

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2020

Course: Nanomaterial Processing and Applications
Program: BT-ME-Spz-MS&NT
Course Code: MTEG 425

Semester: VIII
Time 03 hrs.
Max. Marks: 100

Instructions: Attempt all questions, there is an internal choice in Section B and Section C

SECTION A

1. Standard single walled CNT withstands a pressure up to _____ without deformation.
 - a) 1Gpa
 - b) 2Gpa
 - c) 20Gpa
 - d) 25Gpa
2. Multi walled CNT are _____ concentric nano tubes.
 - a) Single
 - b) Double
 - c) Triple
 - d) Multiple
3. _____ undergo hydrolysis and poly condensation reactions.
 - a) Metal ions
 - b) Metal carbonates
 - c) Metal nitrates
 - d) Metal oxides
4. Which of the following are the super conducting wires?
 - a) YBCO
 - b) Ni
 - c) Pt
 - d) Au
5. A suspended nano wire is a wire that is produced in the_____
 - a) Air medium
 - b) Vaccum
 - c) Low vaccum chamber
 - d) High vaccum chamber
6. Plasma torch method is similar to the _____
 - a) Laser ablation
 - b) Arc discharge
 - c) Chemical vapour decomposition
 - d) Electrolysis

SECTION B

7. Comparison between single walled and multi walled carbon nanotube.
8. Explain UV and FTIR analysis of nanoparticles and their significance
9. Describe in detail the vapor–liquid–solid (VLS) method for nanowire synthesis.
10. Explain in detail how XRD analysis is important in nanomaterial characterisation.
11. Interpret the principle of physical, chemical and bio sensing by nanomaterials.

OR

Describe in detail the template assisted method for nanowire synthesis?

SECTION C

12. Compare the quantum confinement and resulting structures like quantum dots, quantum wells and their physical significance.

OR

Illustrate arc discharge and laser ablation method for carbon nanotube synthesis.