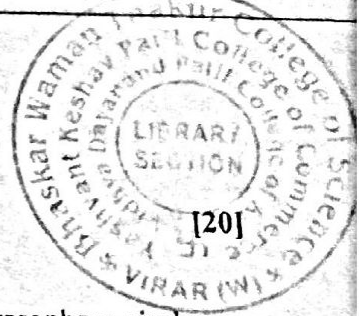


- NOTE:**
- 1) Diagrams should be Neat and labeled.
  - 2) All Questions are compulsory.
  - 3) Right side indicates marks.



**Q.1) Attempt any four.**

- A) Derive steps in midpoint's circle.
- B) Write applications of computer graphics.
- C) Draw the circle with center (10,10) and radius 15 using bresenham circle.
- D) Define pixel. Explain bitmap and vector based image.
- E) Differentiate raster scan method and random scan method.
- F) Explain setfillstyle () and arc() with example.
- G) Explain setcolor() and line() with example.
- H) Derived steps for DDA line.

[20]

**Q.2) Attempt any four.**

- A) What is polygon clipping? Explain it.
- B) Explain cohen-sutherland line clipping algorithm.
- C) What is clipping? Explain character clipping.
- D) Explain wire frame model.
- E) Describe Bezier curve with there properties.
- F) How map window port to view port. Explain it with its steps.
- G) Differentiate interpolation curve and approximation curve.
- H) Write short note on spline curve.

[20]

**Q.3) Attempt any four.**

- A) Write short note on 1. Texture mapping 2. Morphing
- B) Describe illumination model.
- C) Explain z-buffer algorithm.
- D) Explain shading technique in detail.
- E) Explain components of computer animation.
- F) What is shadow? Explain its types.
- G) Describe Umbra and penumbra using shadow.
- H) Describe illumination model.

[20]

**Q.4) Attempt any three.**

- A) Describe CRT with components.
- B) Consider line AB with A=(-1,0) and B=(-8,4). Apply DDA line algorithm and calculate pixel on this line.
- C) Explain initgraph () and detectgraph().
- D) Explain window port and view port.
- E) Derived steps for bresenham's line.
- F) Explain outtextxy() and circle() with example.

[15]