

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MCA
BRANCH: MCA**

**SEMESTER : V
SESSION : MO/2022**

SUBJECT: CA601 COMPUTER GRAPHICS

TIME: 3:00 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Write the boundary fill algorithm for filling a polygon using four connected approach. [2]
- Q.1(b) Discuss conceptual framework for Interactive Graphics. [3]
- Q.1(c) Use mid-point circle drawing algorithm to plot a circle whose radius =20 units and center at (50,30). [5]
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- Q.2(a) Explain the working principle of a Refresh CRT monitor with suitable diagrams. [2]
- Q.2(b) Describe Rotations with Quaternions in 3D. [3]
- Q.2(c) Clip a line A(-1,5) and B(3,8) using Cohen-Sutherland algorithm with window coordinates (-3,1) and (2.6). [5]
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- Q.3(a) Write short notes on vanishing point. [2]
- Q.3(b) Distinguish between cavalier and cabinet projection. [3]
- Q.3(c) What is parallel projection? Describe orthographic and oblique parallel projection in detail. [5]
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- Q.4(a) What are basic interaction tasks for input devices. [2]
- Q.4(b) Differentiate between approximated and interpolated curves. [3]
- Q.4(c) Analyze color models for raster graphics with respect to Hardware-oriented and User-oriented. [5]
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- Q.5(a) Differentiate between phong shading vs gouraud shading. [2]
- Q.5(b) What is Ray-Casting? Explain it. [3]
- Q.5(c) Explain the scan -line method used in visible surface detection with an example. [5]

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