JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION-DECEMBER-2023

Ph. D. - I Semester

COURSE CODE (CREDITS): 21M1WEC232 (3)　　　　　　MAX. MARKS: 35

COURSE NAME: Medical Image Processing and Applications

COURSE INSTRUCTOR: Dr. Pardeep Garg　　　　　　MAX. TIME: 2 Hours

Note: (a) All questions are compulsory. (b) Marks are indicated against each question in square brackets. (c) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems.

Q1. Discuss with proper technical justification a few applications of Computed Tomography (CT) in medical imaging techniques.
[CO-4, 7 marks]

Q2. What is Magnetic Resonance Imaging (MRI)? *'MRI is considered as the most popular imaging technique for detecting brain tumors'* justify this statement with a few references of recent published literature.
[CO-4, 2+6=8 marks]

Q3. Define image classification. Discuss in detail a few feature extraction techniques for image classification.
[CO-3, 2+6=8 marks]

Q4. Compare and contrast between 'Supervised and Unsupervised Learning' approaches. Also, discuss their application domains.
[CO-3, 4+2=6 marks]

Q5. Discuss the functioning of Support Vector Machine (SVM) by describing the physical significance of its main components *'Support Vectors'* and 'Hyperplane' along with proper diagram.
[CO-3, 6 marks]