

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, December 2018**

**Programme Name: B. Tech. GIE**

**Semester : VII**

**Course Name : Applications of Geoinformatics**

**Time : 03 hrs.**

**Course Code : GIEG 404**

**Max. Marks: 100**

**Nos. of page(s) : 1**

**Instructions:**

**SECTION A**

**30 Marks**

S. No.		Marks	COs
Q 1	Flow diagram of approach of how RS & GIS may be used in mineral exploration.	8	CO2
Q 2	Write short note on geological structural folds revealed by drainage pattern.	8	CO1
Q 3	Describe briefly characteristics of seven major types of landforms / geomorphic units.	7	CO1
Q 4	How carbonate of sedimentary rocks – limestone and dolomite can be identified using remote sensing derived image and terrain characteristics.	7	CO2

**SECTION B**

**45 Marks**

Q 5	Describe with diagram characteristics of six major types of drainage pattern and its uses in geological studies including geomorphology.	15	CO1
Q 6	Give an account on rainfall runoff modeling using SCS method utilizing RS inputs and GIS. Write short note RS & GIS based national crop production forecasting project – FASAL	8 + 7	CO3
Q 7	Illustrate various types of digital change detection techniques (pixel level; feature level and object level. Discuss with diagram the approaches of change vector and image regression methods of digital change detection	7 + 8	CO3

**OR**

	Give an account of role of RS & GIS in various phases of flood disaster management and flow chart showing the concept of flood forecast modeling using remote sensing and ancillary data.	15	CO3
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**SECTION-C**

**25 Marks**

Q 8	Describe in details approaches of global monitoring and early warning of volcanic eruption using satellite remote sensing. Write with empirical relationships use of satellite derived various spectral indices for agricultural drought monitoring.	15 + 10	CO3
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**OR**

	Discuss NUIS (National Urban Information System) the objectives, data layers available and flowchart of methodology of this information system. Define landslide, list various strategies adopted for identifying terrain slope instability using remote sensing data; and discuss with flowchart of methodology of landslide hazard zonation and risk mapping using RS & GIS	10 + 15	CO3
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**SECTION A**

**30 Marks**

S. No.		Marks	COs
Q 1	Give a brief account on fold and fault – geological structural identification and mapping using remote sensing data.	8	CO1
Q 2	Discuss in brief approaches of discrimination of lithologies dominant with shale and carbonates using remote sensing data.	8	CO2
Q 3	Flow diagram of approach of use of RS & GIS in geomorphological mapping.	7	CO1
Q 4	With conceptual diagram explain the principles of use of aerial and satellite image interpretation in geology	7	CO1

**SECTION B**

**45 Marks**

Q 5	Schematic flowchart of methodology of national snow cover mapping project using RS satellite data. List RS derived indicators of irrigation system performance evaluation.	10 +5	CO3
Q 6	Discuss in details mineral exploration guides formed by rock alteration and role of remote sensing.	15	CO2
Q 7	Discuss satellite multi-temporal spectral mixture analysis method of LULC change analysis. Flowchart of methodology of landslide hazard zonation and risk mapping using RS & GIS.	8 + 7	CO3

**OR**

	Give flow charts of methodology of national wet land mapping project and approach of flood forecasting modeling using RS and GIS.	7 + 8	CO3
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**SECTION-C**

**25 Marks**

Q 8	Discuss approaches of studying evidence of neotectonism for earthquake / seismic hazard zonation. Describe satellite RS based approaches of monitoring and early detection of volcanic eruption.	15 + 10	CO3
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**OR**

	Describe methodology of active forest fire detection using temporal MODIS satellite. Discuss with illustrations image regression and change vector analysis methods of LULC change analysis using temporal remote sensing data	15 + 10	CO3
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