



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/M.Tech (CT)/SEM-2/M(CT)-201/2012**

**2012**

**GLASS, GLASS CERAMIC AND COATING**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

Answer any *three* questions from Question No. 1 to 6 and  
Question No. 7 is compulsory.

1. What is glass transition temperature ? What are glass formers ? Explain their roles. What are glass modifiers ? Explain their roles. Write the Zachariasen's rules for glass formation.

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2. What are glass ceramics ? What are nucleating agents ? How are glass ceramics formed ? Write down some applications of glass ceramics ?

$2 + 2 + 5 + 5$

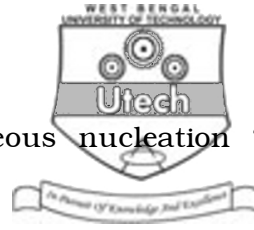
3. Write a note on annealing of glass. Write a note on toughening of glass.

$7 + 7$

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4. Write down the condition of Homogeneous nucleation ?  
Calculate the critical radius of nucleation.
5. What is viscosity range of glass transformation temperature ? Write a note on effect of various compositions on the viscosity of glass. 3 + 11
6. What is fracture toughness ? Why is actual strength of glass lower than the theoretical strength ? 3 + 11
7. Write notes on any *four* of the following : 4 × 7
- a) Float process
  - b) Continuous process of making optical glass
  - c) Dena process
  - d) Photochromic glass
  - e) Vell process.
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