FINALTERM EXAMINATION
Spring 2010
CS602- Computer Graphics

Question No: 1 (Marks: 1) - Please choose one
Which of the following is NOT a modern application for Computer Graphics----------

- ► **Stop-motion animation (Page 6)**
- ► Computer Aided Geometric Design
- ► Video Games
- ► Scientific Visualization

Question No: 2 (Marks: 1) - Please choose one
Both Boundary Filling and Flood filling algorithms are non-recursive techniques,

- ► **False click here 4 detail**
- ► True

Question No: 3 (Marks: 1) - Please choose one
TV series are made as simply as possible from the animation point of view. This approach is generally known as ----------.

- ► Full animation
- ► **Limited animation (Page 428)**
- ► Low animation
- ► High resolution

Question No: 4 (Marks: 1) - Please choose one
An eight frame run cycle that ---------- frame/frames to each step gives a fast and vigorous dash. At this speed the successive leg positions are quite widely separated and may need dry brush or speed lines to make the movement flow.

- ► Two
- ► One
- ► Three
- ► **Four (Page 437)**

Question No: 5 (Marks: 1) - Please choose one
---------- reflection is the effect of reflecting light toward the direction from which it came, no matter the orientation of the surface.

- ► Forward scattering
- ► Diffuse Lambertian
- ► Backscattering
- ► **Retro (Page 293)**

Question No: 6 (Marks: 1) - Please choose one
What makes this really challenging to model is that the index of refraction for most materials is a function of the---------- of the light. This means that not only is there a shift in the angle of refraction, but that the shift is different for differing ----------of light.

- ► Reflecting angle, Reflecting angle
- ► Refracting angle, Refracting angle
- ► Frequency, Frequency
- ► **Wavelength, Wavelength (Page 229)**

Question No: 7 (Marks: 1) - Please choose one
The reflected light wave turns out to be a ----------case since light is reflected at the same angle as the incident wave (when the surface is smooth and uniform, as we'll assume for now).

- ► Abnormal
- ► Complex
- ► **Simple (Page 296)**
- ► Unknown

Question No: 8 (Marks: 1) - Please choose one
Tessellation can be adaptive to the _____ degree of curvature of a surface.

- ► **Local (Page 170)**
- ► Static
- ► Global
- ► Variable

Question No: 9 (Marks: 1) - Please choose one
_____ sets the reshape callback for the *current window*. The reshape callback is triggered when a window is reshaped.

- ► glutMainLoop
- ► glutIdleFunc
- ► **glutReshapeFunc (Page 312)**
- ► glutDisplayFunc

Question No: 10 (Marks: 1) - Please choose one
Signed integer color components, when specified, are linearly mapped to floating-point values such that the most positive representable value maps to 1.0, and the most negative representable value maps to ----------. Floating-point values are mapped directly.

- ► -1.0
- ► 0.0
- ► 2.0
- ► **1.0 (Page 320)**

Question No: 11 (Marks: 1) - Please choose one
NURBS stands for----------.

- ► Non Universal Rational Binary Spline
- ► Non Uniform Rational Binary Splines
- ► **Non Uniform Rational Beta Splines (Page 325)**
- ► Non Universal Rational Beta Splines

Question No: 12 (Marks: 1) - Please choose one
An orthogonal set of vectors----------

- ► Must be a set of linearly independent vectors
- ► Must be a set of linearly dependent vectors
- ► **Must be made up of the basis vectors (e1, e2, and e3)** click here 4 details
- ► Can be made up of any set of vectors

Question No: 13 (Marks: 1) - Please choose one
Bezier curve is numerically the ---------- of all the polynomial-based curves used in these applications.

- ► None of the given
- ► **Most stable (Page 338)**
- ► Less stable
- ► Most unstable

Question No: 14 (Marks: 1) - Please choose one
Bezier curve is the ideal standard for representing the ---------- piecewise polynomial curves.

- ► None of the given
- ► Non complex
- ► Most complex
- ► **More complex (Page 338)**

Question No: 15 (Marks: 1) - Please choose one
Keep polygon orientations consistent to make sure that when viewed from the outside, all the polygons on the surface are oriented in the same direction.

- ► None of the given
- ► Neither
- ► Different
- ► **Same (page 345)**

Question No: 16 (Marks: 1) - Please choose one
The ---------- is most simple example that exhibits the property self similarity.

- ► Mosse
- ► **Fern (Page 355)**
- ► None of the given
- ► Thohar

Question No: 17 (Marks: 1) - Please choose one
A common mistake people make when creating three-dimensional graphics is to start thinking too soon that the final image appears on a flat, two-dimensional screen. Avoid thinking about which pixels need to be drawn, and instead try to visualize ---------- space.

- ► Multi-dimensional
- ► One-dimensional
- ► Two-dimensional
- ► **Three-dimensional (Page 371)**

Question No: 18 (Marks: 1) - Please choose one
Which of the following properties of rational Bezier curves fails if the weight assigned to a control point is negative?

- ► End-point interpolation
- ► Variation Diminishing
- ► Symmetry
- ► **Convex-Hull Click here 4 detail**

Question No: 19 (Marks: 1) - Please choose one
In the Phong reflection model, there are 3 constants (a, b, c) which are used to describe the qualities of which of the following phenomena?

- **The attenuation of a point light source with distance**
- The size (in each dimension) which the light is assumed to have
- The amount to perturb reflection vectors as they are mirrored across the normal
- The material reaction to ambient, diffuse and specular light (respectively)

Question No: 20 (Marks: 1) - Please choose one
The Phong reflection model simplifies light-matter interactions into (essentially) 4 vectors and a number of constants. Which piece of the Phong model is responsible for giving spheres their bright white spots?

- **Specular**
- Diffuse
- Ambient

Question No: 21 (Marks: 1) - Please choose one
When you hit a surface in ray tracing, generally shadow rays are tested against all objects in a scene. If these rays come back saying they hit an object in the scene, which of the following do you do?

- add all components (i.e. ambient, diffuse and specular) from that light source to the object.
- add all EXCEPT the ambient light from that light source to the object (i.e. diffuse and specular)
- **add only the ambient light from that light source to the object**
- add none of the light from that light source to the object

Question No: 22 (Marks: 1) - Please choose one
The ColorSpace tool is a handy tool that we can use to interactively add two colours together to see the effects of the various strategies for handling oversaturated colours.

- False
- **True (Page 235)**

Question No: 23 (Marks: 1) - Please choose one
A polygon is usually defined by a sequence of ---------- and Edges.

- Ending lines
- Points
- **Vertices (Page 248)**
- Edges

Question No: 24 (Marks: 1) - Please choose one
Which of the following properties of Bezier curves guarantees that a line passes through the control polygon as many times or more times than the line passes through the Bezier curve itself?

- ► End-point interpolation
- ► **Variation Diminishing**
- ► Symmetry
- ► Convex-Hull

Question No: 25 (Marks: 1) - Please choose one
Parity is a concept used to determine which _____ lie within a polygon. (Choose best suitable answer)

- ► Edge
- ► Vertices
- ► **Pixel (Page 80)**
- ► None of the given

Question No: 26 (Marks: 1) - Please choose one
The actual filling process in boundary filling algorithm begins when a point _____ of the figure is selected.

- ► Outside the boundary
- ► **Inside the boundary (Page 102)**
- ► At boundary
- ► None of the given

Question No: 27 (Marks: 1) - Please choose one
Weiler-Atherton Polygon Clipping technique modifies the vertex-processing procedures for window boundaries so that _____ polygons are displayed correctly.

- ► Convex
- ► **Concave (Page 155)**
- ► Complex
- ► None of the given

Question No: 28 (Marks: 1) - Please choose one
If a line connecting any two points within a polygon does not intersect any edge, then it will be a _____ polygon.

- ► **Convex (Page 79)**
- ► Concave
- ► Complex
- ► None of the given

Question No: 29 (Marks: 1) - Please choose one

_____ can be defined as a mapping of point **P(x, y, z)** onto its image **P`(x`, y`, z`)** in the view plane which constitutes the display surface.

- ► Mapping plane
- ► Three Coordinate Planes
- ► View plane
- ► **Projection (Page 193)**

Question No: 30 (Marks: 1) - Please choose one

The reflected light wave turns out to be a / an _____ case since light is reflected at the same angle as the incident wave (when the surface is smooth and uniform, as we'll assume for now).

- ► Unknown
- ► **Simple (Page 296)**
- ► Complex
- ► Abnormal

FINALTERM EXAMINATION
Spring 2010
CS602- Computer Graphics

Question No: 1 (Marks: 1) - Please choose one
Computer graphics and computer vision are _____ disciplines.
Related (Page 24)
Interrelated
Same
Different

Question No: 2 (Marks: 1) - Please choose one
OpenGL has become the industry's most widely used and supported _____ graphics application programming interface (API), bringing thousands of applications to a wide variety of computer platforms.
2-Dimensional
3-Dimensional
2-Dimensional and 3-Dimensional (Page 301)

Question No: 3 (Marks: 1) - Please choose one
-------- sets the global idle callback to be 'func' so a GLUT program can perform background processing tasks or continuous animation when window system events are not being received.
glutIdle function (Page 313)
glutKeyboardFunc
glutReshapeFunc
glutDisplayFunc

Question No: 4 (Marks: 1) - Please choose one
X2/a2 – y2/b2 =1 is an equation of
Hyperbola (Page 70)
Parabola (4px=y2)
None of given
Ellipse (X2/a2 + y2/b2 =1)

Question No: 5 (Marks: 1) - Please choose one
To modify the object shape, shearing transformation cannot be used.
False (Page 192)
True

Question No: 6 (Marks: 1) - Please choose one
Rotation is performed around a fixed point called _____.
Pivot point rotation (Page 119)

Question No: 7 (Marks: 1) - Please choose one
Computer graphics is very helpful in producing graphical representations for scientific visualization and analysis
True (Page 9)
False

Question No: 8 (Marks: 1) - Please choose one
Save a line with both endpoints inside all clipping boundaries.
Trivial Reject
Trivial Accept (Page 142)
None of given

Question No: 9 (Marks: 1) - Please choose one
Dark lights are nothing more than lights in which one or more of the color values are _____.
Unknown
Negative (Page 235)
Positive
Zero

Question No: 10 (Marks: 1) - Please choose one
A series of _____ computer operations convert an object's three-dimensional coordinates to pixel positions on the screen. Transformations, which are represented by matrix multiplication, include modeling, viewing, and projection operations. Such operations include rotation, translation, scaling, reflecting, orthographic projection, and perspective projection.
Three (Page 371)
Two
Four
Ten

Question No: 11 (Marks: 1) - Please choose one
At a physical surface, our eye's perception of the color depends on the distribution of photon energies that arrive and trigger our _____ cells.

Eye
Retina
Cone (Page 398)

Question No: 12 (Marks: 1) - Please choose one
This projection technique has the direction of projection perpendicular to the viewing plane, but the viewing direction is NOT perpendicular to one of the principle faces.

Orthographic Parallel Projection
Axonometric Parallel Projection (Page 194)
Oblique Parallel Projection

Question No: 13 (Marks: 1) - Please choose one
In the Phong Reflection model, _____ light is the same everywhere.

Ambient
Diffuse
Specular
Emissive

Question No: 14 (Marks: 1) - Please choose one
A plane is two dimensional since in order to uniquely define any point on its surface we require _____ numbers.

Two (Page 356)
Three
Four
Five

Question No: 15 (Marks: 1) - Please choose one
In perspective projection, for your view to come out correctly, you will also want the _____ to pass through the middle of the screen.

X axis
Y axis
Z axis (Page 200)
None

Question No: 16 (Marks: 1) - Please choose one
Neither floating-point nor signed integer values are clamped to the range _____ before updating the current color.

0 , -1.0
-1 , 1
1 , -1
0, 1 (Page 321)

Question No: 17 (Marks: 1) - Please choose one
An object's _____ determine its orientation relative to the light sources. For each vertex, OpenGL uses the assigned normal to determine how much light that particular vertex receives from each light source.
Unit
Normal (Page 400)
None of given

Question No: 18 (Marks: 1) - Please choose one
Which was the oldest shading model?
Flat Shading (Page 245)
Phong Shading
Gouraud Shading

Question No: 19 (Marks: 1) - Please choose one
Which of the following affine transforms does NOT affect vectors?

Scale
Rotation
Shear
Translation

Final Term MCQS and Quizzes

Question # 1 of 10 (Total Marks: 1) Select correct option:
We want our scene to look more realistic, we should use _____ lights.

Ambient (Page 282)
Point Parallel
Spot
None of the given

Question # 2 of 10 (Total Marks: 1) Select correct option:
This is a simple example of line clipping: the display window is the canvas and also the default ----------, thus all line segments inside the canvas are drawn.

Clipping Rectangle (Page 141)
Clipping Circle
Clipping Polygon
Clipping Angle

Question # 3 of 10 (Total Marks: 1) Select correct option:
One problem with Gouraud shading is that the ---------- intensities can never be greater than the intensities at the edges.

Triangles (Page 246)
Squares
Rectangles
Polygons

Question # 4 of 10 (Total Marks: 1) Select correct option:
There is more penetration of light in case of _____ surfaces.

Conductor (like metals)
Nonconductor (like dielectrics) (Page 235)
Both conductor and nonconductor
None of the given

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Question # 5 of 10 (Total Marks: 1) Select correct option:
_____ lights should be avoided because they are not for real time environment.

Point
Parallel
Spot (Page 244)
None of the given

Question # 6 of 10 (Total Marks: 1) Select correct option:
The physical range of colors a device can display is called _____ of the device.

Sharpness
Gamut (Page 229)
Colouring
Colouring with Sharpness

Question # 7 of 10 (Total Marks: 1) Select correct option:
_____ is simply the calculation of color reflected by the surface.

Shading (Page 240)
Clamping
Scaling
None of the given

Question # 8 of 10 (Total Marks: 1) Select correct option:
When obtaining normals for a triangle, which of the following mathematical constructs is NOT used?

Vector normalization
Vector cross products
Vector dot products
Point-Point subtraction

Question # 9 of 10 (Total Marks: 1) Select correct option:
Loosely, the alpha component of the RGBA quad represents the _____of a surface.

Opaqueness (Page 227)
Light
Darkness
Shine

Question # 10 of 10 (Total Marks: 1) Select correct option:
An algorithm that clips a polygon must deal with many ---------- cases. The case is particularly note worthy in that the concave polygon is clipped into ---------- isolate polygons.

Similar, three
Different, two (Page 146)
Different, three
Similar, two

Question # 1 of 10 (Total Marks: 1) Select correct option:
_____ lighting is not dependent on any source.

Ambient **Click here for detail**
Diffuse
Specular
Emissive

Question # 2 of 10 (Total Marks: 1) Select correct option:
In order to get a more realistic representation of lighting, we'll need to understand how light passes through a medium and how hitting the boundary layer at the ---------- of two media can affect light's properties.

Intersection (Page 296)
Union
Endpoints
Edges

Question # 3 of 10 (Total Marks: 1) Select correct option:
Lambertian shading was used mostly back when computers weren't fast enough to do _____ in real time.

Phong shading
Processing
Shading
Gouraud shading (Page 245)

Question # 4 of 10 (Total Marks: 1) Select correct option:
In Perspective Projection the point of View (POV) must lie on the _____.

All axis
Z axis (Page 200)
X axis
Y axis

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Question # 5 of 10 (Total Marks: 1) Select correct option:
If we want any object to glow, we should use _____ lights.

Ambient
Diffuse
Specular
Emissive (Page 240)

Question # 6 of 10 (Total Marks: 1) Select correct option:
There are not many different ways of representing the intensity of a particular color element.
True
False (Page 276)

Question # 7 of 10 (Total Marks: 1) Select correct option:
In Perspective Projection the screen plane must be parallel to the_____.

Y-Z plane
X-Y plane (Page 200)
Z-Y plane
X-Z plane

Question # 8 of 10 (Total Marks: 1) Select correct option:
_____ light is reflected in all directions from surface.
Ambient
Diffuse (page 239)
Specular
Emissive

Question # 9 of 10 (Total Marks: 1) Select correct option:
A space curve can be confined to a plane.

Yes
No (Page 331)

Question # 10 of 10 (Total Marks: 1) Select correct option:
To convert the information in the A matrix into that required for the P matrix, we do some simple matrix algebra, First we have UA=UNP then Simply A = ----------

UP
NP (Page 333)
UN
None

Question # 1 of 10 (Total Marks: 1) Select correct option:
Perspective projection is specified with the function glFrustum().

Yes (Page 376)
No

Question # 2 of 10 (Total Marks: 1) Select correct option:
Choose a camera lens or adjust the zoom

projection transformation (Page 372)
viewport transformation
modeling transformation'
viewing transformation

Question # 3 of 10 (Total Marks: 1) Select correct option:
Using a lighting model based upon the Blinn Phong model means that we'll always get a uniform specular highlight based upon the color of the ---------- light and material, which means that all reflections based on this model, will be reminiscent of plastic.

Union
Refracting
Intersection
Reflecting (Page 296)

Question # 4 of 10 (Total Marks: 1) Select correct option:
Refractive index is a function of temperature, mostly due to density changes in materials with changes in temperature.

True (Page 300)
False

Question # 5 of 10 (Total Marks: 1) Select correct option:
Length L depends on the angle alpha and the z coordinate of the point to be projected and L can be represented by ----------.

z * 1/ tan (alpha) (Page 198)
z * L2
z * 1/ tan (beta)
z * 1/ tan (gamma)

Question # 6 of 10 (Total Marks: 1) Select correct option:
The traditional approach in real-time computer graphics has been to calculate lighting at a vertex as a sum of the _____ light.

Ambient
Ambient, diffuse, and specular (Page 281)
Specular
Diffuse, and specular

Question # 7 of 10 (Total Marks: 1) Select correct option:
Another way to define a space curve by using intermediate points and the tangents at each end for making the curve

Yes
No (Page 334)

Question # 8 of 10 (Total Marks: 1) Select correct option:
An independent consortium, the OpenGL Architecture Review Board, guides the OpenGL specification. With broad industry support, OpenGL is the only truly open, vendor-neutral, ---------- graphics standard.

Tertiary
Binary
Single platform
Multiplatform (Page 301)

Question # 9 of 10 (Total Marks: 1) Select correct option:
glutReshapeWindow requests a change in the size of the current window. The width and height parameters are size extents in pixels. The width and height must be ---------- values.

Neutral
Negative
Positive (Page 311)
None of the given

Question # 10 of 10 (Total Marks: 1) Select correct option:
A space curve is not confined to a plane. It is free to twist through space. To define a space curve we must use parametric functions that are ----------.

Binary polynomials
Mono polynomials
Quadratic polynomials
Cubic polynomials (Page 331)

Question # 1 of 10 (Total Marks: 1) Select correct option:
Refractive index is a function of temperature, mostly due to changes in ---------- of materials with changes in temperature. A simple correction can be applied in most circumstances to allow us to use a value given at one temperature at another.

Density (Page 300)
pressure
nature
volume

Question # 2 of 10 (Total Marks: 1) Select correct option:
If we assign a different value to the parametric variable for the intermediate point, then we obtain different values for the coefficients. This, in turn, means that a different curve is produced, although it passes through the ---------- three points.
isolate
different
same (Page 328)
none

Question # 3 of 10 (Total Marks: 1) Select correct option:
The attenuation formula is f =----------, where C, L and Q are the constant, linear and quadratic attenuation factors and d is the distance between the vertex being lit and the light source.
1/(C + Ld + Qd2) **Click here for detail**
1/(C + Ld + Qd)
1/(C + L +d + Qd2)
1/(Cd + Ld + Qd2)

Question # 4 of 10 (Total Marks: 1) Select correct option:
Bezier curve is tangent to the lines connecting _____.

First two points
Last two points
Fist two points and last two point (Page 340)
None of the given

Question # 5 of 10 (Total Marks: 1) Select correct option:
End points and an intermediate point on the curve, then we now ---------- quantities that we can express in terms of these coefficients (3 points x 3 coordinates each), and we can use these three points to define a unique curve.

Six
Three
Two
Nine (Page 326)

Question # 6 of 10 (Total Marks: 1) Select correct option:
Choose a camera lens or adjust the zoom
projection transformation (Page 372)
viewport transformation
modeling transformation
viewing transformation

Question # 7 of 10 (Total Marks: 1) Select correct option:
_____ OpenGL function is used for aiming and positioning the camera towards the object

glLoadIdentity() (Page 375)
gluLookAt()
glFrustum()
None of Above

Question # 8 of 10 (Total Marks: 1) Select correct option:
A parametric curve is one whose defining equations are given in terms of a ----------, common, independent variable called the parametric variable.

Triple
Double
Single (Page 325)
None of the given

Question # 9 of 10 (Total Marks: 1) Select correct option:
The reflection coefficients are in the ---------- range and are specified as part of the material property. However, they are strictly empirical and since they simply adjust the overall intensity of the material color, the material color values are usually adjusted so the color intensity varies rather than using a reflection coefficient.

[0, 10]
[0, 1] (Page 281)
[0, 5]
[0, 2]

Question # 10 of 10 (Total Marks: 1) Select correct option:
To ensure a smooth transition from one section of a piecewise _____ to the next, we can impose various continuity conditions at the connection points

non parametric curve
parametric curve
polygon vector (not confirm) (Page 245)
None of the these

Question # 1 of 10 (Total Marks: 1) Select correct option:
The curve is always contained within the _____ of the control points

Tangents
Convex Hull (Page 340)
Subdivision
None of Above

Question # 2 of 10 (Total Marks: 1) Select correct option:
Projection can be defined as a mapping of point P(x, y, z) onto its image P`(x`, y`, z`) in the ----------, which constitutes the display surface. The mapping is determined by a projection line called the projector that passes through P and intersects the ----------.

Two Coordinate Planes
View plane or projection plan (Page 193)
Three Coordinate Planes
Mapping plane

Question # 3 of 10 (Total Marks: 1) Select correct option:
Determine how large we want the final photograph to be - for example, we might want it enlarged

projection transformation
viewport transformation (Page 372)
modeling transformation
viewing transformation

Question # 4 of 10 (Total Marks: 1) Select correct option:
Ambient light is the light that comes from ----------directions, thus all surfaces are illuminated equally regardless of orientation. However, this is a big hack in traditional lighting calculations since "real" ambient light really comes from the light reflected from the "environment."

All (Page 281)
Opposite
Same
Four different

Question # 5 of 10 (Total Marks: 1) Select correct option:
Silhouette edges occur when dot product of surface normal vector and the view vector is _____.

Zero (Page 345)
One
Both zero and one

Question # 6 of 10 (Total Marks: 1) Select correct option:
If the current matrix (according to glMatrixMode) is multiplied by the translation matrix, with the product replacing the current matrix. That is, if M is the current matrix and T is the translation matrix, then M is replaced with ----------.

M-T
M+T
M/T
M*T (Page 317)

Question # 7 of 10 (Total Marks: 1) Select correct option:
Arrange the scene to be photographed into the desired composition

projection transformation
viewport transformation
modeling transformation (Page 317)
viewing transformation

Question # 8 of 10 (Total Marks: 1) Select correct option:
In the forms of texture mapping, Image to world space and world space to image, each suffers from different problems related to minification and magnification. Which of the two shows the following problem: When the texture is larger than the screen space it maps to, many texture units (texels) are never sampled?

Image to world space
World space to image
X-axis
Y-axis

Question # 9 of 10 (Total Marks: 1) Select correct option:
Imagine a curve in three-dimensional space, each point on the curve has a unique set of coordinates: a specific x value, y value, and z value. Each coordinate is controlled by a ---------- parametric equation.

Opposite
Similar
Separate (Page 325)

Question # 10 of 10 (Total Marks: 1) Select correct option:
We allow the parametric variable to take on values only in the interval ----------.

-1 <= u <= 0
0 <= u <= 2
0 <= u <= 1 (Page 326)
-1 <= u <= 1

Question # 1 of 10 (Total Marks: 1) Select correct option:
Bezier curve can represent the more complex piecewise _____ curve.
Polynomial (Page 338)
Exponential
Cubic
None of above

Question # 2 of 10 (Total Marks: 1) Select correct option:
A fractal is generally a property called _____.
Fractal Dimension
Self-similarity (Page 355)
Koch Curve
None of above

Question # 3 of 10 (Total Marks: 1) Select correct option:
Normalized cross product of two vectors on that surface provides normal vector

Yes (Page 347)
No

Question # 4 of 10 (Total Marks: 1) Select correct option:
Every point on a curve has a straight line associated with it called the _____

State line
tangent line (Page 334)
curved line
None of the given

Question # 5 of 10 (Total Marks: 1) Select correct option:
The value returned is a unique small integer identifier for the window. The range of allocated identifiers starts at ----------. This window identifier can be used when calling glutSetWindow.

Three
Two
One (Page 308)
Zero

Question # 6 of 10 (Total Marks: 1) Select correct option:
Curve and surface equations can be expressed in either a parametric or a non parametric form.

True click here for detail
False

Question # 7 of 10 (Total Marks: 1) Select correct option:
Bernstein polynomial functions are the basic functions of _____ curves.

NURBS
Bezier (Page 342)
Both NURBS and Bazier
None of the given

Question # 8 of 10 (Total Marks: 1) Select correct option:
Geometric patterns that is repeated at ever smaller scales to produce irregular shapes and surfaces are called _____

Geometric patterns
Fractals (Page 352)
Animated components
Segments

Question # 9 of 10 (Total Marks: 1) Select correct option:
The Phong reflection model simplifies light-matter interactions into (essentially) 4 vectors and a number of constants. Each piece of the Phong model uses different vectors and constants. Which portion does NOT include taking a dot product?

Ambient
Diffuse
Specular

Question # 10 of 10 (Total Marks: 1) Select correct option:
This projection technique does NOT have the direction of projection perpendicular to the viewing plane.

a) Orthographic Parallel Projection
b) Axonometric Parallel Projection
c) Oblique Parallel Projection (Page 197)

Question # 1 of 10 (Total Marks: 1) Select correct option:
In OpenGL, there are several different matrices. We have discussed two of them in class. Which one of the below would be used in conjunction with a glRotatef function call?

a) GL_MODELVIEW
b) GL_PROJECTION

Question # 2 of 10 (Total Marks: 1) Select correct option:
In OpenGL, there are several different matrices. We have discussed two of them in class. Which one of the below would be used in conjunction with glFrustum?

a) GL_MODELVIEW
b) GL_PROJECTION

Question # 3 of 10 (Total Marks: 1) Select correct option:
Which of the following is the order that geometry operations are performed in OpenGL (where we read the order from left to right)?

a) GL_PROJECTION GL_MODELVIEW Perspective division
b) GL_MODELVIEW GL_PROJECTION Perspective division
c) Perspective division GL_PROJECTION GL_MODELVIEW
d) GL_MODELVIEW Perspective division GL_PROJECTION
e) GL_PROJECTION Perspective division GL_MODELVIEW

Question # 4 of 10 (Total Marks: 1) Select correct option:
Which of the following is NOT true about quaternions?

a) They are made up of 4 numbers
b) They should always be normalized to length 1
c) They can be used to represent all affine transforms
d) They can be used to define the rotation of an object

Question # 5 of 10 (Total Marks: 1) Select correct option:
In class, we discussed three forms of shading for "Utah" graphics. Which was the first to use per vertex normals?

a) Flat Shading (Page 245)
b) Phong Shading
c) Gouraud Shading

Question # 6 of 10 (Total Marks: 1) Select correct option:
Given any implicit equation, which of the following is true for all (x, y, z) that make the equation exactly zero?

a) All those points are inside the object defined by the implicit equation
b) All those points are on the surface of the object defined by the implicit equation **Click here 4 detail**
c) All those points are outside the object defined by the implicit equation
d) You can't know anything without knowing what the implicit equation is

Question # 7 of 10 (Total Marks: 1) Select correct option:
When solving ray-sphere intersections using the implicit equation for a sphere, you must solve the quadratic equation. Which of the following do you know if the B2-4AC (i.e. the part under the square root) is negative?

a) The ray intersects the sphere at a negative t… discard this result
b) The ray intersects the sphere at a positive t… continue to the solution
c) The ray does not intersect the sphere… discard this result
d) The ray begins inside the sphere… this is a special case

Question # 8 of 10 (Total Marks: 1) Select correct option:
_____ sets the global idle call back to be 'func' so a GLUT program can perform background processing tasks or continuous animation when window system events are not being received.

glutIdleFunc (Page 313)
glutMainLoop
glutDisplayFunc
glutReshapeFunc

Question # 9 of 10 (Total Marks: 1) Select correct option:
A tangent vector certainly defines the slope at one end of the curve, but a vector has characteristics of.....

direction
magnitude
both direction and magnitude (Page 336)
None of the given

Question # 10 of 10 (Total Marks: 1) Select correct option:
The degree of a Bezier curve is equal to n-1, where n is the number of control points

Yes (Page 339)
No

Question # 1 of 10 (Total Marks: 1) Select correct option:
Bit mask to select a window with multisampling support. If multisampling is not available, a ---------- window will automatically be chosen.

Non-multisampling (Page 310)
Multisampling
Mono-multisampling
Di-multisampling

Question # 2 of 10 (Total Marks: 1) Select correct option:
OpenGL is well structured with an intuitive design and logical commands. Efficient OpenGL routines typically result in applications with fewer lines of code than those that make up programs generated using other graphics libraries or packages. In addition, OpenGL drivers ---------- information about the underlying hardware, freeing the application developer from having to design for specific hardware features.

Encapsulate (Page 302)
Shows
Hibernates
None of the given

Question # 3 of 10 (Total Marks: 1) Select correct option:
With similar expressions for y(u) and z(u). Again the a, b, c and d terms are constant coefficients. As we did with Equation for a plane curve, we combine the x(u), y(u) , and z(u) expressions into a single vector equation P(u) = ----------.
Au2+bu1+cu+d
Au4+bu3+cu2+d1
Au3+bu2+cu2+d
Au3+bu2+cu+d (Page 331)

Question # 4 of 10 (Total Marks: 1) Select correct option:
Each number that makes up a matrix is called an _____ of the matrix.
Element (Page 106)
Variable
Value
Component

Question # 5 of 10 (Total Marks: 1) Select correct option:
The matrix generated by gluPerspective is multiplied by the current matrix, just as if glMultMatrix were called with the generated matrix. To load the perspective matrix onto the current matrix stack instead, precede the call to gluPerspective with a call to ----------.

glRotated
gluPerspective (Page 318)
glTranslated
glLoadIdentity

Question # 6 of 10 (Total Marks: 1) Select correct option:
Which one of the following step is not involved to write pixel using video BIOS services.
Setting desired video mode
Using BIOS service to set color of a screen pixel
Calling BIOS interrupt to execute the process of writing pixel.
Using OpenGL service to set color of a screen pixel (Page 45)

Question # 7 of 10 (Total Marks: 1) Select correct option:
Shadow mask methods can display a _____ range of colors.

Small
Wide (Page 28)
Random
Crazy

Question # 8 of 10 (Total Marks: 1) Select correct option:
Using Cohen-Sutherland line clipping, it is impossible for a vertex to be labeled 1111.

True
False

Question # 9 of 10 (Total Marks: 1) Select correct option:
Intensity of the electron beam is controlled by setting _____ levels on the control grid, a metal cylinder that fits over the cathode.
Amplitude
Current
Voltage (Page 26)
Electron

Question # 10 of 10 (Total Marks: 1) Select correct option:
The circle and ellipse are symmetric across 8 octants.

o True
o False (Page 60)

Question # 1 of 10 (Total Marks: 1) Select correct option:
UV light is used in Plasma Panel displays to excite phosphor.

o True Click here for detail
o False

Question # 2 of 10 (Total Marks: 1) Select correct option:
Which of the following is not true about matrices?

o A + B = B + A
o a(A + B) = aA + aB
o (AT)T = AT
o A + (B + C) = (A + B) + C

Question # 3 of 10 (Total Marks: 1) Select correct option:
According to Odd Parity Rule, a point is inside the polygon, if:

o Line from an outside point to this point does not cross the edges odd number of times
o Line from any point to this point crosses the edges odd number of times
o Line from an outside point to this point crosses the edges odd number of times (Page 80)
o Line from this point to any point outside the polygon intersects any edge

Question # 4 of 10 (Total Marks: 1) Select correct option:
As opposed to direct memory access method, BIOS routines provide an easier and faster method of drawing pixels on screen.
o True
o False (Page 47)

Question # 5 of 10 (Total Marks: 1) Select correct option:
When a point P(x,y) is rotated by θ the coordinates of transformed point P' are given as:

x' = x cos(θ) – y sin(θ), y' = x sin(θ) + y cos(θ) (Page 181)
x' = y cos(θ) – x sin(θ), y' = y sin(θ) + x cos(θ)
x' = x cos(θ) + y sin(θ), y' = x sin(θ) – y cos(θ)
x' = y cos(θ) + x sin(θ), y' = y sin(θ) – x cos(θ)

Question # 6 of 10 (Total Marks: 1) Select correct option:
The amount of time it takes to illuminate a specific location on phosphor coated screen is called Persistence.

o True
o False (Page 27)

Question # 7 of 10 (Total Marks: 1) Select correct option:
Incremental line drawing algorithm makes use of the equation of straight line.
True
False (Not sure)

Question # 8 of 10 (Total Marks: 1) Select correct option:
In matrix multiplication:

o The two matrices must be square
o The number of rows of 1st matrix must be the same as the number of columns of the second.
o The two matrices must either be row matrices or column matrices
o The number of columns of 1st matrix must be the same as the number of rows of the second.

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Question # 9 of 10 (Total Marks: 1) Select correct option:
In Horizontal retrace, after completion of all the pixels in a scan line, the refreshing continues from the 1st pixel of the next scan line.

o True
o False (Page 28)

Question # 10 of 10 (Total Marks: 1) Select correct option:
Parity Rule is used to determine whether a pixel is inside a polygon or not.

o True (Page 80)
o False

Question # 1 of 10 (Total Marks: 1) Select correct option:
When dot product of two vectors equals zero, this implies that the two vectors are:
parallel to each other
orthogonal (perpendicular) to each other. (Page 177)
intersect each other
equal to each other

Question # 2 of 10 (Total Marks: 1) Select correct option:
In Pixmap exactly one bit is used to hold color value of each pixel.
o True
o False (Page 28)

Question # 3 of 10 (Total Marks: 1) Select correct option:
The Boundary Fill and Flood Fill algorithms:

o Must use 4-connected approach
o Must use 8-connected approach
o May use 4-connected or 8-connected approach click here for details
o Must not use recursive approach

Question #4 of 10 (Total Marks: 1) Select correct option:
To show 256 colors, the no of bits required for each pixel are
a. 8 (Page 39)
b. 16
c. 32
d. 64

Question # 5 of 10 (Total Marks: 1) Select correct option:
25 * 80 resolution with 16 colors supports

a. Text mode (Page 43)
b. Graphics mode
c. Both
d. None

Question # 6 of 10 (Total Marks: 1) Select correct option:
Two matrices are said to be equal, if they have
a. same order
b. same corresponding elements
c. Same order and same corresponding elements.
d. Different elements.

Question # 7 of 10 (Total Marks: 1) Select correct option:
Two points are said to be collinear, if they lie on the

a. same line (page 53)
b. different but parallel lines
c. either on the same plane or two parallel planes
d. different plane

Question # 8 of 10 (Total Marks: 1) Select correct option:
A Polygon is convex, if the line connecting:

a. Any two points outside the polygon intersects its boundary
b. Any two points inside the polygon don't intersect any edges of the polygon. (Page 78)
c. A point inside the boundary with any point outside, does not intersect the polygon boundary
d. Any two vertices, intersects some edge of polygon.

Question # 9 of 10 (Total Marks: 1) Select correct option:
Polygon is complex, if the line connecting:

a. Any two points outside the polygon intersects its boundary.
b. Any two points inside the polygon intersects its boundary.
c. A point inside the boundary with any point outside does not intersect the polygon boundary.
d. Any two vertices, intersects some edge of polygon. (Page 79)

Question # 10 of 10 (Total Marks: 1) Select correct option:
The equation of hyperbola centered at origin (if the transverse axis is along x -axis) can be given as:

a. x2 b2+ y2 a2–1 = 0
b. x2 b2+ y2 a2+1 = 0
c. x2 a2– y2 b2–1 = 0 **Click here for detail**
d. x2 b2 – y2 a2–1 = 0

Question # 1 of 10 (Total Marks: 1) Select correct option:
Which one is not valid out code to perform trivial accept / reject test in line clipping:

a. 1101
b. 1001 (Page 143)
c. 0101
d. 0110

Question # 2 of 10 (Total Marks: 1) Select correct option:
Which one of the following is not the graphics library is use:

a. FastGL
b. OpenGL
c. DirectX
d. EasyGL (Page 42)

Question # 3 of 10 (Total Marks: 1) Select correct option:
In video text memory, _____ are used to display a character.

2 bytes (Page 43)
4 bytes
8 bytes
16 bytes

Question # 4 of 10 (Total Marks: 1) Select correct option:
In _____ algorithm(s), old color must be read before it is invoked.
Scan line filling
Flood filling (Page 104)
Both scan line and flood filling
Scan filling

Question # 5 of 10 (Total Marks: 1) Select correct option:
According to the architecture of raster graphics system, display processor memory will act as_____.
Video controller (Page 36)
System memory
Frame buffer
Video controller and System memory

Question # 6 of 10 (Total Marks: 1) Select correct option:
Global coordinate systems can be defined with respect to local coordinate system

True
False (Page 255)

Question # 7 of 10 (Total Marks: 1) Select correct option:
Cross product of two vectors result in a _____.
Magnitude
Vector (Page 347)
Scalar
Value

Question # 8 of 10 (Total Marks: 1) Select correct option:
Shortcoming of Sutherland-Hodgeman Algorithm is concave polygons may be displayed with extraneous lines

True (Page 155)
False

Question # 9 of 10 (Total Marks: 1) Select correct option:
In 2D transformations, rotations applied to a point P can be denoted as_____ (Where? represents theta).

P' = R(θ1 + θ2) . P (Page 119)
P' = (R(?1) + R(?2)) . P
P' = R(?1 x ?2) . P
P' = R(?1) . P

Question # 10 of 10 (Total Marks: 1) Select correct option:
A straight line can be moved to another location by applying _____ to each of the line endpoints and redrawing the line between the new coordinates.
Rotation
Translation (Page 118)
Reflection
Scaling factor

Question # 1 of 10 (Total Marks: 1) Select correct option:
If the values of scaling factors sx and sy are less than 1, then size of object will be _____.

Reduced (Page 121)
Remain same
Enlarged
Shear

Question # 2 of 10 (Total Marks: 1) Select correct option:
Locations can be translated or "transformed" from one coordinate system to the other.

True (Page 163)
False

Question # 3 of 10 (Total Marks: 1) Select correct option:
If the value of scaling factors sx and sy is greater than 1, then size of objects will be _____.
Reduced
Enlarged (Page 121)
Remain same
Shear

Question # 4 of 10 (Total Marks: 1) Select correct option:
A column matrix is also known as _____.

Column vector (Page 107)
Row vector
Vector
Simple Matrix

Question # 5 of 10 (Total Marks: 1) Select correct option:
Dot product of two vectors results in _____ quantity.
Scalar (Page 176)
Vectors
Magnitude
Value

Question # 6 of 10 (Total Marks: 1) Select correct option:
Set up your tripod and pointing the camera at the scene

projection transformation
viewport transformation
modeling transformation
viewing transformation (Page 372)

Question # 7 of 10 (Total Marks: 1) Select correct option:
_____ is based on characteristic size or scale

Fractal Geometry
Traditional Geometry
Euclidean Geometry (Page 359)
None of Above

Question # 8 of 10 (Total Marks: 1) Select correct option:
Bernstein polynomial functions are the basic functions of _____ curves.

NURBS
Bezier (Page 342)
Both NURBS and Bazier
None of the given

Question # 9 of 10 (Total Marks: 1) Select correct option:
Which of the following does NOT figure into the Field of View of a pinhole camera?

a) The direction of projection
b) The distance from the center of projection to the projection plane
c) The size of the projection plane

Question # 10 of 10 (Total Marks: 1) Select correct option:
When transforming a random Axis-Aligned Bounding Box defined by the points (nearx, neary, nearz) and (farx, fary, farz) to the standard orthographic viewing box, which affine transforms are used?

a) shear and translation
b) rotation and scale
c) scale and shear
d) translation and scale

Question # 1 of 10 (Total Marks: 1) Select correct option:
In class, we discussed the purpose of the front and back clipping planes in OpenGL. Which of the following was NOT a purpose for using clipping planes?

a) division by zero
b) objects behind the center of projection mapping onto the projection plane
c) avoiding the problems of infinite viewing volume size

Question # 2 of 10 (Total Marks: 1) Select correct option:
In class, we discussed how the image of the Double Eagle Tanker was obtained for the large poster in the main hall of Sitterson. It required rendering several perspective images using OpenGL. Which of the following was NOT a step required in that process?

a) handling projection planes non-orthogonal to the viewing direction
b) cutting a single projection plane into many separate projection planes
c) rotating the viewing direction to be the same as the –z direction
d) handling several different centers of projection

Question # 3 of 10 (Total Marks: 1) Select correct option:
In "Utah" graphics, lights are simplified in order to approximate light/matter interaction with a minimum amount of work. Which of the following is NOT true about the simplifications made in "Utah" graphics lights?

a) Light intensity and color are folded into one value.
b) Lights are assumed to have zero size
c) Spotlights cannot be handled
d) Soft shadows cannot be handled

Question # 4 of 10 (Total Marks: 1) Select correct option:
The Phong reflection model simplifies light-matter interactions into (essentially) 4 vectors and a number of constants. Which of the following is NOT a vector needed for the Phong reflection model?

a) Surface Normal
b) Direction to Viewer
c) Direction to Material Center
d) Direction to Light

Question # 5 of 10 (Total Marks: 1) Select correct option:
In the Phong Reflection model, ambient light is the same everywhere.

a) true
b) false

Question #6 of 10 (Total Marks: 1) Select correct option:
We discussed several global illumination algorithms in class. Which of the following listed can properly handle diffuse-diffuse reflections

a) Ray Tracing
b) Radiosity
c) Photon Mapping
d) RenderMan

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Question # 7 of 10 (Total Marks: 1) Select correct option:
We discussed several global illumination algorithms in class. Which of the following is generally characterized by shiny spheres and checkerboards?

a) Ray Tracing
b) Radiosity
c) Photon Mapping
d) RenderMan

Question # 8 of 10 (Total Marks: 1) Select correct option:
We discussed several global illumination algorithms in class. Which of the following listed can properly handle caustics?

a) Ray Tracing
b) Radiosity
c) Photon Mapping
d) RenderMan

Question # 9 of 10 (Total Marks: 1) Select correct option:
In radiosity a matrix is formed of size mxm. Which of the following can be known if the (i, j) position in the matrix is zero?

a) patch i is much larger than patch j
b) patch i is much smaller than patch j
c) patch i is visible from patch j
d) patch i is not visible from patch j

Question # 10 of 10 (Total Marks: 1) Select correct option:
When solving for ray-polygon intersections, after intersecting the ray with a plane, the dominant component of the plane normal is found. this is used to

a) ignore any component other than the dominant when you project to 2D
b) ignore the dominant component when you project to 2D
c) solve the inside-outside test only for that component

Question # 1 of 10 (Total Marks: 1) Select correct option:
If solving for inside-outside of a triangle using barycentric coordinates, and you have two barycentric coordinates solved (bc1 = .57, bc2 = .62) which of the following do you know?

a) The point is outside the triangle
b) The point is on the boundary of the triangle
c) The point is inside the triangle
d) The hit point is on the “back face” of the triangle

Question # 2 of 10 (Total Marks: 1) Select correct option:
The majority of the execution time of a ray tracer is spent in ray-object intersection code.

a) true
b) false

Question # 3 of 10 (Total Marks: 1) Select correct option:
Snell's law is used to calculate which one of the following rays?

a) start rays
b) shadow rays
c) reflection rays
d) transmission rays

Question # 4 of 10 (Total Marks: 1) Select correct option:
You might as well recurse on reflection and transmission rays until you hit nothing. This always is bound to happen.

a) true
b) false

Question # 5 of 10 (Total Marks: 1) Select correct option:
Which of the following Ray Tracing additions works to remove jaggies alone?

Mkkg
b) jittering

Question # 6 of 10 (Total Marks: 1) Select correct option:
In the Pixar short "Geri's Game", the character Geri was created using which of the following techniques?

a) Fractals
b) Bump mapping
c) Environment mapping
d) Catmull-Clark Subdivision Surfaces

Question # 7 of 10 (Total Marks: 1) Select correct option:
In the Pixar short "Geri's Game", the trees in the background were created using which of the following techniques?

a) Fractals
b) Bump mapping
c) Environment mapping
d) Catmull-Clark Subdivision Surfaces

Question # 8 of 10 (Total Marks: 1) Select correct option:
The basic functions fi(u) in Bezier curve must be symmetric with respect to u and (u-2)
yes
no (Page 341)

Question # 9 of 10 (Total Marks: 1) Select correct option:
In the Pixar short "Geri's Game", Geri's glasses seemed to bend the light as it passed through. Which of the following techniques was used?

a) Fractals
b) Bump mapping
c) Environment mapping
d) Catmull-Clark Subdivision Surfaces

Question # 10 of 10 (Total Marks: 1) Select correct option:
A polygon is usually defined by a sequence of vertices and ----------
Edges (Page 146)
Vertices
PointsEnding lines

Question # 1 of 10 (Total Marks: 1) Select correct option:
Gouraud shading is the current de jure shading standard in accelerated ---------- hardware.
2Dimensional
3Dimensional (Page 245)
Multidimensional
None

Question #2 of 10 (Total Marks: 1) Select correct option:
_____ is based on characteristic size or scale

Fractal Geometry (Fractal shapes are self similar and independent of size or scaling)
Traditional Geometry
Euclidean Geometry (Euclidean shapes normally have a few characteristic sizes or length scales) (Page 359)
None of Above

Question # 3 of 10 (Total Marks: 1) Select correct option:
Arrange the scene to be photographed into the desired composition
projection transformation
viewport transformation
modeling transformation (Page 372)
viewing transformation

Question # 4 of 10 (Total Marks: 1) Select correct option:
Which language API defines graphics operations independent of the operating system or computer hardware? Additional hardware specific libraries are used to provide an interface between API and the hardware and between the user and the platform specific windowing system.

a. DirectX
b. Graphix Windowing Toolkit
c. CGI
d. OpenGL (Page 302)

Question # 5 of 10 (Total Marks: 1) Select correct option:
When transforming a random Axis-Aligned Bounding Box defined by the points (nearx, neary, nearz) and (farx, fary, farz) to the standard orthographic viewing box, which affine transforms are used?

a) shear and translation
b) rotation and scale
c) scale and shear
d) translation and scale

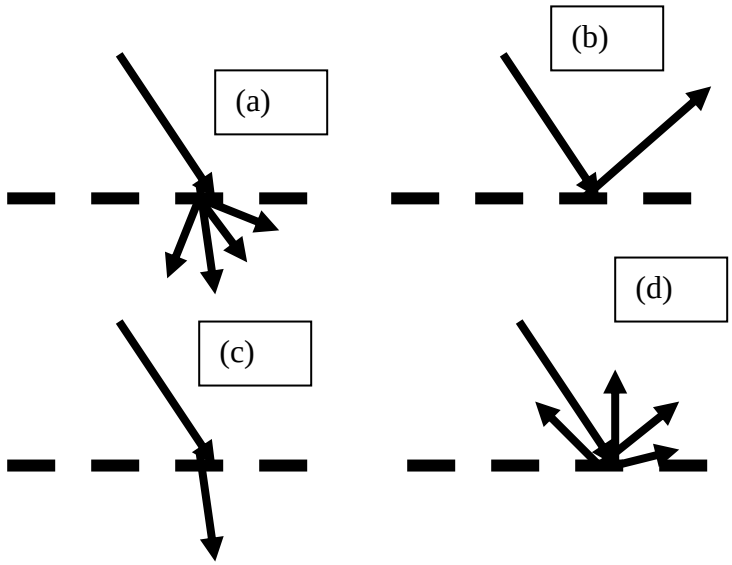
Question # 6 of 10 (Total Marks: 1) Select correct option:
The _____ functions multiply the current matrix by a rotation matrix.

glRotated and **glRotatef** (Page 318)

Question # 7 of 10 (Total Marks: 1) Select correct option:

Match the pictures on the right with the corresponding term on the left. The arrows in the picture denote light rays. The dashed lines represent the material type to be considered. The key is in the interaction of the light rays with the material.

Specular
Diffuse
Transparent
Translucent



b,d,c,a **Click here for detail**
d,b,c,a
a,c,b,d
c,d,b,a