c) Sporulation d) Binary fission  For what purpose do mycoplasma use sterols?  a) growth b) reproduction c) membrane fluidity d) cytoplasm  An extremotolerant organsim is a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrodictium  Which of the following is an example of RNA virus?  a) SV40 b) T4 Phage  K1  K2  K2  K3  K4  K5  K6  K1  K1  K1  K1  K1  K2  K2  K2  K3  K4  K1  K4  K1  K1  K1  K1  K2  K1	S	o) Gen	b) G	b) G	) Gei	Jenu	us			c) S	omy pecie	is es		d) (	Order	K	[]	CO1
Where are bacteriochlorophyll present in the cell?  a) chloroplast b) cytoplasm c) mesosoma d) membrane  Heterocyst in Anabaena participates in  A) Fragmentation b) Resting stage c) N <sub>2</sub> fixation d) Floating  What is the primary mode of reproduction in bacteria?  a) Budding b) Cojugation  c) Sporulation d) Binary fission  For what purpose do mycoplasma use sterols?  a) growth b) reproduction c) membrane fluidity d) cytoplasm  An extremotolerant organsim is a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrodictium  Which of the following is an example of RNA virus?  Which of the following is an example of RNA virus?  K1  K2  K2  K3  K4  K5  K6  K1  K6  K1  K1  K1  K1  K1  K1  K1	leic	b) N	e b) ]	b)	b) N	Nuc	iclei	eic ac	eid s	eque	ence istics	3				K	2	CO1
Heterocyst in Anabaena participates in  a) Fragmentation b) Resting stage c) N <sub>2</sub> fixation d) Floating  What is the primary mode of reproduction in bacteria?  a) Budding b) Cojugation c) Sporulation d) Binary fission  For what purpose do mycoplasma use sterols? a) growth b) reproduction c) membrane fluidity d) cytoplasm  An extremotolerant organsim is a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrolobus fumarii Which of the following is an example of RNA virus?  Which of the following is an example of RNA virus?  K1  K2  K2  K3  K4  K5  K6  K6  K7  K1  K1  K1  K1  K2  K2  K1	plas	b) cy	roph;	roph;	phyl b) cy	cyto	pre	esent lasm	in t	the c	ell?					K	(1	CO2
What is the primary mode of reproduction in bacteria?  a) Budding b) Cojugation c) Sporulation d) Binary fission  For what purpose do mycoplasma use sterols?  6 a) growth b) reproduction c) membrane fluidity d) cytoplasm  An extremotolerant organsim is a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrodictium  Which of the following is an example of RNA virus?  y a) SV40 b) T4 Phage  K1	ates ing ing	b) Re	b) I	b) I	partion b) Ro	rticij Res Floa	ipate stine atin	tes ir ng sta	n nge							K	(2	CO2
For what purpose do mycoplasma use sterols?  a) growth b) reproduction c) membrane fluidity d) cytoplasm  An extremotolerant organsim is a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrolotium  Which of the following is an example of RNA virus?  Which of the following is an example of RNA virus?  All SV40 b) T4 Phage  K1	repi	b) Co	node b) (	node b) (	ode (	e of Coj	of rejuga	epro	n		in b	acteri	a ?	)		k	(1	CO3
An extremotolerant organsim is  a) not found on earth b) adapted to extreme conditions c) adapted to moderate conditions and can live in extreme onditions d) adapted to moderate conditions only  Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrodictium  Which of the following is an example of RNA virus?  Which of the following is an example of RNA virus?  K1  K2  K2  Mich of the following is an example of RNA virus?  K1	asm odu	nycop b) re	myc b)	myc b)	yco b) re	copl	olası prod	ma u ducti	use	stere	ols?					F	ζ2	CO3
Which of the following that thrive at high temperatures?  a) Chromohalobacte b) Pyrolobus fumarii c) Tetragenococcus d) Pyrodictium  Which of the following is an example of RNA virus?  a) SV40 b) T4 Phage  K1	ted tons a	ansim b) ada condit condit	b) a cond	gansi b) a cond	nsim  o) ada  ondit  ondi	sim i adap aditio	is pted ions ions	d to o	can	1 11VE	e in e	xtrem	16 0	ndit	tions	I	K1	CO4
Which of the following is an example of RNA virus?  9 a) SV40 b) T4 Phage  K1	ive :	that t <i>b) P</i> :	g that b)	g that <i>b)</i>	that 1 b) P	at the	hrive <i>yrole</i>	ve at lobus	high fun	n tem narii	npera	tures	?			]	K2	CO4
	exa hag	ng is a b) T4	ing is b) T	ng is b) T	g is b) T <sup>4</sup>	is ar T4 I Ade	Pha eno	exam	iple is								K1	COS
Which of the following is a DNA containing plant virus?  a) Bean mosaic virus b) Adenovirus c) Cauliflower mosaic virus d) Tobacco necrosis virus  Con	DN.	ng is	ing i	ing i	g is	is a	a Dì	NA ) A	con	ovir	us							CO

# SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

 $(5 \times 7 = 35)$ 

Module No.	Question No.	Question	K Level	СО				
110.	11.a.	Name the five kingdoms and give the main distinguishing						
1		K2	CO1					
	11.b.	.b. What is numerical taxonomy? Give short notes on species concept and binomial nomenclature rules.						
	12.a.	Elucidate the characteristic features and mechanism of photosynthesis in oxygenic photosynthetic bacteria.						
2		(OR)	K3	CO2				
	12.b.	With a neat diagram, describe the structure and functions of heterocyst.						
	13.a.	Give a brief note on the characteristics features and classification of Spirochaetes.						
3		K3	CO3					
	13.b.	What are Chlamydiae? Bring out and explain the general characters and developmental cycle of Chlamydiae.						
4	14.a.	K4						
			CO4					
	14.b.							
5	15.a.	methanogenesis.  What are plant viruses? How plant viruses are classified?  (OR)	***	007				
		K4	CO5					
	15.b.							

## SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks  $(3 \times 10 = 30)$ 

Module No.	Question No.	Question	K Level	СО
1	16	What are the characters used in microbial taxonomy? Give a brief on molecular characteristics used in microbial taxonomy.	K4	CO1
2	17	Brief an account on structure, classification and economic importance of cyanobacteria.	K4	CO2
3	18	Define endospore. Bring out the structure of endospore and structural changes during sporulation with neat diagram.	K5	CO3
4	19	What are halophiles? Describe the characteristics, adaptive mechanism and applications of halophiles.	K5	CO4
5	20	Elaborate the structure of a typical bacteriophage and its classification.	K4	CO5

Z-Z-Z END