Subject Code: H0402/R13 M. Tech –II Semester Regular/ Supply Examinations, October, 2015 COMPUTER GRAPHICS (CAD/CAM)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions All questions carry EQUAL marks ****

- 1. a) Explain how rasterization accuracy is preserved despite using integer arithmetic in Bressenham line drawing algorithm.
 - b) Explain the basic structure of a twisted nematic liquid crystal dislay with a neat sketch
- 2. a) Distinguish between seed filling and scanline filling algorithm. Apply any of these algorithms to fill the polygon defined by (1, 1), 1, 5), (5, 2).
 - b) Discuss displaying of lines, polygons and characters
- 3. Explain mid point subdivision algorithm with an example showing the stack position at all stages.
- 4. a). Determine the form of the transformation matrix for a reflection about an arbitrary line with equation y = m + b.
 - b) Derive the concatenated transformation matrix for rotation about an arbitrary point in 2dimensions.
- 5. a) Prove that a triangle P Q R with P(8, 2),Q(10, 4), R(8,6) after reflection about x axis and then about y = -x will be the same as rotation about origin by an angle 270°
 - b) Reflect the diamond shaped polygon whose vertices are A(-1,0), B(0,-2), C(1,0), D(0, 2) about the line y=2
- 6. a) Discuss Z-buffer algorithm with an example. What are the merits and limitations of this algorithm?
 - b) Discuss painters algorithm with an example
- 7. a) Explain Gourand shading algorithm with an example
 - b) Find the matrix for mirror reflection with respect to the plane passing through the origin and having a normal vector whose direction is N = I + J + K
- 8. a) Describe inside outside tests
 - b) Explain pattern filling
 - c) Differentiate between boundary fill and flood fill algorithms

Subject Code: H0507/R13 M. Tech –II Semester Regular/ Supply Examinations, October, 2015 HUMAN COMPUTER INTERACTION

Time: 3 Hours

(CS & CSE)

Max Marks: 60

Answer any FIVE questions All questions carry EQUAL marks ****

- 1. (a) Discuss the history of screen design in detail.
 - (b) What is the importance of user interface.
- 2. (a) Write about the popularity of graphics systems.(b) What are the problems with direct manipulation? Discuss.
- 3. (a) What are the difficulties with poor design? Discuss in detail.
 - (b) List out the importance of human characteristics that have an influence on design and explain.
- 4. (a) What is a screen ? What is the purpose of screen?(b) Explain about ordering and organizing of screen elements.
- 5. What are the qualities of screen elements? How they are useful in providing a visually pleasing appearance?
- 6. (a) What are the contents of menus? Explain their structures.(b) Explain different types of windows in detail.
- 7. (a) Give the guidelines for presenting error messages on web.(b) What are the factors for using icons? Explain in detail.
- 8. (a) What is the use of interface building tools? Explain the features of those tools.(b) Write a brief note on keyboards , keyboard layouts and function keys.

Subject Code: H4302/R13 M. Tech –II Semester Regular/ Supply Examinations, October, 2015 ELECTRIC DRIVES – II (Common to PE, P&ID, PE&ED, PE&D, EM&D)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions All questions carry EQUAL marks ****

- a) Draw and discuss the torque slip characteristics of a three-phase induction motor.
 b) What is plugging? Explain plugging operation in three-phase induction motors.
- 2. With a neat block diagram, explain the closed-loop control of the slip power recovery controlled induction motor drive. Also discuss its merits.
- 3. a) What is space vector? Discuss the principle of vector control.b) Discuss the direct vector control scheme for an induction motor.
- 4. a) List all possible signals that can be measured or extracted for use in the parameter adaptation of the indirect vector controller.
 - b) Discuss the variable frequency control of a synchronous motor drive.
- 5. a) List different advantages of PMBLDC motors.b) Draw and explain the back-emf waveforms of a three phase BLDC motor.
- 6. a) List and discuss different motors suitable for electric traction.b) Compare between uni-polar and bipolar stepper motors.
- 7. With a neat block diagram, discus the control of induction motor employed in railway traction using ac-dc and dc-ac converters.
- 8. a) Define reluctance. Discuss the principle of operation of a switched reluctance motor.
 - b) Draw and explain any two power converter circuits for Switched reluctance motors.
