CS602-Computer Graphics

(Solved MCS's)

LECTURE FROM (23 to 45)

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1. Computer graphics and computer vision are_____disciplines.
   - Related
   - Interrelated
   - Same
   - Different

2. 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.
   - Dimensional
   - Dimensional
   - 2 Dimensional and 3-Dimensional

3. _____sets the reshape callback for the *current window*.
   - glutIdle function
   - glutKeyboardFunc
   - glutReshapeFunc
   - glutDisplayFunc

4. _____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
   - glutKeyboardFunc
   - glutReshapeFunc
   - glutDisplayFunc

5. X2/a2 – y2/b2 =1 is an equation of
   - Hyperbola Page no : 70
   - Parabola
   - None of given
   - Ellipse

6. To modify the object shape, shearing transformation cannot be used.

- False Page no : 124
- True

7. Rotation is performed around a fixed point called_____.

- Pivot
- Point
- rotation Page no : 114

8. Computer graphics is very helpful in producing graphical representations for scientific visualization and analysis

- True
- False

9. Save a line with both endpoints inside all clipping boundaries.

- Trivial Reject
- Trivial Accept Page no : 137
- None of given

10.Dark lights are nothing more than lights in which one or more of the color values are _____. Unknown

- Negative Page no : 230
- Positive Zero

11.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 no : 366
- Two
- Four
- Ten

12. 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 no : 393

12. 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 no : 189
- Oblique Parallel Projection

13. 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 Page no : 234
- Ambient
- Diffuse

14. In the Phong Reflection model,_____light is the same everywhere.

- Ambient
- Diffuse
- Specular
- Emissive

15.A plane is two dimensional since in order to uniquely define any point on its surface we require_____ numbers.

- Two
- Three
- Four
- Five

16. 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 no : 195
- None

17. 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 no : 316

18. Bezier curve is the ideal standard for representing the_____piecewise polynomial curves. Most complex

- Less complex
- None of given
- More complex Page no : 333

19. 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 no : 395
- None of given

21. Which of the following affine transforms does NOT affect vectors?

- Scale
- Rotation
- Shear
- Translation Page no : 113

22) This projection technique does NOT have the direction of projection perpendicular to the viewing plane.

- Orthographic Parallel Projection
- Axonometric Parallel Projection
- Oblique Parallel Projection Page no : 189

23) This projection technique has the direction of projection perpendicular to the viewing plane, and the viewing direction is perpendicular to one of the principle faces.

- Orthographic Parallel Projection Page no : 189
- Axonometric Parallel Projection
- Oblique Parallel Projection

24) 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?

- GL_MODELVIEW Page no : 388
- GL_PROJECTION

25) 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?

- GL_MODELVIEW
- GL_PROJECTION Page no : 369

26) Which of the following is the order that geometry operations are performed in OpenGL (where we read the order from left to right)?

- GL_PROJECTION GL_MODELVIEW Perspective division
- GL_MODELVIEW GL_PROJECTION Perspective division
- Perspective division GL_PROJECTION GL_MODELVIEW
- GL_MODELVIEW Perspective division GL_PROJECTION
- GL_PROJECTION Perspective division GL_MODELVIEW

27) 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 Page no : 234
- Diffuse
- Specular

28) Which of the following is NOT a modern application for Computer Graphics---

- ► Stop-motion animation Page no : 6
- ► Computer Aided Geometric Design
- ► Video Games
- ► Scientific Visualization

29)Both Boundary Filling and Flood filling algorithms are non-recursive techniques,

- False Page no : 97
- True

30) 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 no : 423
- Low animation
- High resolution

31) 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 no :432

32)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 no : 288

33)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 no : 293

34) 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 no : 291
- ► Unknown

35)Tessellation can be adaptive to the_____degree of curvature of a surface.

- ► Local Page no : 165
- ► Static
- ► Global
- ► Variable

36) _____sets the reshape call back for the *current window*. The reshape callback is triggered when a window is reshaped.

- ► glutMainLoop
- ► glutIdleFunc
- ► glutReshapeFunc Page no : 307
- ► glutDisplayFunc

37) Signed integer colour components, when specified, are linearly mapped to floating-point values such that the most positive represent able value maps to 1.0, and the most negative represent able value maps to ---------- --. Floating-point values are mapped directly.

- ► -1.0
- ► 0.0
- ► 2.0
- ► 1.0 Page no : 315

38) NURBS stands for----------

- ► Non Universal Rational Binary Spline
- ► Non Uniform Rational Binary Splines
- ► Non Uniform Rational Beta Splines Page no :320
- ► Non Universal Rational Beta Splines

39)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
- ► Can be made up of any set of vectors

40) Bezier curve is numerically the ---------- of all the polynomial-based curves used in these applications.

- ► None of the given
- ► Most stable
- ► Less stable
- ► Most unstable

40. Bezier curve is the ideal standard for representing the ---------- piecewise polynomial curves.

- ► None of the given
- ► Non complex
- ► Most complex
- ► More complex repeated Question No: 15

41) Keep polygon orientations consistent to make sure that when viewed from the outside, all the polygons on the surface are oriented in the_____direction.

- ► None of the given
- ► Neither
- ► Different
- ► Same Page no : 340

42)The----------is most simple example that exhibits the property self-similarity.

- ► Mosse
- ► Fern Page no : 350
- ► None of the given
- ► Thohar

43) 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 no: 366

44)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 page no : 335

45)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 Page no : 285
- ► 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)

46)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 repeated
- ► Diffuse
- ► Ambient

48) 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

49) The Color Space 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 no : 230

50) A polygon is usually defined by a sequence of ---------- and Edges.

- ► Ending lines
- ► Points
- ► Vertices Page no : 243
- ► Edges

51) 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

52) Parity is a concept used to determine which _____lie within a polygon. (Choose best suitable answer)

- ► Edge
- ► Vertices
- ► Pixels Page no : 80
- ► None of the given

53) The actual filling process in boundary filling algorithm begins when a point _____of the figure is selected.

► Outside the boundary

► Inside the boundary

► At boundary

► None of the given

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54) Weiler-Atherton Polygon Clipping technique modify the vertex-processing procedures for window
boundaries so that_____polygons are displayed correctly.

- ► Convex
- ► Concave Page no : 245
- ► Complex
- ► None of the given

55) If a line connecting any two points within a polygon does not intersect any edge, then it will be a _____polygon.

- ► Convex Page no : 78
- ► Concave
- ► Complex
- ► None of the given

56) _____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 Repeated
- ► Projection

57) 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 no: 291
- ► Complex
- ► Abnormal

58) Which of the following is NOT true about quaternions?

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

1) In class, we discussed three forms of shading for “Utah” graphics. Which was the first to use per
vertex normals?

- Flat Shading
- Phong Shading

- Gouraud Shading Page no : 240

59) Given any implicit equation, which of the following is true for all (x, y, z) that make the equation exactly zero?

- All those points are inside the object defined by the implicit equation
- All those points are on the surface of the object defined by the implicit equation Page no :205
- All those points are outside the object defined by the implicit equation
- You can't know anything without knowing what the implicit equation is

60) 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?

- The ray intersects the sphere at a negative t… discard this result
- The ray intersects the sphere at a positive t… continue to the solution
- The ray does not intersect the sphere… discard this result Page no : 265
- The ray begins inside the sphere… this is a special case

61) _____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
- glutMainLoop
- glutDisplayFunc
- glutReshapeFunc

62)A space curve can be confined to a plane.

- True
- False Page no : 326

63)A tangent vector certainly defines the slope at one end of the curve, but a vector hascharacteristics of.....

- direction
- magnitude
- both direction and magnitude Page no : 331
- None of the given

64)
We allow the parametric variable to take on values only in the interval ----------.

- -1 <= u <= 0
- 0 <= u <= 2

- 0 <= u <= 1 Page no : 321
- -1 <= u <= 1

65) The degree of a Bezier curve is equal to n-1, where n is the number of control points

- Yes Page no : 334
- No

66) Bernstein polynomial functions are the basic functions of _____ curves.

- NURBS
- Bezier Page no : 337
- Both NURBS and Bezier
- None of the given

67)
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 no : 320
- None of the given

68)
Bit mask to select a window with multisampling support. If multisampling is not available, a---------- window will automatically be chosen.

- Non-multisampling Page no : 305
- Multisampling
- Mono-multisampling
- Di-multisampling

69)
Bezier curve is tangent to the lines connecting_____.

- First two points
- Last two points
- Fist two points and last two point
- None of the given

70) OpenGL is well structured with an intuitive design and logical commands. Efficient OpenGLroutines typically result in applications with fewer lines of code than those that make upprograms generated using other graphics libraries or packages. In addition, OpenGL drivers---------- information about the underlying hardware, freeing the application developer fromhaving to design for specific hardware features.

- Encapsulate Page no : 297
- Shows
- Hibernates
- None of the given

71)
A space curve is not confined to a plane. It is free to twist through space. To define a space curvewe must use parametric functions that are ---------- --.

- Binary polynomials
- Mono polynomials
- Quadratic polynomials
- Cubic polynomials Page no : 326

72) End points and an intermediate point on the curve, then we now ---------- -- quantities thatwe can express in terms of these coefficients (3 points x 3 coordinates each), and we can usethese three points to define a unique curve.

- Six
- Three
- Two
- Nine Page no : 321

73) Bezier curve can represent the more complex piecewise_____curve.

- Polynomial Page no : 33
- Exponential
- Cubic
- None of above

74)) Curve and surface equations can be expressed in either a parametric or a non parametric form.

- True
- False Page no : 333

75) Using a lighting model based upon the Blinn Phong model means that we'll always get a uniform specular highlight based upon the colour of the ---------- light and material, which means that all reflections based on this model, will be reminiscent of plastic.

- Union
- Refracting Page no : 291
- Intersection
- Reflecting

76) 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
- Page 21 of 22
- M+T
- M/T
- M*T

77) 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 no : 326

78) 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
- glTranslated
- glLoadIdentity Page no : 313

79) Each number that makes up a matrix is called an_____of the matrix.

- Element Page no : 101
- Variable
- Value
- Component

80) 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

81) Shadow mask methods can display a_____range of colors.

- Small
- Wide Page no : 29
- Random

- Crazy

82) Using Cohen-Sutherland line clipping, it is impossible for a vertex to be labeled 1111.

- True
- False

83) 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 no : 26
- Electron

84) 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

85) Both Boundary Filling and Flood filling algorithms are non-recursive techniques,

- ► False
- ► True

86)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

87) An eight frame run cycle that ---------- frame/frames to each step gives a fast and vigorous dash. At thisspeed the successive leg positions are quite widely separated and may need dry brush or speed lines to make themovement flow.

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

88)reflection is the effect of reflecting light toward the direction from which it came, no matter theorientation of the surface.

- ► Forward scattering
- ► Diffuse Lambertian

- ► Backscattering
- ► Retro (Page 293)

89) 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)

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

- ► Abnormal
- ► Complex
- ► Simple (Page 296)
- ► Unknow

91)Tessellation can be adaptive to the_____degree of curvature of a surface.

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

92)_____sets the reshape callback for the *current window*. The reshape callback is triggered when a window
is reshaped.

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

93 Signed integer color components, when specified, are linearly mapped to floating-point values such that themost 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)

94) 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

95) 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

96) 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

97) Bezier curve is the ideal standard for representing the ---------- piecewise polynomial curves.

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

98) 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)

99) The----------is most simple example that exhibits the property self-similarity.

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

100) A common mistake people make when creating three-dimensional graphics is to start thinking too soon that thefinal image appears on a flat, two-dimensional screen. Avoid thinking about which pixels need to be drawn, andinstead try to visualize ---------- space.

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

101)Which of the following properties of rational Bezier curves fails if the weight assigned to a control point isnegative?

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

102) We want our scene to look more realistic, we should use_____lights.

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

103) 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

104) One problem with Gouraud shading is that the---------- intensities can never be greater than the intensities atthe edges.

- Triangles (Page 246)
- Squares
- Rectangles
- Polygons

105)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

106) _____lights should be avoided because they are not for real time environment.

- Point
- Parallel

- Spot (Page 244)
- None of the given

107) The physical range of colors a device can display is called _____of the device.

- Sharpness
- Gamut (Page 229)
- Colouring
- Colouring with Sharpness

108) _____is simply the calculation of color reflected by the surface.

- Shading (Page 240)
- Clamping
- Scaling
- None of the given

109) 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

110) Loosely, the alpha component of the RGBA quad represents the _____of a surface.

- Opaqueness (Page 227)
- Light
- Darkness
- Shine

111) An algorithm that clips a polygon must deal with many ----------cases. The case is particularly noteworthy in that the concave polygon is clipped into ---------- isolate polygons.

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

112) _____lighting is not dependent on any source.

- Ambient
- Diffuse
- Specular
- Emissive

113)

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

114) 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)

115)
In Perspective Projection the point of View (POV) must lie on the _____.

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

116) If we want any object to glow, we should use_____lights.

- Ambient
- Diffuse
- Specular
- Emissive (Page 240)

117)There are not many different ways of representing the intensity of a particular color element.

- True
- False (Page 276)

118) 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

119) _____light is reflected in all directions from surface.

- Ambient
- Diffuse (page 239)

- Specular
- Emissive

120) A space curve can be confined to a plane.

- Yes
- No (Page 331)

121) 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

122) Perspective projection is specified with the function glFrustum().

- Yes (Page 376)
- No

122) Choose a camera lens or adjust the zoom

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

123)Using a lighting model based upon the Blind 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)

124)Refractive index is a function of temperature, mostly due to density changes in materials with changes intemperature.

- True (Page 300)
- False

125)

Length L depends on the angle alpha and the z coordinate of the point to be projected and L can be representedby ---------- --.

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

- z * 1/ tan (gamma)

126)The traditional approach in real-time computer graphics has been to calculate lighting at a vertex as a sum ofthe_____light.

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

127)
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)

128) An independent consortium, the OpenGL Architecture Review Board, guides the OpenGL specification. Withbroad industry support, OpenGL is the only truly open, vendor-neutral,---------- graphics standard.

- Tertiary
- Binary
- Single platform
- Multiplatform (Page 301)

129) glutReshapeWindow requests a change in the size of the current window. The width and height parameters aresize extents in pixels. The width and height must be__values.

- Neutral
- Negative
- Positive (Page 311)
- None of the given

130) A space curve is not confined to a plane. It is free to twist through space. To define a space curve we must useparametric functions that are ----------.

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

131)
Refractive index is a function of temperature, mostly due to changes in ---------- of materials withchanges in temperature. A simple correction can be applied in most circumstances to allow us to use a valuegiven at one temperature at another.

- Density (Page 300)

- pressure
- nature
- volume

132) If we assign a different value to the parametric variable for the intermediate point, then we obtain differentvalues 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

133) The attenuation formula is f = ---------- , where C, L and Q are the constant, linear and quadraticattenuation factors and d is the distance between the vertex being lit and the light source.

- 1/(C + Ld + Qd2)
- 1/(C + Ld + Qd)
- 1/(C + L +d + Qd2)
- 1/(Cd + Ld + Qd2)

144) 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

145) End points and an intermediate point on the curve, then we now ---------- quantities that we canexpress in terms of these coefficients (3 points x 3 coordinates each), and we can use these three points todefine a unique curve.

- Six
- Three
- Two
- Nine (Page 326

146) Choose a camera lens or adjust the zoom

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

148) _____OpenGL function is used for aiming and positioning the camera towards the object

- glLoadIdentity() (Page 375)

- gluLookAt()
- glFrustum()
- None of Above

149) A parametric curve is one whose defining equations are given in terms of a ----------, common, independentvariable called the parametric variable.

- Triple
- Double
- Single (Page 325)
- None of the given

150) 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]

151) To ensure a smooth transition from one section of a piecewise _____ to the next, we can impose various continuity conditions at the connection points on parametric curve parametric curve

- polygon vector (not confirm) (Page 245)
- None of the these

152) The curve is always contained within the_____of the control points

- Tangents
- Convex Hull (Page 340)
- Subdivision
- None of Above

Question # 1

A space curve can be confined to a plane.

- Yes
- No (Page 331)

Question # 2

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

- 16

Question #3

Perspective projection is specified with the function glFrustum().

- Yes (Page 376)
- No

Question # 4

Choose a camera lens or adjust the zoom

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

Question # 5

Using a lighting model based upon the Blinn Phong model means that we'll always get a uniform specularhighlight 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 # 6

Refractive index is a function of temperature, mostly due to density changes in materials with changes in temperature.

- True (Page 300)
- False

Question # 7

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)

- 17

Question # 8

The traditional approach in real-time computer graphics has been to calculate lighting at a vertex as a sum ofthe_____light.

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

Question # 9

Another way to define a space curve by using intermediate points and the tangents at each end for making thecurve

- Yes
- No (Page 334)

Question # 10

An independent consortium, the OpenGL Architecture Review Board, guides the OpenGL specification. Withbroad industry support, OpenGL is the only truly open, vendor-neutral,----------graphics standard.

- Tertiary
- Binary
- Single platform
- Multiplatform (Page 301)

Question # 11

glutReshapeWindow requests a change in the size of the current window. The width and height parameters aresize extents in pixels. The width and height must be_____values.

- Neutral
- Negative
- Positive (Page 311)
- None of the given

Question # 12

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 3

Refractive index is a function of temperature, mostly due to changes in ---------- -------- of materials withchanges in temperature. A simple correction can be applied in most circumstances to allow us to use a valuegiven at one temperature at another.

- Density (Page 300)

- pressure
- nature
- volume

Question # 14

If we assign a different value to the parametric variable for the intermediate point, then we obtain differentvalues 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 #15

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 # 16

End points and an intermediate point on the curve, then we now ---------- quantities that we canexpress in terms of these coefficients (3 points x 3 coordinates each), and we can use these three points todefine a unique curve.

- Six
- Three
- Two
- Nine (Page 326)
- 19

Question # 17

Choose a camera lens or adjust the zoom

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

QuestionZ#18

_____OpenGL function is used for aiming and positioning the camera towards the object

- glLoadIdentity() (Page 375)

- gluLookAt()
- glFrustum()
- None of Above

Question # 19

A parametric curve is one whose defining equations are given in terms of a ----------, common, independentvariable called the parametric variable.

- Triple
- Double
- Single (Page 325)
- None of the given

Question # 20

The reflection coefficients are in the----------range and are specified as part of the materialproperty. However, they are strictly empirical and since they simply adjust the overall intensity of the materialcolor, the material color values are usually adjusted so the color intensity varies rather than using a reflectioncoefficient.

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

Question # 21

To ensure a smooth transition from one section of a piecewise_____to the next, we can impose variouscontinuity conditions at the connection points

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

Question # 22

The curve is always contained within the_____of the control points

- Tangents
- Convex Hull (Page 340)
- Subdivision
- None of Above

Question # 23

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 thatpasses through P and intersects the ---------- --.

- Two Coordinate Planes

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

Question # 24

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 # 25

Ambient light is the light that comes from----------directions, thus all surfaces are illuminated equallyregardless of orientation. However, this is a big hack in traditional lighting calculations since "real" ambientlight really comes from the light reflected from the "environment."

- All (Page 281)
- Opposite
- Same
- Four different

Question # 26

Silhouette edges occur when dot product of surface normal vector and the view vector is_____.

- Zero (Page 345)
- One
- Both zero and one

Question # 27

If the current matrix (according to glMatrixMode) is multiplied by the translation matrix, with the productreplacing the current matrix. That is, if M is the current matrix and T is the translation matrix, then M isreplaced with---------- --.

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

Question # 28

Arrange the scene to be photographed into the desired composition

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

- viewing transformation

Question # 29

In the forms of texture mapping, Image to world space and world space to image, each suffers from differentproblems related to magnifications 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 # 31

Imagine a curve in three-dimensional space, each point on the curve has a unique set of coordinates: a specificx value, y value, and z value. Each coordinate is controlled by a ---------- parametric equation.

- Opposite
- Similar
- Separate (Page 325)

Question # 32

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 # 33

Bezier curve can represent the more complex piecewise_____curve.

- Polynomial (Page 338)
- Exponential
- Cubic
- None of above

Question # 34

A fractal is generally a property called _____.

- Fractal Dimension
- Self-similarity (Page 355)
- Koch Curve
- None of above

Question # 35

Normalized cross product of two vectors on that surface provides normal vector

- Yes (Page 347)
- No

Question # 36

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 # 36

The value returned is a unique small integer identifier for the window. The range of allocated identifiers startsat ----------. This window identifier can be used when calling glutSetWindow.

- Three
- Two
- One (Page 308)
- Zero

Question # 37

Curve and surface equations can be expressed in either a parametric or a non parametric form.

- True
- False

Question # 38

Bernstein polynomial functions are the basic functions of_____curves.

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

Question # 39

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 # 40

In order to get a more realistic representation of lighting, we'll need to understand how light passes through amedium and how hitting the boundary layer at the ---------- of two media can affect light's properties.

- Intersection (Page 296)
- Union
- Endpoints
- Edges

Question # 41

_____sets the global idle call back to be 'func' so a GLUT program can perform backgroundprocessing tasks or continuous animation when window system events are not being received.

- glutIdleFunc (Page 313)
- glutMainLoop
- glutDisplayFunc
- glutReshapeFunc

Question # 42

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 # 43

The degree of a Bezier curve is equal to n-1, where n is the number of control points

- Yes (Page 339)
- No

Question # 44

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 # 45

OpenGL is well structured with an intuitive design and logical commands. Efficient OpenGL routines typicallyresult 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 # 46

With similar expressions for y(u) and z(u). Again the a, b, c and d terms are constant coefficients. As we didwith 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 # 48

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 # 49

The basic functions fi(u) in Bezier curve must be symmetric with respect to u and (u-2)

- yes
- no (Page 341)

Question # 50

Arrange the scene to be photographed into the desired composition

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

Question No: 51

NURBS stands for---------- --.

- Non Universal Rational Binary Spline
- Non Uniform Rational Binary Splines
- Non Uniform Rational Beta Splines (Page 325)
- Non Universal Rational Beta Spline
- Question No: 1
- 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: 52
- Both Boundary Filling and Flood filling algorithms are non-recursive techniques,
- ► False
- ► True

Question No: 53

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 431)
- ► Low animation
- ► High resolution

Question No: 54

An eight frame run cycle that ---------- frame/frames to each stepgives 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 440)

Question No: 55

---------- 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 296)

Question No: 56

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 301)

Question No: 57

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 299)
► Unknown

Question No: 58

Tessellation can be adaptive to the_____degree of curvature of a surface.

- Local (Page 173)
- Static
- Global
- Variable

Question No: 59

_____sets the reshape callback for the *current window*. The reshape callback is triggered when a window is reshaped.

- glutMainLoop
- glutIdleFunc
- glutReshapeFunc (Page 315)
- glutDisplayFunc

Question No: 60

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 323)

Question No: 61

NURBS stands for---------- --.

- Non Universal Rational Binary Spline
- Non Uniform Rational Binary Splines
- Non Uniform Rational Beta Splines (Page 328)
- Non Universal Rational Beta Splines

Question No: 62

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 (page no 254)
- ► Can be made up of any set of vectors

Question No: 63

Bezier curve is numerically the----------of all the polynomial-based curves used in these applications.

- ► None of the given
- ► Most stable (Page 341)
- ► Less stable
- ► Most unstable

Question No: 64

Bezier curve is the ideal standard for representing the ---------- piecewise polynomial curves.

- ► None of the given
- ► Non complex
- ► Most complex
- ► More complex(Page 341)

Question No: 65

- 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 347)

Question No: 66

The ---------- is simplest example that exhibits the property self-similarity.

- ► Moses

- Fern (Page 358)
- None of the given
- Thohar

Question No: 66

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 374)

Question No: 68

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

Question No: 69

Actually, each component is a rational Bézier curve. We have made it very clear that all weights must be non-negative. If some of them are negative, the strong convex hull property or even the convex hull property will not hold.

Question No: 70

In the Phone 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: 71

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: 72

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: 73

The Color Space 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 238)

Question No: 74

A polygon is usually defined by a sequence of----------and Edges.

- Ending lines
- Points
- Vertices (Page 149)
- Edges

Question No: 75

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: 76

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: 77

The actual filling process in boundary filling algorithm begins when a point _____of the figure is selected.

- Outside the boundary
- Inside the boundary (Page 105)
- At boundary
- None of the given

Question No: 78

Clipping technique modifies the vertex-processing procedures for window boundaries so that_____polygons are displayed correctly.

- ► Convex
- ► Concave (Page 158)
- ► Complex
- ► None of the given

Question No: 79

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: 80

_____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 displaysurface.

- ► Mapping plane
- ► Three Coordinate Planes
- ► View plane
- ► Projection (Page 265)

Question No: 81

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 299)
- ► Complex
- ► Abnormal

Question No: 82

Computer graphics and computer vision are _____disciplines.

- Related (Page 24)
- Interrelated
- Same
- Different

Question No: 83

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: 84

-------- 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: 85

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: 86

To modify the object shape, shearing transformation cannot be used.

- False (Page 195)
- True

Question No: 87

Rotation is performed around a fixed point called_____.

- Pivot point rotation (Page 122)

Question No: 88

Computer graphics is very helpful in producing graphical representations for scientific visualization and analysis

- True (Page 9)
- False

Question No: 89

Save a line with both endpoints inside all clipping boundaries.

- Trivial Reject
- Trivial Accept (Page 145)
- None of given

Question No: 90

Dark lights are nothing more than lights in which one or more of the color values are_____.

- Unknown
- Negative (Page 238)
- Positive
- Zero

Question No: 91

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 374)
- Two
- Four
- Ten

Question No: 92

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 401)

Question No: 93

- In the Phong Reflection model,_____light is the same everywhere.
- Ambient
- Diffuse
- Specular
- Emissive

Question No: 94

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(Page 197)
- Axonometric Parallel Projection
- Oblique Parallel Projection

Question No: 95

A plane is two dimensional since in order to uniquely define any point on its surface we require_____ numbers.

- Two (Page 359)
- Three
- Four

Question No: 96

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 203)
- None

Question No: 97

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 324)

Question No: 98

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 403)
- None of given

Question No: 99

Which was the oldest shading model?

- Flat Shading (Page 249)
- Phong Shading
- Gouraud Shading

Question No: 100

Which of the following affine transforms does NOT affect vectors?

- Scale
- Rotation
- Shear
- Translation

Question No: 101

We want our scene to look more realistic, we should use_____lights.

- Ambient (Page 285)
- Point Parallel
- Spot
- None of the given

Question No: 102

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 144)
- Clipping Circle
- Clipping Polygon
- Clipping Angle

Question No: 103

One problem with Gouraud shading is that the----------intensities can never be greater than the intensities at the edges.

- Triangles (Page 249)

- Squares
- Rectangles
- Polygons

Question No: 104

There is more penetration of light in case of_____surfaces.

- Conductor (like metals)
- Nonconductor (like dielectrics) (Page 243)
- Both conductor and nonconductor
- None of the given

Question No: 105

_____Lights should be avoided because they are not for real time environment.

- Point
- Parallel
- Spot (Page 247)
- None of the given

Question No: 106

The physical range of colors a device can display is called _____of the device.

- Sharpness
- Gamut (Page 232)
- Colouring
- Colouring with Sharpness

Question No: 107

_____is simply the calculation of color reflected by the surface.

- Shading (Page 243)
- Clamping

- Scaling
- None of the given

Question No: 108

When obtaining normal for a triangle, which of the following mathematical constructs is NOT used?

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

Question No: 109

Loosely, the alpha component of the RGBA quad represents the _____of a surface.

- Opaqueness (Page 239)
- Light
- Darkness
- Shine

Question No: 110

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 No: 111

The circle and ellipse are symmetric across 8 octants.

- True

- False (Page 60)

Question No: 112

UV light is used in Plasma Panel displays to excite phosphor.

- True
- False

Question No: 113

Which of the following is not true about matrices?

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

Question No: 114

According to Odd Parity Rule, a point is inside the polygon, if:

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

Question No: 115

As opposed to direct memory access method, BIOS routines provide an easier and faster method of drawing pixels on screen.

- True
- False (Page 47)

Question No: 116

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 No: 117

The amount of time it takes to illuminate a specific location on phosphor coated screen is called Persistence.

- True
- False (Page 27)

Question No: 118

Incremental line drawing algorithm makes use of the equation of straight line.

- True
- False (page 54)

Question No: 119

In matrix multiplication:

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

Question No: 120

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.

- True

- False(Page 28)

Question No: 121

Parity Rule is used to determine whether a pixel is inside a polygon or not.

- True (Page 80)
- False

Question No: 122

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 No: 123

In Pixmap exactly one bit is used to hold color value of each pixel.

- True
- False (Page 28)

Question No: 124

The Boundary Fill and Flood Fill algorithms:

- Must use 4-connected approach
- Must use 8-connected approach
- May use 4-connected or 8-connected approach
- Must not use recursive approach

Question No: 125

To show 256 colors, the no of bits required for each pixel are

- 8 (Page 39)
- 16
- 32

- 64

Question No: 126

25 * 80 resolution with 16 colors supports

- Text mode (Page 43)
- Graphics mode
- Both
- None

Question No: 127

Two matrices are said to be equal, if they have

- same order
- same corresponding elements
- Same order and same corresponding elements.(page 11)
- Different elements.

Question No: 128

Two points are said to be collinear, if they lie on the

- same line (page 53)
- different but parallel lines
- either on the same plane or two parallel planes
- different plane

Question No: 129

A Polygon is convex, if the line connecting:

- Any two points outside the polygon intersects its boundary
- Any two points inside the polygon don't intersect any edges of the polygon. (Page 171)
- A point inside the boundary with any point outside, does not intersect the polygon boundary
- Any two vertices, intersects some edge of polygon.

Question No: 130

Polygon is complex, if the line connecting:

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

Question No: 131

The equation of hyperbola centered at origin (if the transverse axis is along x -axis) can be given as:

- x2 b2+ y2 a2–1 = 0
- x2 b2+ y2 a2+1 = 0
- x2 a2– y2 b2–1 = 0
- x2 b2 – y2 a2–1 = 0

Question No: 132

Which one is not valid out code to perform trivial accept / reject test in line clipping:

- 1101
- 1001 (Page 143)
- 0101
- 0110

Question No: 133

Which one of the following is not the graphics library is use:

- FastGL
- OpenGL
- DirectX
- EasyGL (Page 47)

Question No: 134

In video text memory,_____are used to display a character.

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

Question No: 135

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 No: 136

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 No: 137

Global coordinate systems can be defined with respect to local coordinate system

- True
- False (Page 258)

Question No: 138

Cross product of two vectors results in a_____.

- Magnitude

- Vector (Page 117) cross product of 2 vectors is a vector.
- Scalar
- Value

Question No: 139

Shortcoming of Sutherland-Hodgeman Algorithm is concave polygons may be displayed with extraneous lines

- True (Page 158)
- False

Question No: 140

In 2D transformations, rotations applied to a point P can be denoted as_____(Where? Represents theta).

- P' = R(θ1 + θ2) . P (Page 127)
- P' = (R(?1) + R(?2)) . P
- P' = R(?1 x ?2) . P
- P' = R(?1) . P

Question No: 141

A straight line can be moved to another location by applying _____ to each of the line endpoints and redrawingthe line between the new coordinates.

- Rotation
- Translation (Page 121)
- Reflection
- Scaling factor

Question No: 142

Locations can be translated or "transformed" from one coordinate system to the other.

- True (Page 166)
- False

Question No: 143

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 No: 144

A column matrix is also known as_____.

- Column vector (Page 110)
- Row vector
- Vector
- Simple Matrix

Question No: 145

Dot product of two vectors results in_____quantity.

- Scalar (Page 118)
- Vectors
- Magnitude
- Value

Question No: 146

Set up your tripod and pointing the camera at the scene

- projection transformation
- viewport transformation
- modeling transformation
- viewing transformation (Page 375)

Question No: 147

_____is based on characteristic size or scale

- Fractal Geometry
- Traditional Geometry
- Euclidean Geometry (Page 362)
- None of Above

Question No: 148

Bernstein polynomial functions are the basic functions of_____curves.

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

Question No: 149

Which of the following does NOT figure into the Field of View of a pinhole camera?

- The direction of projection
- The distance from the center of projection to the projection plane
- The size of the projection plane

Question No: 150

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 areused?

- shear and translation
- rotation and scale
- scale and shear
- translation and scale

Question No: 150

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?

- division by zero
- objects behind the center of projection mapping onto the projection plane
- avoiding the problems of infinite viewing volume size

Question No: 152

In “Utah” graphics, lights are simplified in order to approximate light/matter interaction with aminimum amount of work. Which of the following is NOT true about the simplifications made in“Utah” graphics lights?

- Light intensity and color are folded into one value.
- Lights are assumed to have zero size
- Spotlights cannot be handled
- Soft shadows cannot be handled

Question No: 153

In the Phone Reflection model, ambient light is the same everywhere.

- true
- false

Question No: 154

We discussed several global illumination algorithms in class. Which of the following listed can properly handle diffuse-diffuse reflections

- Ray Tracing
- Radiosity
- Photon Mapping
- RenderMan

Question No: 155

We discussed several global illumination algorithms in class. Which of the following listed can properly handle caustics?

- Ray Tracing
- Radiosity

- Photon Mapping
- RenderMan

Question No: 156

In radiosity a matrix is formed of size maxim. Which of the following can be known if the (i, j) position in the matrix is zero?

- patch i is much larger than patch j
- patch i is much smaller than patch j
- patch i is visible from patch j
- patch i is not visible from patch j

Question No: 157

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

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

Question No: 158

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?

- The point is outside the triangle
- The point is on the boundary of the triangle
- The point is inside the triangle
- The hit point is on the “back face” of the triangle

Question No: 159

The majority of the execution time of a ray tracer is spent in ray-object intersection code.

- true

- false

Question No: 160

In the Pixar short “Geri’s Game”, the trees in the background were created using which of the following techniques?

- Fractals
- Bump mapping
- Environment mapping
- Catmull-Clark Subdivision Surfaces

Question No: 161

The basic functions fi(u) in Bezier curve must be symmetric with respect to u and (u-2)

- yes
- no (Page 344)

Question No: 162

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?

- Fractals
- Bump mapping
- Environment mapping
- Catmull-Clark Subdivision Surfaces

Question No: 163

A polygon is usually defined by a sequence of vertices and ----------

- Edges (Page 149)
- Vertices
- Points Ending lines

Question No: 164

Gouraud shading is the current de jure shading standard in accelerated ---------- hardware.

- 2Dimensional
- 3Dimensional (Page 248)
- Multidimensional
- None

Question No: 165

_____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 lengthscales) (Page 361)
- None of Above

Question No: 166

Arrange the scene to be photographed into the desired composition

- projection transformation
- viewport transformation
- modeling transformation (Page 375)
- viewing transformation

Question No: 167

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.

- DirectX
- Graphic Windowing Toolkit
- CGI

- OpenGL (Page 305)

Question No: 168

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?

- shear and translation
- rotation and scale
- scale and shear
- Translation and scale

Question No: 169

Shadow mask methods can display a_____range of colors.

- Small
- Wide (Page 28)
- Random
- Crazy

Question No: 170

Each number that makes up a matrix is called an_____of the matrix.

- Element (Page 109)
- Variable
- Value
- Component