B.Tech. SEM -V (Chemical 2014 Course (CBCS) : WINTER - 2018

SUBJECT: ELECTIVE I- ADVANCED MATERIAL SCIENCE

Day: Saturday
Date: 01/12/2018

Time: 02.30 PM TO 05.30 PM
Max. Marks: 60

W-2018-2378

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. Which are the factors influencing properties of composite materials? **(10)**

OR

Q1. **a)** What are prepegs? Which are their properties and applicability? **(05)**
b) How does reinforcing affect mechanical behavior of polymers? **(05)**

Q2. How does improvement in the properties of metal composites take place? Explain its effects on applicability. **(10)**

OR

Q2. **a)** What is the effect of matrices properties on mechanical behavior and applicability of ceramic composites? **(05)**
b) Which are the factor affecting crack and crack propagation in ceramic composites? **(05)**

Q3. Which are the properties of ablative polymers? Explain their contribution in defining applicability. **(10)**

OR

Q3. What is non-material? Correlate their properties with applications. **(10)**

Q4. **a)** What is binding energy? What is its significance in nuclear materials? **(05)**
b) How does atomic structure affect radioactivity of nuclear materials? **(05)**

OR

Q4. What are the types of wastes generated from nuclear materials? Explain their hazards and prevention methods. **(10)**

Q5. What are thermal, electrical and optical properties of biomaterials? How they affect applicability of biomaterials? **(10)**

OR

Q5. What is tissue engineering? How biomaterials are used in tissue engineering? Correlate their properties with applications. **(10)**

Q6. What is nanomaterial? Explain their types, property variation and applicability. **(10)**

OR

Q6. What is chemical vapor deposition? How it is used in nano-material synthesis? **(10)**

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