

**GUJARAT TECHNOLOGICAL UNIVERSITY****M.E. SEMESTER I (old course)–EXAMINATION (Remedial) – WINTER 2015****Subject code: 710202N****Date: 09/12/2015****Subject Name: Advance Computer Graphics****Time: 10:30 AM to 1:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Find the composite transformation matrix to scale a unit cube in the direction of main diagonal (from (0, 0, 0) to (1, 1, 1) by factor 2. Show the intermediate Steps? **07**
- (b) Explain different polygon mesh representations in detail? **07**
- Q.2** (a) Derive blending function for cubic Bezier curve? And also derive condition for C1 and C2 continuity? **07**
- (b) Explain solid modeling? Write down properties of solid modeling techniques? List out solid modeling methods? **07**
- OR**
- (b) Explain the regularized Boolean set operation in brief. How they are different from standard Boolean set Operation? **07**
- Q.3** (a) Explain the basic difference between parallel and perspective projection? And Also derive the transformation matrix for oblique projection? **07**
- (b) What is Axonometric projection? List out different types of axonometric projection? Derive the transformation matrix for least restrictive type of axonometric projection? **07**
- OR**
- Q.3** (a) Explain Back-face culling as visible surface determination algorithm? **07**
- (b) Explain Z-buffer algorithm for visible surface determination? **07**
- Q.4** (a) Define Gama Correction. Halftone approximation in detail? **07**
- (b) Explain HSV and CMY model. **07**
- OR**
- Q.4** (a) What is transparency? Explain different types of transparency in detail? **07**
- (b) What is coherence? Briefly explain different types of coherence? **07**
- Q.5** (a) What is rendering? Explain geometry based rendering and Image based rendering in detail? **07**
- (b) What do you mean by illumination model? Discuss any two illumination model in detail? **07**
- OR**
- Q.5** (a) What do you mean by graphics Accelerator? Discuss the Internal Architecture of graphics accelerator with neat diagram? **07**
- (b) What is Animation? Explain different types of Animation techniques in details? **07**

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