#### PSM/KW/23/1185-C

	FX FX	SWI/K W/25/1105-C	
	Bachelor of Science B.Sc. Semester—V Examination (Old & New)	n	
	MICROBIOLOGY	·* ,	
	(Molecular Biology & Bioinstrumentation)	200	
	Optional Paper-2		\ .
	Time : [hree Hours] (New)		\
	Note :(1) All questions are compulsory and carry equal marks.	[Maximum Marks : 5	0
	(2) Draw diagrams wherever required.	10 <sup>-6</sup>	\
	1. Discuss the mechanism of induced mutation in detail.		10
	OR		
$\sim$	Describe process of Lac-Operon in detail.		10
	2. Describe bacterial conjugation with example.		10
	OR ADD		
	Explain in detail, generalized transduction.		10
. 3	3. Describe in detail, principle, working and application of UV-visible	e Spectrophotometer.	10
	Describe principle, procedure and applications of Agarose gel-elect	ctrophoresis.	10
4	. Give principle, working and application of thin layer chromatograp OR	hy.	10
	Discuss detection and measurement of radioactive isotope by scin	tillation counter.	10
5.			10
	(1) Define Cistron.		
. V	(2) Define silent mutation.		
C.			
	(4) What are competent cells ?		0
	<ul> <li>(3) What are spontaneous mutations ?</li> <li>(4) What are competent cells ?</li> <li>(5) Define Auxotrophs.</li> <li>(6) What are transposones ?</li> </ul>		an.
	(6) What are transposones ?		Exa
	(7) What is Svedberg unit?	NO.	Ser.
	(8) What is TEMED ?	1169	
	(9) Give any two applications of SDS-PAGE.	CO'	
	(10) Give two applications of gel filtration chromatography.	College.	
	(11) What is Rf value ?		
	(12) Give two names of radioactive isotope.		1×10=10

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#### PSM/KW/23/1185-C

Best American and	
Bachelor of Science B.Sc. SemesterV E (Old & New)	samination
MICROBIOLOGY	
(Molœular Biology & Bioinstrumen	tation)
MOQC Optional Paper-2	
Time : three Hours! (New)	
. Time : three Hours] Note := (1) All questions are compulsory and carry equal mar	[Maximum Marks : 50
(2) Draw diagrams wherever required.	rks. $CONPOS$
1. Discuss the mechanism of induced mutation in detail.	() <sup>()</sup>
OR	
Describe process of Lac-Operon in detail.	10
2. Describe bacterial conjugation with example.	10
OR	400
Explain in detail, generalized transduction.	10
3. Describe in detail, principle, working and application of OR	
Describe principle, procedure and applications of Agaros	e gel-electrophoresis. 10
4. Give principle, working and application of thin layer chro	omatography. 10
OR	
Discuss detection and measurement of radioactive isotope	e by scintillation counter. 10
5. Attempt any TEN :	
(1) Define Cistron.	
(2) Define silent mutation.	
(3) What are spontaneous mutations ?	
<ul> <li>(3) What are spontaneous mutations ?</li> <li>(4) What are competent cells ?</li> <li>(5) Define Auxotrophs.</li> <li>(6) What are transposones ?</li> <li>(7) What is Svedberg unit ?</li> </ul>	"sa,
(5) Define Auxotrophs.	Mp.
(6) What are transposones 2	EXO
(7) What is South of Prive?	a C Las
(7) What is Svedberg unit?	100-
(8) What is TEMED?	~0/10×
(9) Give any two applications of SDS-PAGE.	College Exam
(10) Give two applications of gel filtration chromatogra	phy.
(11) What is Rf value ?	
(12) Give two names of radioactive isotope.	1×10=10

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P	SM/KW/23/1185-C	
Bachelor of Science B.Sc. Semester—V Examinatio (Old & New)	n	/
MICROPHOLOGY		
(Molecular Biology & Bioinstrumentation)		
Time : Three Housel (New)		
i inde tiouis		
Note : (1) All questions are compulsory and carry equal marks.	[Maximum Marks : 50	
angrans wherever required		
1. Discuss the mechanism of induced mutation in detail.	2 <sup>0</sup>	
OR Describe process of Lac-Operon in detail.	10	
2. Describe bacterial conjugation with example.	10	
5° * 3	10	
Explain in detail, generalized transduction.		
3. Describe in detail, principle, working and application of UV-visible	10	
Oppleation of UV-visible	Spectrophotometer. 10	
Describe principle, procedure and applications of Agarose gel-elect		
4. Give principle, working and application of thin layer chromatography	rophoresis. 10	
OR OR	y. 10	
Discuss detection and measurement of radioactive isotope by scintil	lation counter	
5. Attempt any TEN :	lation counter. 10	
(1) Define Cistron.		
(2) Define silent mutation.		
<ul> <li>(3) What are spontaneous mutations ?</li> <li>(4) What are competent cells ?</li> <li>(5) Define Auxotrophs.</li> <li>(6) What are transposones ?</li> <li>(7) What is Svedberg unit ?</li> </ul>		~ (
(5) Define Auxotrophs	J.	
(3) Define Auxotrophs.	Exam	1 1
(6) What are transposones ?	Con R. M.	
(7) What is Svedberg unit?	~8~~~	
(8) What is TEMED ?	169	
(9) Give any two applications of SDS-PAGE.	college-Exa	
(10) Give two applications of gel filtration chromatography.	ud <sup>17</sup>	
(11) What is Rf value ?		
(12) Give two names of radioactive isotope.	1×10=10	1

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# SSESA's Science College, Congress Nagar, Nagpur

# Preliminary Examination Winter - 2023 B.Sc. Sem-V Subject: Microbiology Paper: 11

Time: Three to	
Time: Three Hours Paper: 11 Max. Marks: 50	
<ol> <li>All questions are compulsory and carry marks as indicated.</li> <li>Draw neat and well labelled diagram wherever necessary.</li> </ol>	
a defined diagram wherever necessary.	
Q.1. Discuss the mechanism of induced mutation in detail.	
	10
B) Write note on physical mutagens	21/2
C) what is photoreactivation? Discuss about exciting reduct	21/2
	21/2 21/2
Q.2. Describe the process of transduction in detail. OR	10
A) Write a note on types of recombination.	
B) Explain in detail the concept of transformation	5
Q.3.A) Explain the principle & applications of UV-Visible spectroscopy	5 5
B) Explain the principle & applications of differential centrifugation	5
<u>OR</u>	5
C) Explain the principle & applications of agarose gel electrophoresis.	5
<ul><li>D) Explain the principle &amp; applications of analytical centrifugation.</li><li>Q.4.A) Explain the method &amp; application of isotope tracer technique.</li></ul>	5
<ul><li>Q.4.A) Explain the method &amp; application of isotope tracer technique.</li><li>B) Describe in detail gel filtration chromatography.</li></ul>	5
<u>OR</u>	5
C) Explain the concept of ion exchange chromatography in detail.	5
D) Discuss the types and applications of scintillation counter.	5
Q.5. Solve any <b>Ten</b> of the following:	5
I) What is site specific recombination?	۱
II) Define IS elements?	1
III) What is Frame shift mutation?	۱
IV) Define spontaneous mutation.	1
V) What are base analogues?	1
VI) Define Beer Lambert's Law.	· 1
VII) What is PAGE?	1
VIII) What is isotope?	
IX) Define centripetal force & centrifugal force.	
X) What do you mean by Rf value?	
XI) Define episome.	
XII) Give two factors affecting electrophoresis mobility.	
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### NRT/KS/19/2148

### Bachelor of Science (B.Sc.) Semester—V Examination MOLECULAR BIOLOGY AND BIOINSTRUMENTATION

## **Optional Paper**—2

#### (Microbiology)

Tin	e : Three Hours] [Maximum Marks	s : 50
	<b>N.B.</b> :— (1) All questions are compulsory and carry equal marks.	
	(2) Draw diagrams wherever necessary.	
1.	(a) Explain Intragenic suppression with suitable example.	5
	(b) Explain the mechanism of mutation caused by alkylating agent and structural analogues.	5
	OR	
	(c) Explain mis-sense and non-sense mutations with examples.	5
	(d) Describe positive control of Lac operon.	5
2.	Describe the process of transduction in detail.	10
	OR	
	Describe in detail Bacterial Transformation.	10
3.	Describe SDS-PAGE technique in detail with its applications.	10
	OR	
	What is electrophoresis ? Discuss various factors affecting electrophoretic mobility in detail.	10
4.	(a) Give principle and application of gel filtration chromatography.	21/2
	(b) Write a note on Anion exchanger.	21/2
	(c) Write a short note on Mass spectrometry.	21/2
	(d) Write a note on GM Counter.	21/2
	OR	
	(e) State the principle of HPLC.	21/2
	(f) Give the principle of thin layer chromatography.	21/2
	(g) Write a note on cation exchanger.	21/2
	(h) Explain briefly how measurement of radioactive isotope can be done by using Liquid Scintill $\tilde{x}$	
_	Counter.	21/2
5.	Solve any TEN :	
	(i) Define inducer.	1
	(ii) Define gene within gene.	1
	(iii) What is spontaneous mutation ?	1
	(iv) What are transposons ?	1
	<ul><li>(v) Name any two donor cells in conjugation.</li></ul>	1
	(vi) Name the scientist who discovered transposable elements.	1
	(vii) What is buoyant density ?	1
	(viii) What is monochromator ?	1
	<ul> <li>(ix) State Beer's Law.</li> <li>(x) Cive two nemes of stable isotomes</li> </ul>	1
	(x) Give two names of stable isotopes.	1
	(xi) Define R <sub>f</sub> value. (xii) What is half life of isotopes 2	1 1
	(xii) What is half-life of isotopes ?	I