

Roll No



**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF INFORMATION SCIENCE
END TERM EXAMINATION - JUN 2023**

Semester : Semester VI - 2020

Course Code : CSA3069

Course Name : Sem VI - CSA3069 - Rendering Techniques

Program : BCG

Date : 9-JUN-2023

Time : 1.00PM - 4.00PM

Max Marks : 100

Weightage : 50%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. Name the channel that is used to encode transparency information in a PNG image.
(CO2) [Knowledge]
2. List two advantages of using rendering techniques in AR/VR applications.
(CO4) [Knowledge]
3. State whether or not rasterization causes 'jaggies', as well as the steps which should be performed to reduce 'jaggies'.
(CO1) [Knowledge]
4. List at least two applications of rendering techniques which has high implementation potential in the future.
(CO4) [Knowledge]
5. Mention at least two types of acceleration algorithms.
(CO4) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(5 X 10 = 50M)

6. Explain some common visual transformation techniques used in rendering.
(CO1) [Comprehension]

7. A project requires you to render many spheres on the scene with various levels of shine and finish, ranging from rough to smooth and matt to glossy. Explain how you would use microfacet theory of microsurfaces to produce this in the most efficient manner?
(CO3) [Comprehension]
8. Explain some light sources used in the rendering. Mention their properties and limitations. Is it possible to combine different types of light sources in a single scene? Elaborate your answer with examples.
(CO2) [Comprehension]
9. Explain the relationship between spectral power distributions and the perception of colour studied. Also explain colour triangle and colour matching functions.
(CO3) [Comprehension]
10. Your manager suggested you to develop and use a skybox in a game but you feel that it should not be used. Explain what are skyboxes and the situations in which they are suitable and the situations in which they are unsuitable.
(CO4) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(2 X 20 = 40M)

11. Examine the processes used in polygonal techniques. Explain in detail the methods of tessellation, consolidation and merging.
(CO4) [Application]
12. In order to get realistic images on screen determine the type of illumination that is preferred and explain why it is so. Investigate if it is possible to add depth to an object by use of layered materials. Illustrate how you would combine both illumination and materials to produce a very realistic effect.
(CO3) [Application]