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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17CS3032** | **Duration :** | **3hrs** |
| **Sub. Name :** | **APPLIED MEDICAL IMAGE PROCESSING** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe the synopsis of the physics associated with most common medical imaging techniques and the intrinsic properties of imaging methods. | | CO1 | 20 |
| (OR) | | | | | |
| 2. | a. | | Discuss the clinical applications of radiotherapy, volume and surface rendering. | CO1 | 10 |
|  | b. | | Explain the important formats for 2D and 3D medical image data used in communication and storage methods | CO1 | 10 |
|  |  | | |  |  |
| 3. |  | Depict the vital role of transformations in intensity space in medical image processing and also discuss on parameterized sigmoid curves and windowing operations. | | CO2 | 20 |
| (OR) | | | | | |
| 4. |  | Briefly explain the following algorithms for segmentation based on intensity values   1. Thresholding 2. Region growing 3. Statistical shape models. | | CO3 | 20 |
|  |  | | |  |  |
| 5. | a. | | Describe the technique for visualization of tomographic image data using reformatting. | CO3 | 10 |
|  | b | | Mention the available tracking techniques that refer to the real-time measurement of six degrees of freedom of several rigid bodies. | CO3 | 10 |
| (OR) | | | | | |
| 6. | a. | | Explain the terms Maximum intensity projection (MIP) and Summed voxel rendering in detail | CO4 | 10 |
|  | b | | Compare Voxel and Triangulated surface rendering with example. | CO4 | 10 |
|  |  | |  |  |  |
| 7. |  | Catagorise and explain the image registration algorithms based on the type of image data or frames of reference they operate on. | | CO5 | 20 |
| (OR) | | | | | |
| 8. |  | Describe the projection process of a parallel beam CT using Radon Transform and CT reconstruction by filtered back projection. | | CO5 | 20 |
|  |  | | |  |  |
| **Compulsory**: | | | |  |  |
| 9. |  | Discuss on medical image archive, retrieval and communication. Also explain the importance of quality evaluation for compressed medical images. | | CO6 | 20 |