Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back/Scholarship Exam – 2081/2082 Chaitra/Baishakh

Program:	**Diploma in Information Technology/ Computer Engineering**	**Full Marks: 80**
Year/Part:	**III/I (2022)**	**Pass Marks: 32**
Subject:	**Computer Graphics**	**Time: 3 hrs.**

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt any EIGHT questions.

1. What is computer graphics? List out the application of computer graphics. Differentiate between CAD and CAM. [2+2+6]
2. Explain different types of touch panels. Differentiate between raster and vector scan display architectures. [5+5]
3. What is scaling? Write Bresenham's line drawing algorithm. [2+8]
4. Given a triangle with corner coordinates (0, 0), (2, 0) and (3, 2). Perform 2D rotation by 90° anticlockwise and find out new coordinate. Write DDA line drawing algorithm. [5+5]
5. Write the matrix notation for shearing. Explain different steps involved in 3D viewing pipeline. [2+8]
6. Define perspective projection. Differentiate between object space and image space method in hidden surface removal technique. [4+6]
7. What is parallel projection? Explain constant shading and phong shading model. [2+4+4]
8. What are different graphics file formats? Explain different features of graphics packages. [5+5]
9. What do you mean by virtual reality? List out its application. Differentiate between semi-immersive and fully immersive virtual reality. [1+3+6]

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10. Write short notes on: (any **TWO**) [2×5]
    a. CRT monitors
    b. Polygon tables
    c. Browser safe colors

Good Luck !

Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular Exam-2081 Jestha/Ashadh

Program:	**Diploma in Computer Engineering/ Information Technology**	**Full Marks: 80**
Year/Part:	**III/I (2022)**	**Pass Marks: 32**
Subject:	**Computer Graphics**	**Time: 3 hrs.**

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt any EIGHT questions.

1. Define computer graphics and its application in different fields. Differentiate between raster and random scan display. [5+5]
2. Using midpoint circle algorithm plot a circle whose radius is equal to 10, centered at origin. [10]
3. Derive the DDA line drawing algorithm for m<1 and m>1. [10]
4. What is perspective projection? Explain 3D reflection and rotation with example. [2+8]
5. What are different hidden surface removal techniques? Explain. [10]
6. Explain phong shading model. Describe different types of virtual reality. [5+5]
7. Define the terms resolution and anti-aliasing. What are the different graphics packages and mention their features? [4+6]

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8. Describe different types of input and output devices used in computer graphics. [10]
9. Write short notes on: (any **TWO**) [2×5]
   a. Two dimensional transformation
   b. Polygon table
   c. CRT monitor

Good Luck !

Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2080, Bhadra

Program: Diploma in IT Engineering | **Full Marks: 80**

Year/Part: III/I (2016) | **Pass Marks: 32**

Subject: Computer Graphics | **Time: 3 hrs.**

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Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

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Attempt Any Eight questions

1. What is computer graphics? Explain application of computer graphics. [4+6]
2. Define graphics input and output hardware. Differentiate between Raster and Vector display. [4+6]
3. What is Two-dimensional transformation? Explain line drawing algorithms. [2+8]
4. What is lightening model? What is parallel and perspective projection. [4+6]
5. Draw and explain the function of windows icons, menu and graphical items found on window. [10]
6. Explain principles of web graphic design. [10]
7. Explain desirable features of a graphics design packages. [10]
8. What is computer animation? Explain about key-frame and morphing in detail. [2+8]

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9. Write short notes on: **(Any Two)** [2×5=10]
   a) CAD and CAM
   b) 3D transformation
   c) Shading models
   d) Graphics files formats

Good Luck!

Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2079/2080, Chaitra/Baishakh

Program: Diploma in Computer Engineering | **Full Marks:** 40

Year/Part: II/II (2018 New) | **Pass Marks:** 16

Subject: Computer Graphics | **Time:** 1 hr. 30 min.

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt Any Eight Questions.

1. Differentiate between raster and vector display technology. [5]
2. Digitize line joining points (2, 3) and (7, 9) Using DDA. [5]
3. Explain various 2D transformations. [5]
4. Define projection. Explain the types of projection with example. [5]
5. Explain surface detection technique in brief. [5]
6. Define shading. Explain its types. [5]
7. Explain about morphing. [5]
8. Write down the purposes and features of graphic packages. [5]
9. Write short notes on: (**Any Two**) [2x2.5=5]
   i) Polygon table
   ii) Animation sequence
   iii) Graphics file format

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Good Luck!

Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2079, Bhadra /Ashwin

Program: Diploma in IT Engineering | **Full Marks:** 80

Year/Part: III/I (2016) | **Pass Marks:** 32

Subject: Computer Graphics | **Time:** 3 hrs.

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt Any Eight questions.

1. Define Computer Graphics. Explain applications of Computer Graphics. [2+8]
2. Derive midpoint circle drawing algorithm. [10]
3. Define projection. Write down differences between parallel and perspective projection with figure. [3+7]
4. What is animation? Explain steps of animation & sequence. [2+8]
5. Explain graphics file formats. What are the principle of web graphics design? [5+5]
6. Why GUI in popular than CUI? What are the principle of interactive user design? Explain three of them. [10]
7. What are desirable features of graphic design package? Explain morphing technique. [6+4]
8. Write the principle and characteristics of raster and vector display technology. Explain the working principle of LCD monitor. [6+4]

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9. Write short notes on: **(Any Two)** [2×5=10]
   a) Phong shading
   b) 2D transformation
   c) Resolution

Good Luck!

AC

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Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2078/2079, Chaitra/Baishakh

Program: Diploma in Computer Engineering **Full Marks: 40**

Year/ Part: II/II (2018 New) © Arjun **Pass Marks: 16**

Subject: Computer Graphics **Time: 1.5 hrs.**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt Any Eight Questions.

1. Define computer graphics. Write down the major applications of computer graphics. [1+4]
2. Explain Bresenham's line drawing algorithm. [5]
3. Write down principles of web graphics design. [5]
4. Explain surface detection techniques. [5]
5. Differentiate raster and Vector display technology. [5]
6. What is projection? Differentiate between parallel and perspective projection. [1+4]
7. Define shading model. Explain about Gouraud shading [1+4]
8. Explain various steps of animation. [5]
9. Write short notes on : **(Any Two)** [2x2.5=10]
   i) 2D-Rotation
   ii) Morphing
   iii) CAD Vs CAM

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Good Luck !

Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2078, Kartik/Mangsir

Program: Diploma in Information Technology **Full Marks: 80**

Year/Part: III/I (2016, New Course) **Pass Marks: 32**

Subject: Computer Graphics © Arjun **Time: 3 hrs.**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt Any Eight questions.

1. Define computer graphics. Explain application of computer graphics. Differentiate between CAD and CAM. **[1+5+4]**
2. What is touch pad? Explain its types in brief. Write differences between raster and vector display technology. **[5+5]**
3. Write Bresenham's line drawing algorithm. Digitize the line joining points (5, 5) and (10, 12) using BLA. **[5+5]**
4. a) Define projection. Explain different types of projection. **[5]**
   b) Explain different types of shading models. **[5]**
5. What is animation ? Explain about animation sequences. **[2+8]**
6. Define Graphical User Interface (GUI). Explain about different graphical interface items. **[2+8]**
7. a) Explain the principles of web graphic design. **[5]**
   b) What is graphic package? Write down desirable features of graphics package. **[1+4]**
8. a) Explain methods of 3D object representation. **[6]**
   b) Describe about translation and scaling in 2D transformation with example. **[4]**

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9. Write short notes on: **(Any TWO)** **[2×5=10]**
   a. Morphing
   b. Parallel Projection
   c. CRT monitor

Good Luck!

Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2077, Chaitra

Program: Diploma in Computer/IT Engineering | **Full Marks: 40**

Year/Part: II/II (2018, 2013 New+Old) | **Pass Marks: 16**

Subject: Computer Graphics | **Time: 1.5 hrs.**

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks

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Attempt Any Eight questions.

1. What is Computer Graphics? Explain Computer Aided Designing (CAD) and Computer Aided Manufacturing(CAM) with example. **[1+4]**
2. Write about the Raster and vector scan display technology. **[2.5+2.5]**
3. Explain about the DDA line drawing algorithm. **[5]**
4. Derive ellipse drawing algorithm. **[5]**
5. Define projection. Explain the types of projection with examples. **[1+4]**
6. Explain how 3-D objects are presented Discuss about polygon table and polygon Surface. **[2+3]**
7. Explain the Surface detection technique in brief. **[5]**
8. What is Animation sequence? Explain Morphing technique. **[2+3]**

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9. **Write short notes on: (Any Two)** **[2x2.5=5]**
   a) CRT monitor
   b) Application of GUI
   c) 2-D reflection

Good Luck!

Council for Technical Education and Vocational Training
Office of the Controller of Examinations
Sanothimi, Bhaktapur

Regular/Back Exam-2076, Falgun/Chaitra

Program: Diploma in Computer Engineering — **Full Marks: 80**

Year/Part: III/I (2013 Course) — **Pass Marks: 32**

Subject: Computer Graphics (Auto CAD) — *Time: 3 hrs*

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt **Any Eight** Questions

1. Define computer graphics. Explain the application of computer graphics in CAD and CAM. [2+8=10]
2. Explain digital differential algorithms with its limitations. [2+2+6=10]
3. Define projection. Explain types of Z-D transformation in detail. [2+8=10]
4. Define hidden line and hidden surface area. Explain Z-buffer in detail. [4+6=10]
5. What do you mean by flat shading and smooth shading? Explain types of smooth shading. 2+2+6=10]
6. Explain Principles and characteristics of Raster and Vector display technology. [5+5=10]
7. What is animation? Explain the steps of animation sequence. [2+8=10]

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8. Explain graphics file formats. what are the principles of web graphics design? [5+5=10]
9. Write short notes on : **(Any Two)** [2x5=10]
   d) Application of GUI
   e) Polygon table
   f) Machine independent graphic package

Good Luck

Council for Technical Education and Vocational Training
Office of the Controller of Examinations
Sanothimi, Bhaktapur
Regular/Back Exam-2075, Falgun/Chaitra

Program: Diploma in Computer Engineering — **Full Marks: 80**
Year/Part: III/I (2010) — **Pass Marks:32**
Subject: Computer Graphics (Auto CAD) — **Time: 3 hrs**

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Attempt (Any Eight) questions.

1. Define computer graphics and its applications in different fields. What are the difference between computer graphics and image processing? [10]
2. Derive mid-point circle drawing algorithm. [10]
3. Derive the DDA line drawing algorithm for $m < 1$ *and* $m > 1$. [10]
4. What is perspective projection? Explain 3-D translation and rotation with example. [10]
5. Write the principle and characteristics of raster and vector display technology. Explain the working principle of LCD monitor. [5+5]
6. Explain animation and morphing with example. Write the principle of interactive user dialogs. [5+5]
7. a) Define clipping. Write about Cohen-Sutherland line clipping with appropriate figure. [5]
   b) Define anti-aliasing. How can we control it? [5]
8. Explain surface detection technique in brief. Write short notes on Gouraud shading. [6+4]
9. Write Short Notes on (**Any Two**) [2x5=10)
   a) Application of GUI
   b) Phong shading
   c) Output Hardware

Good Luck

COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING

Office of the Controller of Examinations

Sanaothimi, Bhaktapur

Regular/Back Exam – 2073

Program: Diploma in Computer Eng. **Full Marks: 80**

Year/Part: III/I (New Course) **Pass Marks: 32**

Subject: Computer Graphics ***Time: 3 hrs***

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Attempt Any Five questions

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1. a) What is computer graphics? Explain various applications of computer graphics. [2+6=8]
   b) What are the limitations of DDA? Use Bresenham's algorithm to rasterize the line from (5, 5) to (13, 9). [2+6=8]
2. a) Define transformation. Explain 2-D translation and rotation with examples. [2+3+3=8]
   b) Define the term Resolution. Explain the shadow mask method of color production technique in color CRT monitor. [2+6=8]
3. a) Explain the Back face detection method of visible surface detection in 3D. [8]
   b) What are the illumination models used for lighting the 3D objects. Explain briefly. [8]
4. a) List out the various polygon rendering method and explain about phong shading model. [1+7=8]
   b) What are the elements of GUI? Explain any two types of Graphics file format. [2+3+3=8]
5. a) Explain various principles of web graphics design. [2+6=8]
   b) Define Animation. Explain morphing and simulating acceleration. [2+3+3=8]

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6. Writes short notes on: (Any Four) [4×4=16]
   a) Polygon tables
   b) Vector graphics
   c) Parallel projection
   d) 3-D Scaling
   e) Circle drawing Algorithm

"The End"

COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING

Office of the Controller of Examinations

Sanaothimi, Bhaktapur

Regular/Back Exam – 2071, Chaitra

Program: Diploma in Computer Eng. **Full Marks: 80**

Year/Part: III/I (New Course) **Pass Marks: 32**

Subject: Computer Graphics ***Time: 3 hrs***

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt <u>All</u> questions.

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1. Write down the application of Computer Graphics in CAD and CAM. [5]
2. Write the steps of Bresenhem's line drawing algorithm. [8]
3. What are the different 3D-transformation techniques? Explain. [8]
4. What do you mean by shading & lighting? Explain about Phong Shading. [4+4=8]
5. Write the method of 3D-object representation. [5]
6. Write the working principle of LCD monitor. [5]
7. What are the different color production techniques? Explain. [5]
8. Explain two traditional animation techniques with giving example. [6]
9. How can you design interactive user dialog while designing GUI? [5]
10. Explain different "Graphics file Format". [6]
11. Define Graphic Package and its types. [6]
12. What are the different "hidden line" "and" surface detection techniques? Explain. [5]

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"The End"

COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING

Office of the Controller of Examinations

Sanaothimi, Bhaktapur

Back Exam – 2070, Poush

Program: Diploma in Computer Eng. **Full Marks: 80**

Year/Part: III/I (Old Course) **Pass Marks: 32**

Subject: Computer Graphics ***Time: 3 hrs***

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt All questions.

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1. What is computer graphics? Explain various applications of computer graphics. [2+6=8]
2. Find out the intermediate co-ordinates between the point (0,5) to (7,10) using Bresenham algorithm. [8]
3. Define 2D objects. Explain about he 2D window viewport transformation in detail. [2+6=8]
4. What is projection? Explain perspective projection with example. [2+6=8]
5. Why is it necessary to remove hidden lines surface in 3D viewing? Mention various techniques used for eliminating hidden surfaces. [2+6=8]
6. Explain about light pen and touch panel. [8]
7. What are the transformation matrices that are responsible for producing translation, ration and scaling in 3D. [8]
8. Draw the architecture of raster graphics system. Explain the function of each component involved for color display. [3+5=8]
9. Explain the various principles and qualities of web graphics design in brief. [8]
10. Write short notes on: (Any Two) [2×4=8]
    a) Frame Buffer
    b) Resolution and aspect ratio
    c) Mouse
    d) Phong Shading

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"The End"

COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING

Office of the Controller of Examinations

Sanaothimi, Bhaktapur

Regular/Back Exam – 2070, Chaitra

Program: Diploma in Computer Eng. **Full Marks: 80**

Year/Part: III/I (New Course) **Pass Marks: 32**

Subject: Computer Graphics *Time: 3 hrs*

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Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt <u>Any Eight</u> questions.

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1. What is computer graphics? Briefly explain the history of computer graphics? [3+7=10]
2. Explain the Bresenham line drawing algorithm? Write the algorithm. [2+8=10]
3. What is 2-D Transformation? Explain different 2-D transformation and represent them in matrix representation? [2+8=10]
4. What is projection? Explain perspective projection with diagram and mathematical representational? [2+8=10]
5. Describe 3-D object representation? Explain various type of polygon table with simple example. [2+8=10]
6. Explain gourmand shading and phong shading? Lis the advantages of phong shading over gourmand shading. [8+2=10]
7. Explain in detail about principle and operation of LCD monitor? [10]
8. What is animation? Explain the step of animation sequence. [2+8=10]
9. Describe GUI? List the application of GUI? Explain graphics file format with example. [2+2+6=10]
10. Explain type and purpose of graphics package? List he describe feature of a graphics design package. [8+2=10]

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"The End"