JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-VII Semester

COURSE CODE (CREDITS): 22B1WCE731 (3) MAX. MARKS: 35

COURSE NAME: REMOTE SENSING AND GEOMATICS

COURSE INSTRUCTORS: AKASH BHARDWAJ 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

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Q1. (a) How does unsupervised image classification differ from supervised classification, especially in terms of the training process? (3 marks) [CO 3]
(b) Define Line snapping and Point snapping in GIS. (2 marks) [CO 3]

Q2. (a) Differentiate between Geographic object and Geographic field with suitable examples. Define Tessellation in GIS data structure. (3 marks) [CO 2]
(b) What is Quad tree data structure and TIN in context with GIS. (2 marks) [CO 3]

Q3. (a) What is a shape file, and how is it used in GIS? (2 marks) [CO 2]
(b) What are the main components of a GPS system, and how do they collaborate to provide accurate positioning information? Explain with suitable example. (4 marks) [CO 1,3]

Q4. (a) What are some emerging trends or technologies related to GPS, and how might they impact future applications? (3 marks) [CO 1,3]
(b) What are the key advantages of using microwave frequencies in remote sensing applications, particularly in comparison to optical or infrared wavelengths? (3 marks) [CO 2]
(c) Calculate the length of antenna in case of SAR for electromagnetic wave having wavelength 4 cm, azimuth resolution of 0.8 m and the distance of the target is 1000 km. (4 marks) [CO 2]

Q5. (a) Explain the significance of spatial resolution in satellite image interpretation and its impact on the ability to identify and analyze small-scale features on the Earth's surface. (3 marks) [CO 1,2]
(b) How does the spectral signature of vegetation differ from that of built-up areas or water bodies, and how is this dissimilarity exploited for land cover mapping? (3 marks) [CO 2,3]

Q6. How do different remote sensing platforms, such as satellites, drones, and aerial vehicles, contribute to the acquisition of geospatial data for Earth observation? (3 marks) [CO 1,2]