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Name of the College (Please tick, symbol is given)	:	COES	✓	CMES		COLS	
Program/Course	:	B.Tech CSE Oil and Gas Informatics					
Semester	:	VIII					
Name of the Subject	:	Spatial Data Analysis and Modeling					
Subject Code	:	GIEG413					
Name of Question Paper Setter	:	Bhagwant Singh					
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Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE":							
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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, April 2017



Program Name: B.Tech CSE OGI

Course Name : Spatial Data Analysis and Modeling

Course Code : GIEG413

No. of page/s: 2

Semester – VIII

Max. Marks : 100

Duration : 3 Hrs

All the questions of (Section A, Section B and Section C) are Compulsory

Section A

- Ques1:** What you understand by Scale? What is difference between small and large-scale map? [4]
- Ques2:** What do you understand by datum? What is the datum on India? [4]
- Ques3:** What are different types of error that occur while projecting any object in map? [4]
- Ques4:** Explain the raster data analysis “Viewshed”? [4]
- Ques5:** What do you understand by Buffer? [4]

Section B

- Ques6:** Design a Spaghetti model for UPES? [10]
- Ques7:** Explain Spatial Interpolation and illustrate different types of nonlinear interpolation? [10]
- Ques8:** Illustrate various steps required to determine the extent of spatial autocorrelation in given spatial data? [10]
- Ques9:** What are the factors that result into error in spatial analysis? Explain modifiable areal unit problem? [10]

Section C

- Ques1:** Design a Network Analysis Model (**Quantum-GIS**) for Chandigarh to achieve two objectives i.e. to identify shortest route between two locations and to define service area based on distance and time for different facilities. The seven different road types are as follows: [20]
- 1) V-1 Fast roads connecting Chandigarh to other towns.
 - 2) V-2 Arterial roads.
 - 3) V-3 Fast vehicular sector dividing roads.
 - 4) V-4 Meandering shopping streets.
 - 5) V-5 Sector circulation roads.
 - 6) V-6 Access roads to houses.
 - 7) V-7 Foot paths and cycle tracks

Ques2: Explain the following concepts (**any three**):

[20]

- a) Spatial Interaction
- b) Classification
- c) Lambert Azimuthal Projection
- d) Classification of Spatial Data

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Program Name: B.Tech CSE OGI
Course Name : Spatial Data Analysis and Modeling
Course Code : GIEG413
No. of page/s: 1

Semester – VIII
Max. Marks : 100
Duration : 3 Hrs

All the questions of (Section A, Section B and Section C) are Compulsory

Section A

- Ques1:** What you understand by DEM? What are the different ways to represent scale? [4]
Ques2: What do you understand by Geoid? How geoid can be useful in calculating height? [4]
Ques3: What do you understand by rubber sheeting? How many type of projection system are there? [4]
Ques4: Explain the raster data analysis “Watershed”? [4]
Ques5: Explain the term Cartography and its relevance in spatial analysis? [4]

Section B

- Ques6:** Describe different type of raster data analysis? [10]
Ques7: Explain the concept of kriging and illustrate with example difference between IDW and Kriging? [10]
Ques8: Explain Spatial Regression and its importance in spatial analysis? Define OLS model and its advantage? [10]
Ques9: Explain with appropriate example ecological fallacy and edge issue? [10]

Section C

- Ques1:** Design Overlay Analysis model (**Quantum-GIS**) for flood hazard mapping for Ganga river, Rishikesh , India? [20]
Ques2: Explain the following concepts (**any three**): [20]
a) Spatial correlation coefficient (r)
b) Geo-referencing
c) Miller Projection
d) Classification of Attribute Data