

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI –600 086**  
(For candidates admitted during the academic year 2023 – 2024 & thereafter)

**M. Sc. DEGREE EXAMINATION, APRIL 2026**  
**BIOTECHNOLOGY**  
**FOURTH SEMESTER**

**COURSE : CORE**

**PAPER : BIO-NANOTECHNOLOGY**

**SUBJECT CODE : 23BY/PC/BN44**

**TIME : 3 HOURS**

**MAX. MARKS: 100**

<b>Q. No.</b>	<b>SECTION A</b> <b>Answer ALL Questions</b> <b>(10 x 1 = 10 marks)</b>	<b>CO</b>	<b>KL</b>
1	Define nanoparticles.	1	1
2	What is quantum dot?	1	1
3	Define nanogold.	1	1
4	What is a bucky ball?	1	1
5	Define spontaneous emulsification.	1	1
6	Expand SEM.	1	1
7	Define biosensor.	1	1
8	What is bioremediation?	1	1
9	What is called as nanogel?	1	1
10	Define nano-encapsulation.	1	1
<b>Q. No.</b>	<b>SECTION – B</b> <b>Answer ALL Questions</b> <b>(5 x 2 = 10 marks)</b>	<b>CO</b>	<b>KL</b>
11	Define surface plasmon resonance.	1	2
12	Explain nanotube.	1	2
13	List out the role of XRD in character determination of nanoparticles.	1	2
14	Explain reverse micelle method.	1	2
15	Explain nanoceramics.	1	2
<b>Q. No.</b>	<b>SECTION C</b> <b>Answer ALL Questions</b> <b>(4 x 10 = 40 marks)</b>	<b>CO</b>	<b>KL</b>
16	List out the historical events of the development of nanotechnology. <b>(OR)</b> Brief the scope of nanotechnology.	3	3
17	Classify nanomaterials based on the dimensions. <b>(OR)</b> Provide an essay on carbon based nanomaterials.	3	3
18	List out the applications of nanotechnology in food and cosmetics Industry. <b>(OR)</b> Explain bioremediation using nanotechnology with an example.	4	4
19	Discuss nanomaterials as a bone substitute. <b>(OR)</b> List out the application of nanotechnology in dentistry.	4	4
<b>Q. No.</b>	<b>SECTION – D</b> <b>Answer ALL Questions</b> <b>(2 x 20 = 40 marks)</b>	<b>CO</b>	<b>KL</b>
20	Describe green synthesis of nanoparticle using bacteria. <b>(OR)</b> Write an essay on bio-nanoparticles.	4	5
21	Explain the development of nanosensor. <b>(OR)</b> Demonstrate how the nanotechnology is used in cancer therapy.	5	6

\*\*\*\*\*