JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Supplementary Examination- 2026

B.Tech-V Semester (CSE/IT)

COURSE CODE (CREDITS): 18B11CI515 (3) MAX. MARKS: 75

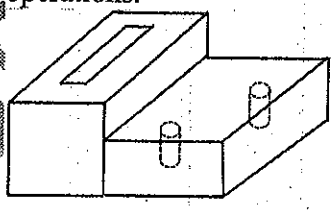
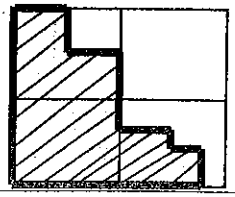
COURSE NAME: Computer Graphics

COURSE INSTRUCTORS: **ATA**, SMA, PTK, AYS MAX. TIME: 2 Hours

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Calculator is allowed

Q.No	Question	CO	Marks
Q1	**(a)** Derive the decision parameter for Bresenham's line drawing algorithm **(b)** Differentiate between active and passive Graphics devices.	2, 1	6+4
Q2	Consider a square A (1, 0), B (0, 0), C(0, 1), and D (1, 1). Rotate it by 45 degrees clockwise about the point (1, 0). Identify all new coordinates of the square.	3	10
Q3	Use Nicholl-Lee-Nicholl algorithm to Clip a line AB against the clipping window whose lower left corner is (10, 10) and upper right corner is (40, 40) where A (5, 20) and B (50, 30).	2	10
Q4	Given a homogeneous point (1, 2, 3). Apply uniform scaling by 5 towards X, Y and Z axis and find out the new coordinate points.	4	5
Q5	Based on the Fig. 1, use Constructive Solid Geometry (CSG) model to perform the following: • Identify the primitives from Fig shown below • Apply Boolean operations on the primitives • Construct a binary tree structure based on the Boolean operations. 	5	10
Q6	Construct a quad tree for an image given in the shaded area up to three levels. 	5	10

Q7	**a)** Parallel and perspective projections. **b)** Translational Sweep and Rotational Sweep	5	5+5
Q8	Write down algorithm steps for Scan line filling algorithm. Elaborate with an example.	3	10
All THE BEST			