B.Tech. SEM -V (Chemical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT: ELECTIVE II- ADVANCED MATERIAL SCIENCES

Day: Wednesday
Date: 15/05/2019

S-2019-2643

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY.**
2) Use of non- programmable calculator is **ALLOWED.**
3) Figures to the right indicate **FULL** marks.
4) Draw a neat and labeled diagram **WHEREVER** necessary.
5) Assume suitable data, if necessary.

Q1. **a)** What is reinforcing mechanism in material composites? **(05)**
b) Which are advantages and disadvantages of formation of polymer composites? **(05)**

OR

Q1. Which are fabrication techniques in polymer composites? How does they affect properties and industrial applicability? **(10)**

Q2. **a)** How does matrices property affect property and applicability of ceramic composites? **(05)**
b) How does crack formation and propagation occur in ceramic composites? How does it affect properties and applicability of ceramic material? **(05)**

OR

Q2. Which are fabrication methods for metal composites? Explain their applicability. **(10)**

Q3. Which are the methods of synthesis and characterization of non-materials? Explain them. **(10)**

OR

Q3. What are carbon composites? Explain their fabrication methods, variation in properties and applicability. **(10)**

Q4. **a)** Which are nuclear forces? What is their significance in nuclear active materials? **(05)**
b) How to prevent the radiation hazards in nuclear materials? **(05)**

OR

Q4. What is nuclear fission? Explain its significance and applicability. **(10)**

Q5. **a)** Which are important metallic implant materials? Explain their properties and applications. **(05)**
b) What is biomaterial? What are their properties and applications as medical implants? **(05)**

OR

Q5. What is hydrogel? What are their properties and applications? **(10)**

Q6. What is difference between molecules, nanoparticles and bulk materials? What is the variation in their properties and applicability? **(10)**

OR

Q6. **a)** How to synthesize the nanoparticles by thermolysis? Explain in details. **(05)**
b) How to synthesize the nanomaterials by electrodeposition? Explain in details. **(05)**

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