AHMEDABAD UNIVERSITY
School of Engineering and Applied Science
2025-2026 Monsoon

MEC700 Advanced Materials and Manufacturing Processes
End-Term Examination
Monday 01 December 2025, 08:00 – 09:45

Name:	Roll no.	A	U	2						Marks /30

Write your answers on the answer book and then submit it. Answer all questions. The use of electronic gadgets (except scientific calculator) is strictly prohibited. Figures to the right indicate marks for each question.

1. Explain the mechanism of both brittle and ductile failure in polymers under tensile loading. *(6)*
2. What is the basis of selecting three-point and four-point bending tests? Explain in the context of shear force and bending moment. *(4)*
3. What is the basis of selecting Charpy versus Izod impact tests? Explain in the context of brittle and ductile materials. *(4)*
4. How is a Charpy curve plotted? Plot one curve for mild steel and explain the ductile-to-brittle transition. *(6)*
5. Write four key differences between DTA and DSC tests. *(4)*
6. Explain the working of the EBSD technique. *(3)*
7. Explain the working of the SAED technique. *(3)*