B.TECH. SEM -V (CHEMICAL 2014 COURSE (CBCS) : WINTER - 2017

SUBJECT: ELECTIVE – I 1) ADVANCE MATERIAL SCIENCE

Day: **Saturday** Time: **02.30 PM TO 05.30 PM**

Date: **20/01/2018** **W-2017-2115** Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat diagrams **WHEREVER** necessary.

Q.1 How fiber parameters, interface and molding methods affect properties of composite materials? **(10)**

OR

Q.1 a) What are the advantages and disadvantages of polymer composites? **(05)**

b) What are prepregs? How they affect composite properties and applicability? **(05)**

Q.2 What is need to reinforce ceramics? Explain the variation in properties and applicability enhancement. **(10)**

OR

Q.2 How type of reinforcement and fabrication process affect properties and applicability of metal composites? **(10)**

Q.3 What are carbon composites? Explain their fabrication methods and applications. **(10)**

OR

Q.3 How characteristics of non-materials affect their applicability in chemical engineering? **(10)**

Q.4 What is the type of waste generated from nuclear materials? Explain its hazards and prevention cares need to be taken before disposal. **(10)**

OR

Q.4 Write short note on:

a) Nuclear reactions **(05)**

b) Binding energy **(05)**

Q.5 What is implant material? Explain their properties and applications. **(10)**

OR

Q.5 What is importance and applicability of hydrogels and peptides in engineering and tissue engineering based on its properties? **(10)**

Q.6 a) What is difference between nanocluster, nanorod, nanotube and nanowire? How these affects material properties? **(05)**

b) What is laser ablation techniques for synthesis of nanomaterials? Explain with example. **(05)**

OR

Q.6 What is difference between precipitation and chemical vapor deposition techniques for synthesis of nanomaterials? Explain with detail synthesis mechanism and effect on properties. **(10)**

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