

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination May 12, 2021

Course: Advances in GIE
Program: B. Tech. GIE
Course Code: PEGI 4001

Semester: VIII
Time 03 hrs.
Max. Marks: 100

SECTION A

S. No.		Marks	CO
Q 1	<p>True or false (Each question carry one mark):</p> <p>a. The convolution error of ground return signal can be remove using full waveform laser data. (T/F)</p> <p>b. Logit transformation of data is used to convert, 0 to 1 or 0 to 100 proportion data to percentage. (T/F)</p> <p>c. The fourth moment of mean is known as Kurtosis of the histogram. (T/F)</p> <p>d. Self - calibrating bundle adjustment is used for calibration of metric camera (T/F)</p> <p>e. Random component of variation of variable can be effective handle by Factorial kriging. (T/F)</p>	5	CO2
Q2	<p>Multiple choice with single answer:</p> <p>The computed value of PDF with the given data – Z= 30; Mean= 20 and Variance = 15</p> <p>a. 0.051; b.; 0.015 c. 0.150 d 0.0037.</p>	5	CO4
Q3	<p>True or false (Each question carry one mark):</p> <p>a. CORS is useful for iono-spheric studies. (T/F)</p> <p>b. Increase in greenhouse gases concentration decrease tropopause height.(T/F)</p> <p>c. Degree of plausibility estimation is done in data driven geo-spatial modeling approach (T/F)</p> <p>d. EUROSUM is a hydrological model. (T/F)</p> <p>e. GNSS-R is used in tsunami warning system. (T/F)</p>	5	CO3
Q4	<p>Multiple choice with single answer:</p> <p>The value of temperature indices, computed using data of parameters – Tb = 30 deg.; Tlapse = 3 deg.; Z= 1500m; Zb = 1000m; CS factor = 2; LAI = 3 and LAI max = 5 is</p> <p>a. 28.5 b. 29.3 c. 26.7 d. 27.5</p>	5	CO2
Q5	<p>Multiple choice with single answer:</p> <p>Compute Information Value of a factor class responsible for presence of an causative factor using given data such as total nos. of grid of the study area = 500; total nos. of grids of causative factor = 200; total nos. of grids of factor class = 300 and total nos. of grids of causative factor in the factor class = 100</p> <p>a. 0.254 b. 0.135 c. – 0.477 d. – 0.355</p>	5	CO1

Q6	<p>True or False (Each question carry one mark):</p> <p>a. Terrain curvature can be used in computation soil and land evaluation indices (T/F)</p> <p>b. In kriging method – at a sample maximum value, the mean and variance of the sample data remain invariant in space. (T/ F)</p> <p>c. Both straight tangential and profile curvatures forms planar slope landform element. (T/F)</p> <p>d. The variation of terrain elevation is characterized by ah semi-variogram model.(T/F)</p> <p>e. Discrete laser remote sensing data is very useful for thematic mapping. (T/F)</p>	5	CO3
SECTION B			
	Instructions: Write short notes / Describe briefly		
Q 7	<p>Write short notes on the characteristics of aerial and space borne Laser remote sensing data used for thematic applications.</p> <p>Describe briefly the concept and approach of avalanche risk assessment using DEM and other spatial ancillary data,</p>	3 + 7	CO2
Q 8	<p>What are the differences between Ordinary and Universal kriging methods and briefly describe the processing steps of these two methods of kriging.</p> <p>Explain briefly the concept of use of geo-statistics in disease risk analysis (Take COVID 19 example in India)</p>	5 + 5	CO1
Q 9	<p>Describe the approach and analysis steps of one deterministic landslide hazard zonation geo-spatial modeling.</p>	5 + 5	CO3
Q 10	<p>Write brief notes on role of GNSS in monitoring and assessment of hydro-meteorological disasters.</p> <p>Explain the uses of GNSS in earthquake (including Tsunami) studies.</p>	5 + 5	CO2
Q 11	<p>Discuss with illustration the concept, inputs requirements and governing equations of water balance and evapotranspiration estimation of VIC hydrological model.</p>	5 + 5	CO3
SECTION-C			
Q12	<p>With example and description of analysis steps explain - one knowledge driven geospatial-modeling approach for mineral exploration.</p> <p>Discuss one semi- empirical modeling approach with flow diagram and empirical relationships of soil erosion quantification using integrated use of RS and GIS.</p> <p style="text-align: center;">OR</p> <p>Write the basic principle of GNSS – Meteorology and discuss in details approach of atmospheric PWV estimation using GNSS data.</p> <p>Illustrate with schematic diagram – three-tier client/server architecture of 3D Geo-visualization and analysis. List advantages of server side (Thin Client) and Client side (Thick Client) Web GIS.</p>	<p>10 + 10</p> <p>7 + 7 + 3 + 3</p>	CO3