Mid semester exam

Course: MEC 443 Manufacturing with Non-metals

3 October 2021
8.30 AM to 9.20 AM (50 min)
Platform: Google classroom

Answer any five questions
Maximum marks: 30 (6 marks for every question's fully correct answer)

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Q1. What is glass ceramic? What advantage it has over glass and ceramic? Comment about the hardness and brittleness property of glass ceramic with respect to glass and ceramic. (2+2+2)

Q2. What makes ceramic materials hard? Mention four other properties of ceramic which makes it different from metals and polymers. Mention six popular ceramic materials with their applications. (2+2+2)

Q3. Explain the crystal structure of graphene – its lattice and motif. Use a clear 3D structure of its unit cell to explain the crystal structure. (6)

Q4. What are the steps in ceramic products manufacture? Describe one ceramic shaping process in detail with proper figure. (3+3)

Q5. What is glass transition temperature? How does the amorphous glass differ from crystalline solids when they are heated from room temperature beyond their melting points – explain using temperature versus specific volume plot? (2+4)

Q6. Show pattern of fracture in simply annealed, tempered and laminated glass with proper schematic. Also brief about the process of manufacture of these glass types. (3+3)

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