Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14VC3001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **3D VIDEO AND GRAPHICS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Marks** |
| 1. | a. | Describe the various types of Depth Cues that the brain uses to perceive depth. | (8) |
| b. | Explain the working of two Auto-sterescopic display system technologies. Which of these would you recommend for a home theatre setup? Quote your reasons. | (12) |
| (OR) | | | |
| 2. | a. | Explain the working of two Pseudo stereo systems that require the viewer to wear glasses to perceive depth. | (10) |
| b. | Contrast the various types of Parallax that is found in pseudo 3D theatrical projections. | (8) |
| c. | Explain why the concept of Cyclopean Eye is important in Human Vision System. | (2) |
| 3. | a. | List out the various Single and Multi-Camera Requirements for setting up a 3D Video studio. | (10) |
|  | b. | Explain the various Photometric Calibrations carried out on the cameras before recording for 3D Video generation. | (10) |
| (OR) | | | |
| 4. | a. | Outline the various design factors taken into consideration when Designing a 3D video Studio. | (12) |
|  | b. | What is a Macbeth Colour Chart? Give its Application. | (6) |
|  | c. | In a Camera, Name the parameter that defines the “Depth of Field”. | (2) |
| 5. | a. | With a Neat Flow Diagram, explain the stages involved in the process of 3D video production. | (16) |
|  | b. | What is a Free view point TV? Explain how it is different from 3D video. | (4) |
| (OR) | | | |
| 6. | a. | List out and summarize the various visual cues that can be used for computing 3D information from 2D images. | (12) |
|  | b. | With diagrams explain how Shape from Silhouette works. | (8) |
| 7. | a. | Define the various problems that crop up during Texture Generation for 3D video. | (8) |
|  | b. | Describe a Depth Map. What is the application of a Depth Map? | (4) |
|  | c. | Explain the various Methods of Combining the Partial Textures from multiple cameras to create the final Image. | (8) |
| (OR) | | | |
| 8. | a. | List and explain the Various techniques for estimating lighting information in a given scene? | (6) |
|  | b. | What is a Behavior Unit? | (2) |
|  | c. | Explain the process of generating subjective visualization from 3D video content by using Gaze estimation. | (12) |
|  | | **Compulsory:** |  |
| 9. | a. | Categorize the various types of True Three Dimensional Displays. | (4) |
|  | b. | Compare the types with each other giving example technologies that exist in the present. | (12) |
|  | c. | What are the problems found with each of these techniques that prohibit them from being commercialized? | (4) |