BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF COMPUTER SCIENCE
BSc HONS DEGREE IN COMPUTER SCIENCE
BSc HONS DEGREE IN INFORMATION TECHNOLOGY
COMPUTER GRAPHICS - CS411
DURATION: 2 hours 30 minutes TOTAL MARKS :100

INSTRUCTIONS TO CANDIDATES
Answer **all** questions.
Total marks are **100**.

MAR 2024

Question 1

a) List **five** graphic primitives and give **five** attributes for an individual primitive class or for groups of output primitives. **[15]**

b) Define the following terms used in Computer graphics
   i. Persistence
   ii. Resolution
   iii. Aspect ratio **[9]**

c) Differentiate
   i. horizontal and vertical retrace **[4]**
   ii. raster scan and random scan systems **[6]**

(34 Marks)

Question 2

a) Describe **three** different methods of smoothly joining two-line segments. **[9]**

b) Antialiasing methods compensate for the under-sampling process when applied to displayed raster lines. Briefly explain the following methods of antialiasing.
   i. antialiasing by super sampling or post filtering
   ii. antialiasing by area sampling or prefiltering
   iii. antialiasing by pixel phasing **[9]**

(18 Marks)

Question 3

a) Digitize a line from (10,12) to (15,15) on a raster screen using Bresenham's straight line algorithm. **[8]**

b) Explain the Bresenham's line drawing algorithm with example of its implementation. **[20]**

c) Explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and coordinate origin as the centre of the circle. **[20]**

(48 Marks)

******END OF PAPER******