Code No: 136FW **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, November/December - 2020
SCIENCE AND TECHNOLOGY OF NANO MATERIALS
(Mechanical Engineering)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Explain the catalytic applications of nanomaterials? Give an overview.
b) Write a short note on challenges and future prospects of nanomaterials. [7+8]

2.a) Explain the effect of nano-dimension on material behaviours.
b) What is meant by Defect Structure? Explain the path to understanding defect structure. How can we classify defects in materials? [6+9]

3.a) Explain the Unique properties of nano-materials.
b) Explain the effect of nano-dimension on material behavior. Give an overview. [7+8]

4.a) What is top to down approach? Explain about hydrothermal method for the synthesis of nanomaterials.
b) Explain sol-gel method for the synthesis of nanomaterials. Give an overview. [7+8]

5.a) Explain the physical and chemical routes to achieve nanostructured materials.
b) Write a short note on consolidation of nanopowders. [7+8]

6.a) What are the consequences for the water pollution and the explain the role of nanomaterials/nanocatalysts for the water treatment?
b) What is the importance of nanomaterials in aerospace and armour applications? [7+8]

7.a) Explain briefly on nano-medical applications.
b) Explain the significance of nanomaterials in energy applications. [7+8]

8.a) Write a short note on synthesis and applications of carbon nanotubes.
b) Explain the synthetic strategy of quantum dots and their applications. [7+8]

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