


| Name:  |  |  |     |
|--|--|--|-----|
| Enrolment No:  |  |  |     |
| <b>UNIVERSITY OF PETROLEUM AND ENERGY STUDIES</b><br><b>End Semester Examination, May 2022</b>   |  |  |     |
| <b>Course: Augmented and Virtual Reality Development</b><br><b>Program: B.Tech CSE Graphics and Gaming</b><br><b>Course Code: CSGG3008</b> |  | <b>Semester: VI</b><br><b>Time : 03 hrs.</b><br><b>Max. Marks: 100</b>             |     |
| <b>Instructions:</b>   |  |  |     |
| <b>SECTION A</b><br><b>(5Qx4M=20Marks)</b>   |  |  |     |
| S. No.   |  | Marks  | CO  |
| Q 1  | Differentiate between AR and VR with examples.   | 4  | CO1 |
| Q2   | Discuss three pillars of virtual reality.  | 4  | CO1 |
| Q3   | Write short note on SLAM.  | 4  | CO1 |
| Q4   | Mention five callback functions in OpenGL.   | 4  | CO2 |
| Q5   | Mention 5 development SDKs for Augmented reality   | 4  | CO1 |
| <b>SECTION B</b><br><b>(4Qx10M= 40 Marks)</b>  |  |  |     |
| Q6   | Elaborate the process of creating an Augmented reality application using Vuforia. Mention its advantages/disadvantages over AR Foundation  | 10   | CO2 |
| Q7   | Describe various sensors/components of smartphones which play vital role in establishing an AR experience.   | 10   | CO1 |
| Q8   | Discuss the concept of ray casting; mention how it can be useful technique in AR/VR.   | 10   | CO2 |
| Q9   | Write down the steps to build a Maze based game in VR, Mention all the required steps using XR plugin.   | 10   | CO2 |
| <b>SECTION-C</b><br><b>(2Qx20M=40 Marks)</b>   |  |  |     |
| Q 10   | Assume that you have to design a virtual reality fps shooter game, discuss various components, which you will consider while designing the levels of the game ensuring that player doesn't feels fatigue while | 20   | CO3 |

|     |  |           |            |
|-----|--|-----------|------------|
|     | playing it in VR.  |           |            |
| Q11 | Consider you have to create an education based augmented reality application. Discuss which platform you will pick, marker or marker less; give justification to your choice. Discuss the various component in UI, which you will incorporate to make it a successful product. You can make necessary assumption about the content of product, which you wish to create; you can make use of wireframes for depicting the UI of the application. | <b>20</b> | <b>CO3</b> |