Pir Mehr Ali Shah

Arid Agriculture University, Rawalpindi

Office of the controller of Examinations

Mid Exam / Fall 2020 (Paper Duration 24 hours)

To be filled by Teacher

Course No.: **CS-575** Course Title: **Computer Graphics .**

Total Marks: **120 (12)** Date of Exam: **10th December 2020 .**

Degree: **BSCS, BSIT** Semester: **Fifth, Sixth** Section: **A, B, C .**

Q.No.	1	2	3	4	5	6	7	8	9	10	Marks Obtained / Total Marks	Converted Marks Obtained / Total Marks
Marks Obtained											**/120**	**/12**
Total Converted Marks in Words:												
Name of the teacher: Mr. Afrasiab Kaikobad												
Who taught the course: Signature of teacher / Examiner:												

To be filled by Student

Reg No.: **……..-arid-……..** Name:**……** Semester:**……** Section:**……..**

Notes:

1. **By filling out your name and registration number above, you Pledge that: "I affirm that I have not given or received any unauthorized help on this exam/assignment, and that this work is my own."**
2. **Any student found breaching the "Regulations Relating to the Examinations of PMAS-Arid Agriculture University, Rawalpindi", will face severe penalties.**
3. **Any form of Cheating, Unauthorized Help, and/or Plagiarism found in the Answers given below will have severe penalty for the student, ranging from cancellation of paper to suspension from the University rolls for up to 2 years.**

Answer the following questions.

Q.No.1. Differentiate the following terms in your own words (Marks: 20)

a) Computer Graphics and Image Processing

b) Virtual Reality and Visualization

c) Digital Media Technologies and Entertainment

d) Application Model and Application Program

e) Graphic System and Output Devices

f) ASCII and EASCII

g) Compressed Audio and Uncompressed Audio

h) Lossy Compressed Audio and Lossless Compressed Audio

i) Resolution: 800 x 600 and 100 ppi

j) Bitmap Buffer and Pixmap Buffer

Q.No.2. Answer these short questions. (Marks: 20)

a) We have an image 12'x8', the resolution is 100 ppi and 24 bits are used to represent each pixel. Find the size of image (in MB.)

b) If you have to select between raster graphic and vector graphic, what will you choose when you have to create engineering drawing. Give reason.

c) If you have to compare the quality of two screen which are not of same size (like mobile display and LCD monitor) which type of resolution (800x600, 100 dpi, 100 ppi etc) will you use. Give example.

d) In 32-bit color system, how bits are divided to create transparency and color of a pixel. Draw the diagram.

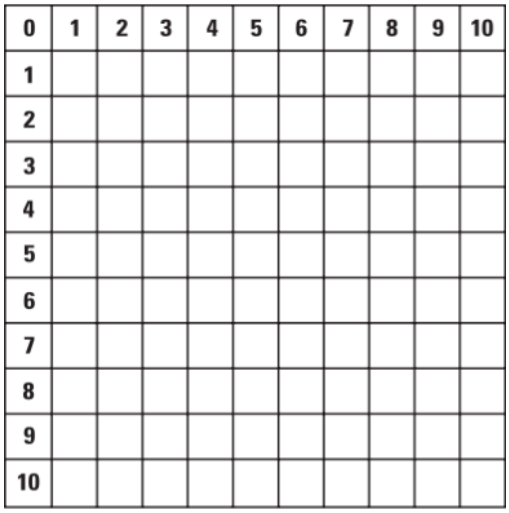
e) When a color of an object is seen as reflection on the other object (in 3D), which computer graphics technology is used.

Q.No.3. Compute the Digital Differential Analyzer algorithm to draw the following lines, and also draw the points on the (Graph) (Marks: 20)

i) Points: (10,10), (0,0)

0	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

ii) Points: (0,10), (10,0)



0	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Q.No.4 (Marks: 20)

(a). Derive the Bresenham's line algorithm for m>1 to find the parameter for P > 0, P < 0 and initial parameter. (10)

(b). What is the symmetry of the circle and how can we use symmetry of the circle to reduce the computation of Mid-Point circle? (10)

Q.No.5. Write JAVA code to draw a Mid-Point circle, and also write "Mouse Pressed" event on drawingPanel (JPanel), to draw a circle. When user press left mouse button, save the cursor position for the center of the circle and when user press right mouse button, get the value of the cursor position and calculate the distance from center to this position as radius of the circle. (Marks: 20)

Q.No.6. Write the methods in Java for the following (Marks: 20)

a) Method returns a translated point

b) Method returns a rotated point w.r.t pivot point

c) Method receives a Target point, Pivot point, Translation Factors and Angle in Degree, and it return a Point which is translated and rotated (Sequence is T->R). Must use methods of a and b.