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VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) II Year II-Semester Advanced Supplementary (Old) Examinations, July-2019

Engineering Materials
(Open Elective-III)

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. Define composites and classify them based on the matrix.
2. Composites are preferred over conventional materials. Substantiate.
3. Define saponification number and give its significance.
4. Enlist the properties of a good lubricant.
5. Outline the factors that influence the mechanical properties of ceramics.
6. What are heavy clay products? Give examples.
7. Explain silk screen printing.
8. Give the characteristics of chemical stoneware.
9. Write about carbon residue of lubricants.
10. Explain the role of flux in the preparation of composite materials.

Part-B (5 × 10 = 50 Marks)

- 11.a) Sketch a neatly labeled diagram and explain pultrusion process for the manufacture of composite materials. Give the advantages and applications. [4]
- b) Classify fiber reinforced composites and discuss about various types of FRCs. [6]
- 12.a) Define flash point and fire point of a lubricant and describe their experimental determination. [6]
- b) Demonstrate hydrodynamic lubrication. [4]
- 13.a) Differentiate between permeable and impermeable wares, give appropriate examples. [4]
- b) Discuss about the optical, electrical and magnetic properties of composite materials. [6]
14. a) What are the main constituents of ceramics? Discuss the chemical reactions involved in the preparation of ceramics. [5]
- b) Discuss about the glazing of ceramics. [5]
- 15.a) Illustrate hand layup method, give the merits, limitations and applications. [4]
- b) Classify the lubricants and give examples. Explain the determination of viscosity of lubricants. [6]
- 16.a) Explain the classification of ceramics based on the degree of vitrification. [5]
- b) Demonstrate the body preparation of ceramics using clay slip. [5]
17. Answer any *two* of the following:
 - a) Explain resin transfer moulding of composites, give the merits and applications. [5]
 - b) Give the important functions of lubricants and explain extreme pressure lubrication. [5]
 - c) Describe various methods for the application of colors to pottery. [5]

