

Code No: R05320501

R05**Set No. 2**

III B.Tech II Semester Examinations, December 2010

COMPUTER GRAPHICS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. A pyramid defined by the coordinates A(0, 0, 0), B(1, 0, 0), C(0, 1, 0) and D(0, 0, 1) is rotated 45° about the line L that has the direction $V=J+K$ and passing through point C(0, 1, 0). Find the coordinates of rotated figure. [16]
2. List the operating characteristics of
 - (a) Raster refresh systems
 - (b) Vector refresh systems
 - (c) Plasma panel
 - (d) LCDs. [4×4=16]
3. (a) Write Bresenham's algorithm for line generation which is suitable for any slope.
 (b) Using the above algorithm, generate the intermediate points of the line segment, if the two end-points are given as (30,18) and (20,10). [8+8]
4. An object point P(x,y) is translated in the direction $v = ai + bj$ and simultaneously an observer moves in the direction v. Show that there is no apparent motion (from the point of view of observer) of the object. [16]
5. What are the steps involved in implementing the basic illumination model using a single point light source and Gouraud surface shading for the faces of a specified polygon mesh? The object description is to be given as a set of polygon tables, including surface normals for each of the polygon faces. Additional input includes values for the ambient intensity, light source intensity, surface diffuse reflection and specular reflection coefficients. All coordinate information can be specified directly in the viewing reference frame. [16]
6. (a) What are the steps involved in Sutherland-Hodgeman algorithm.
 (b) What are the advantages and disadvantages of Sutherland - Hodgeman algorithm. [12+4]
7. Explain the steps involved in transforming a sphere into a specified polyhedron. [16]
8. Write an algorithm for generating a quad-tree representation for the visible surfaces of an object by applying the area subdivision tests to determine the values of the quad-tree elements. [16]

Code No: R05320501

R05**Set No. 4**

III B.Tech II Semester Examinations, December 2010

COMPUTER GRAPHICS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. An object point $P(x,y)$ is translated in the direction $v = ai + bj$ and simultaneously an observer moves in the direction v . Show that there is no apparent motion (from the point of view of observer) of the object. [16]
2. What are the steps involved in implementing the basic illumination model using a single point light source and Gouraud surface shading for the faces of a specified polygon mesh? The object description is to be given as a set of polygon tables, including surface normals for each of the polygon faces. Additional input includes values for the ambient intensity, light source intensity, surface diffuse reflection and specular reflection coefficients. All coordinate information can be specified directly in the viewing reference frame. [16]
3. List the operating characteristics of
 - (a) Raster refresh systems
 - (b) Vector refresh systems
 - (c) Plasma panel
 - (d) LCDs. [4×4=16]
4. (a) What are the steps involved in Sutherland-Hodgeman algorithm.
 (b) What are the advantages and disadvantages of Sutherland - Hodgeman algorithm. [12+4]
5. Write an algorithm for generating a quad-tree representation for the visible surfaces of an object by applying the area subdivision tests to determine the values of the quad-tree elements. [16]
6. (a) Write Bresenham's algorithm for line generation which is suitable for any slope.
 (b) Using the above algorithm, generate the intermediate points of the line segment, if the two end-points are given as (30,18) and (20,10). [8+8]
7. A pyramid defined by the coordinates $A(0, 0, 0)$, $B(1, 0, 0)$, $C(0, 1, 0)$ and $D(0, 0, 1)$ is rotated 45° about the line L that has the direction $V=J+K$ and passing through point $C(0, 1, 0)$. Find the coordinates of rotated figure. [16]
8. Explain the steps involved in transforming a sphere into a specified polyhedron. [16]

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R05**Set No. 1**

III B.Tech II Semester Examinations, December 2010

COMPUTER GRAPHICS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. (a) What are the steps involved in Sutherland-Hodgeman algorithm.
(b) What are the advantages and disadvantages of Sutherland - Hodgeman algorithm. [12+4]
2. Explain the steps involved in transforming a sphere into a specified polyhedron. [16]
3. What are the steps involved in implementing the basic illumination model using a single point light source and Gouraud surface shading for the faces of a specified polygon mesh? The object description is to be given as a set of polygon tables, including surface normals for each of the polygon faces. Additional input includes values for the ambient intensity, light source intensity, surface diffuse reflection and specular reflection coefficients. All coordinate information can be specified directly in the viewing reference frame. [16]
4. Write an algorithm for generating a quad-tree representation for the visible surfaces of an object by applying the area subdivision tests to determine the values of the quad-tree elements. [16]
5. An object point $P(x,y)$ is translated in the direction $v = ai + bj$ and simultaneously an observer moves in the direction v . Show that there is no apparent motion (from the point of view of observer) of the object. [16]
6. A pyramid defined by the coordinates $A(0, 0, 0)$, $B(1, 0, 0)$, $C(0, 1, 0)$ and $D(0, 0, 1)$ is rotated 45° about the line L that has the direction $V=J+K$ and passing through point $C(0, 1, 0)$. Find the coordinates of rotated figure. [16]
7. List the operating characteristics of
 - (a) Raster refresh systems
 - (b) Vector refresh systems
 - (c) Plasma panel
 - (d) LCDs. [4×4=16]
8. (a) Write Bresenham's algorithm for line generation which is suitable for any slope.
(b) Using the above algorithm, generate the intermediate points of the line segment, if the two end-points are given as (30,18) and (20,10). [8+8]

Code No: R05320501

R05**Set No. 3**

III B.Tech II Semester Examinations, December 2010

COMPUTER GRAPHICS**Computer Science And Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. Explain the steps involved in transforming a sphere into a specified polyhedron. [16]
2. Write an algorithm for generating a quad-tree representation for the visible surfaces of an object by applying the area subdivision tests to determine the values of the quad-tree elements. [16]
3. (a) Write Bresenham's algorithm for line generation which is suitable for any slope.
(b) Using the above algorithm, generate the intermediate points of the line segment, if the two end-points are given as (30,18) and (20,10). [8+8]
4. An object point $P(x,y)$ is translated in the direction $v = ai + bj$ and simultaneously an observer moves in the direction v . Show that there is no apparent motion (from the point of view of observer) of the object. [16]
5. A pyramid defined by the coordinates $A(0, 0, 0)$, $B(1, 0, 0)$, $C(0, 1, 0)$ and $D(0, 0, 1)$ is rotated 45° about the line L that has the direction $V=J+K$ and passing through point $C(0, 1, 0)$. Find the coordinates of rotated figure. [16]
6. What are the steps involved in implementing the basic illumination model using a single point light source and Gouraud surface shading for the faces of a specified polygon mesh? The object description is to be given as a set of polygon tables, including surface normals for each of the polygon faces. Additional input includes values for the ambient intensity, light source intensity, surface diffuse reflection and specular reflection coefficients. All coordinate information can be specified directly in the viewing reference frame. [16]
7. List the operating characteristics of
 - (a) Raster refresh systems
 - (b) Vector refresh systems
 - (c) Plasma panel
 - (d) LCDs. [4×4=16]
8. (a) What are the steps involved in Sutherland-Hodgeman algorithm.
(b) What are the advantages and disadvantages of Sutherland - Hodgeman algorithm. [12+4]
