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Roll No

ES-220(CM) (CBCS)**B.E., III Semester**

Examination, December 2017

Choice Based Credit System (CBCS)**Material Science***Time : Three Hours**Maximum Marks : 60**Note:* i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Explain different types of thermal properties of a material.
- b) Explain the electrical properties which a material should have to be used in electrical equipment.

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2. a) What are important mechanical properties of a material? Write significance and measurement of these properties.
- b) Write short note on thermal shock resistance and thermal stability of metals.

3. a) What is atomic structure? Point out the characteristics which govern the physical and chemical properties of atoms.

- b) What do you understand by electronic structure of solid?

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[2]

4. a) Write a brief note on utilization of cast iron and stainless steel in chemical industries.
- b) Draw an iron carbon phase diagram and indicate all the phase. Write some important application of this diagram?
5. a) What are the different types of alloys used in chemical engineering processes? How are these important?
- b) Explain the method of fabrication of cast iron plant. Discuss the uses of cast iron.
6. a) Discuss the various types of corrosion on metals also enlist factors influencing corrosion.
- b) Describe different ways in which a boiler may be protected from corrosion.

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7. a) Explain chemical and radio catalytic stability of material in service.
- b) Explain properties of different types of composite material used in chemical industries.
8. a) Explain the method of manufacturing fiber glass.
- b) Differentiate between semiconductor and super conductors. How super conductors are manufactured.

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