Register Number:……..

KUMARAGURU
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**B.E/B.TECH DEGREE EXAMINATIONS: APRIL /MAY 2024**

(Regulation 2018)

Fourth Semester

**CIVIL ENGINEERING**

U18CEI4203**:** Remote Sensing and Geographic Information Systems

**COURSE OUTCOMES**

CO1: Analyze the principles and components of photogrammetry and remote sensing.

CO2: Process of data acquisition of satellite images and their characteristics.

CO3: Analyze an image visually and digitally with digital image processing techniques.

CO4: Explain the concepts and fundamentals of GIS.

CO5: Apply the knowledge of remote sensing and GIS in different civil engineering filed.

**Time: Three Hours** **Maximum Marks: 100**

**Answer all the Questions:-**
**PART A (10 x 2 = 20 Marks)**
**(Answer not more than 40 words)**

| | | | |
|---|---|---|---|
| 1. | Define Stefan-Boltzmann law. | CO1 | [$K_1$] |
| 2. | Outline about Rayleigh Scattering. | CO1 | [$K_2$] |
| 3. | Summarize passive remote sensing? | CO2 | [$K_2$] |
| 4. | Compare geosynchronous and sun synchronous orbit. | CO2 | [$K_2$] |
| 5. | What is geometric correction in digital image processing? | CO3 | [$K_1$] |
| 6. | List and explain the visual interpretation keys. | CO3 | [$K_2$] |
| 7. | Explain about spatial and non spatial data. | CO4 | [$K_2$] |
| 8. | What is the difference between a thematic map and topographic map. | CO4 | [$K_1$] |
| 9. | Extend about overlay analysis. | CO5 | [$K_2$] |
| 10. | Compare the advantages of vector and raster model. | CO5 | [$K_2$] |

**Answer any FIVE Questions:-**
**PART B (5 x 16 = 80 Marks)**
**(Answer not more than 400 words)**

| | | | | | |
|---|---|---|---|---|---|
| 11. | a) | Describe the basic principles of Remote Sensing. | 8 | CO1 | [$K_2$] |
| | b) | Illustrate the electromagnetic spectrum and its characteristics. | 8 | CO1 | [$K_2$] |
| 12. | a) | What is resolution of a sensor? Describe all sensor resolutions. | 10 | CO2 | [$K_2$] |
| | b) | Briefly discuss the importance and characteristics of any one meteorological satellite. | 6 | CO2 | [$K_2$] |
| 13. | a) | Illustrate about digital image processing. | 10 | CO3 | [$K_2$] |
| | b) | Explain the basic elements of image interpretation. | 6 | CO3 | [$K_2$] |
| 14. | a) | Briefly explain the types of map projection. | 10 | CO4 | [$K_2$] |
| | b) | Explain briefly the database management in GIS. | 6 | CO4 | [$K_2$] |
| 15. | a) | Enumerate the application of remote sensing and GIS in land use land cover mapping. | 8 | CO5 | [$K_3$] |
| | b) | Explain the application of remote sensing in traffic management. | 8 | CO5 | [$K_3$] |
| 16. | a) | Define and explain the components of GIS. | 8 | CO4 | [$K_2$] |
| | b) | Discuss the spectral signature of water, vegetation and soil with the help of spectral reflectance curve. | 8 | CO1 | [$K_2$] |

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