

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2021

Programme Name: BTech. (CSE spl. GG)

Semester : V

Course Name : Web programming for GG

Time : 03 hrs

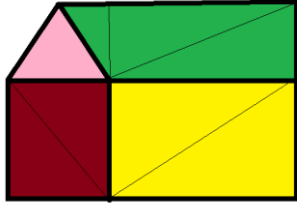
Course Code : CSGG3001

Max. Marks : 100

Nos. of page(s) : 2

SECTION A

1. Each Question will carry 5 Marks

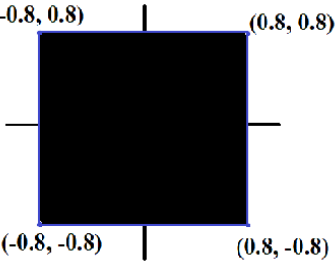

S. No.		Marks	CO
Q 1	Describe in very brief if the WebGL runs on the client or the server?	4	CO1
Q2	Describe in very brief if the WebGL is the language for web based graphics programming?	4	CO2
Q3	Illustrate any five basic variable types in GLSL along with single line example usage?	4	CO3
Q4	Draw neatly the coordinates of below figure taking into account the WebGL default coordinate system? Ignore the color values. 	4	CO4
Q5	Describe in very brief the different information which can be stored in VBO and IBO?	4	CO3

SECTION B

1. Each question will carry 10 marks

2. Instruction: Write short / brief notes

Q6	Describe any three storage qualifies provided by the GLSL language?	10	CO4
Q7	Write the vertex shader code and provide the matrix values for translating a triangle by 90 degree about the X-axis?	10	CO2
Q8	Describe about the working of texImage2D() in WebGL? Also write the shader code?	10	CO3
Q9	State the ten broader steps which are required in the shader side in WebGL programming? OR	10	CO1

	Write the 11 broader steps which are required to draw a red color triangle in WebGL leaving shader specific code? WebGL code is not required?		
SECTION-C			
1. Each Question carries 20 Marks.			
2. Instruction: Write long answer.			
Q10	<p>Write the code in THREE.js (JavaScript) only to display a rotating cube placed on top of a plane?</p> <p style="text-align: center;">OR</p> <p>Write the JavaScript array, vertex shader code and fragment shader code only for applying below texture (ignore the color) over the specified geometry?</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;"> <p>(-0.8, 0.8) (0.8, 0.8)</p>  <p>(-0.8, -0.8) (0.8, -0.8)</p> </div> <div style="text-align: center;">  </div> </div>	20	CO4
Q11	In comparison to OpenGL what are the advantages that WebGL offers? Draw neatly the WebGL rendering pipeline and explain how vertex data from the JavaScript is accessed in the vertex shader?	20	CO2, CO3, CO4