

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2011-12 & thereafter)

SUBJECT CODE : 11PH/ME/NS63

B.Sc. DEGREE EXAMINATION APRIL 2017
BRANCH III - PHYSICS
SIXTH SEMESTER

COURSE : MAJOR ELECTIVE
PAPER : NANO SCIENCE
TIME : 3 HOURS

MAX. MARKS : 100

Section-A

10X3=30

Answer all Questions:

1. What are the expected benefits of nanotechnologies for the environment?
2. Give any two properties exhibited by metal nanoparticles?
3. Give any two applications of CNT
4. What is agglomeration? And how it can be minimised?
5. Differentiate hydrothermal and solvothermal synthesis.
6. Explain how structural morphology of nanoparticles is determined
7. Why is nanoscience attracting so much interest?
8. What is bio- compatibility?
9. Explain photocatalysis and its applications.
10. What are the potential risks of nanomaterials to human health and the environment?

Section-B

5X6=30

Answer any Five Questions:

11. Define nanomaterial? Give classification of nanomaterials?
12. Explain briefly the important applications of noble metal nanoparticles
13. What is annealing? Explain its significance in the hydrothermal synthesis.
14. How do you determine the particle size of the sample using XRD data?
15. Enumerate the applications of CNTs.
16. What are solar cells? How are nanomaterials effective in the fabrication of solar cells?
17. Explain the uses of TEM and SEM in the study of nanosystems

Section-C

2X20=40

Answer any Two Questions:

18. Define carbon nanotube? What are the types of carbon nanotubes? Highlight the properties of carbon nanotubes?
19. Explain in detail any one bottom-up approach of the synthesis of nanomaterials.
20. Explain how UV-vis spectrophotometer can be used in sensing of nanomaterial.
21. Explain bio-medical applications of nanomaterial.

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