

Roll No .....

**ES-220(FT) (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.

**rgpvonline.com**

1. a) Explain in detail the classification of engineering materials.  
b) Differentiate metals and non metals in terms of their properties and uses.
2. a) Calculate the atomic packing factor of simple cubic, BCC and FCC crystals.  
b) Explain the concepts of lattice, basis and crystal structure. How are they related?
3. a) Explain Slip and Twinning with sketches.  
b) Discuss Point and Line defects in crystals with neat sketch.

**rgpvonline.com**

4. Define cold working and outline the change of properties due to cold working. List its advantage and disadvantage.

5. Describe the working of Fe-C diagrams and list the advantages and limitations of these diagrams when applied to heat treatment.
6. a) Explain general classification of explosives. State the placard and label requirement of individual sub category.  
b) What are the four basic components required for an explosion? Explain with suitable diagram.

**rgpvonline.com**

7. a) What are the control measure will you take as a safety officer for an oxidizer emergency?  
b) Explain the effects of various extinguishing agents on oxidizers.
8. a) Explain the flammable and combustible liquids and their properties.  
b) Discuss about the oxidizer and toxic material, also explain their classification and hazards.

\*\*\*\*\*

**rgpvonline.com**