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Time taken 51 mins 18 secs

Grade 9.75 out of 10.00 (98%)

Question 1

Correct

Mark 1.00 out of
1.00

A texture of size 256x256 pixels is shown in Fig. (a). This texture is required to be mapped to a quad as shown in Fig. (b).



(a)



(b)

What are the texture coordinates of the vertex A of the quad given in Fig. (b) above?

Select one:

- ☐ a. (1, 1)
- ☐ b. (0, 256)
- ☐ c. (256, 0)
- ☒ d. (1, 0) ✓
- ☐ e. (0, 1)

Your answer is correct.

Correct

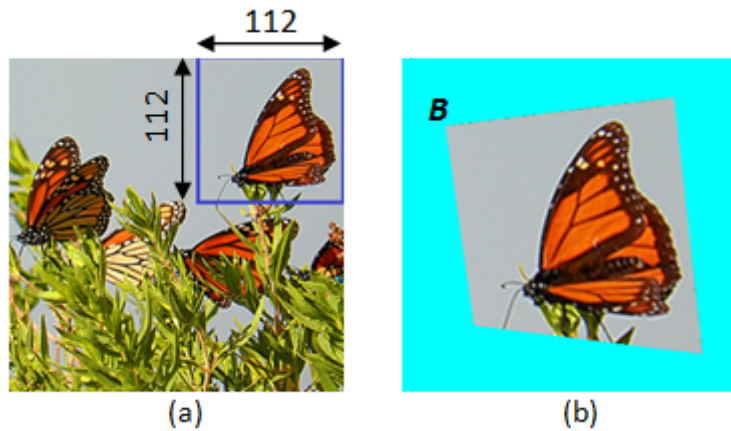
Marks for this submission: 1.00/1.00.

Question 2

Correct

Mark 1.00 out of
1.00

The texture image shown in Fig. (a) is 256 pixels wide and 256 pixels high. A square section of size 112x112 pixels at the top-right corner of the image is required to be mapped to a quad shown in Fig. (b).



What are the texture coordinates of the vertex *B* of the quad in Fig. (b) above?

Select one:

- ☐ a. (0.4375, 1)
- ☐ b. (1, 0.5)
- ☐ c. (144, 256)
- ☐ d. (112, 0)
- ☒ e. (0.5625,1) ✓

Your answer is correct.

Correct

Marks for this submission: 1.00/1.00.

Question 3

Correct

Mark 1.00 out of
1.00

In the following figure, the texture on the left when mapped to a quad generates the tiled pattern shown on the right. What are the texture coordinates of the vertex A?



Texture



Quad

Select one:

- ☐ a. (1, 1)
- ☐ b. (4, 4)
- ☐ c. (4, 1)
- ☒ d. (1, 4) ✓
- ☐ e. (1, 0.25)

Correct

Marks for this submission: 1.00/1.00.

Question 4

Correct

Mark 1.00 out of
1.00

In an application, the texture wrap parameters are set as below:

```
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_CLAMP);  
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_REPEAT);
```

With the above setting, texture coordinates (5.8, 3.8) would be interpreted as:

Select one:

- ☒ a. (1, 0.8) ✓
- ☐ b. (0, 3.8)
- ☐ c. (0, 0.8)
- ☐ d. (1, 3)
- ☐ e. (0, 3)

Correct

Marks for this submission: 1.00/1.00.

Question 5

Correct

Mark 0.75 out of
1.00

Consider the texture given below.



The following parameters are set for this texture:

```
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_REPEAT);
```

```
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_CLAMP);
```

With the above setting, what colour would `glTexCoord2f(4.8, 6.2)` refer to?

Select one:

- ☐ a. Red
- ☐ b. Black
- ☐ c. Purple
- ☐ d. Green
- ☒ e. Yellow ✓

Correct

Marks for this submission: 1.00/1.00. Accounting for previous tries, this gives **0.75/1.00**.

Question 6

Correct

Mark 1.00 out of
1.00

The following texture is used for texture-mapping a quad and also a triangle.



The texture environment mode is set as GL_REPLACE, and the texture coordinates for the quad and the triangle specified as below (Note that the vertices of the triangle do not have any specific texture coords assigned to them):

```
glBegin(GL_QUADS);  
    glTexCoord2f(0., 0.);    glVertex3f(x1, y1, z1);  
    glTexCoord2f(0., 1.);    glVertex3f(x2, y2, z2);  
    glTexCoord2f(1., 1.);    glVertex3f(x3, y3, z3);  
    glTexCoord2f(1., 0.);    glVertex3f(x4, y4, z4);  
glEnd();  
glBegin(GL_TRIANGLES);  
    glVertex3f(x5, y5, z5);  
    glVertex3f(x6, y6, z6);  
    glVertex3f(x7, y7, z7);  
glEnd();
```

What will be the colour of the triangle from the above mapping?

Select one:

- ☐ a. Yellow
- ☐ b. Purple
- ☐ c. Green
- ☒ d. Red ✓
- ☐ e. Black

Correct

Marks for this submission: 1.00/1.00.

Question 7

Correct

Mark 1.00 out of
1.00

Which one of the following parameters must be set to ensure that lighting effects such as colour variations due to diffuse reflections are visible on a textured polygon?

Select one:

- ☐ a. Texture parameter GL_LINEAR
- ☐ b. Texture parameter GL_NEAREST
- ☐ c. Texture parameter GL_CLAMP
- ☐ d. Texture environment parameter GL_REPLACE
- ☒ e. Texture environment parameter GL_MODULATE ✓

Correct

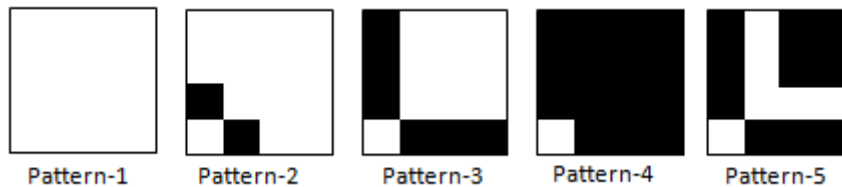
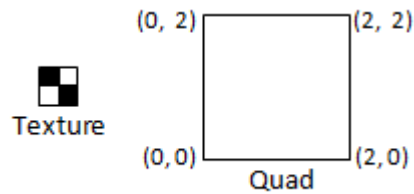
Marks for this submission: 1.00/1.00.

Question 8

Correct

Mark 1.00 out of
1.00

With reference to the figure given below, the texture on the left is mapped without borders to the quad. The texture coordinates at the vertices of the quad are given. The texture wrap parameter is set to GL_CLAMP along both s and t directions.



Which one of the above patterns will be generated on the quad?

Select one:

- ☐ a. Pattern-1
- ☐ b. Pattern-2
- ☒ c. Pattern-3 ✓
- ☐ d. Pattern-4
- ☐ e. Pattern-5

Correct

Marks for this submission: 1.00/1.00.

Question 9

Correct

Mark 1.00 out of
1.00

Which one of the following image artefacts is usually produced by selecting the GL_NEAREST option in a texture magnification filter?

Select one:

- ☐ a. Black dots
- ☐ b. Grey stripes
- ☒ c. Blockiness ✓
- ☐ d. Blurring
- ☐ e. Warping

Correct

Marks for this submission: 1.00/1.00.

Question 10

Correct

Mark 1.00 out of
1.00

What mode of lighting does the following statement enable?

```
glLightModeli(GL_LIGHT_MODEL_COLOR_CONTROL,  
GL_SEPARATE_SPECULAR_COLOR);
```

Select one:

- ☐ a. Specular components are not calculated or set to zero.
- ☐ b. The illumination model uses a specular colour that is different from light's ambient and diffuse colours.
- ☐ c. Specular highlights are suppressed on a textured surface.
- ☒ d. The specular colour component is stored separately and added to a fragment's colour after texturing. ✓
- ☐ e. For each material, the specular colour must be different from its ambient and diffuse colours.

Correct

Marks for this submission: 1.00/1.00.