

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2020

Programme Name : B.Tech GIE

Semester: VI

Course Name : GIS & Satellite Navigation Systems

Time: 02 hrs and 24 hrs

Course Code : PEGI 3002

Max. Marks: 100

No. of Page(s) :

Instructions:

SECTION A

No.	Question	Answer Choices								Marks	CO
		Spatial Autocorrection	Incorrect	Spatial Autocorrelation	Correct	Thematic Autocorrection	Incorrect	Thematic Autocorrelation	Incorrect		
1	Which of the following principles helps in Interpolation		Incorrect		Correct		Incorrect		Incorrect	1	CO2
2	In a semivariogram lag is-----	Grouped distance	Correct	Spatial Location	Incorrect	Same as range	Incorrect	Spatial dependance	Incorrect	1	CO4
3	If two points lie exactly at the same location, the nugget value should be-----	1	Incorrect	Equal to Range	Incorrect	0	Correct	Equal to Sill	Incorrect	1	CO4
4	An empirical variogram measures the spatial dependance as a fuction of	Wave length	Incorrect	Distance	Correct	Anisotropy	Incorrect	None of the given options	Incorrect	1	CO4
5	Minimum number of NAVSTAR GPS satellies in each orbit. Select one.	10	Incorrect	4	Correct	8	Incorrect	2	Incorrect	1	CO1
6	Total number of operational IRNSS satellites is----- . Select one.	7	Correct	6	Incorrect	3	Incorrect	2	Incorrect	1	CO1
7	IRNSS is also known as	Bhaskara	Incorrect	Gagan	Incorrect	Navic	Correct	GPS	Incorrect	1	CO1
8	1 nanosecond error in timing, will generate error in ranging equal to ----- . Select one	30 km	Incorrect	300 m	Correct	30 m	Incorrect	0.3 m	Incorrect	1	CO1

9	Hurricane paths can be best studied with the help of-----	Linear Directional Mean Tool	Correct	Directional distribution toolset	Incorrect	Standard distance tool	Incorrect	Multi distance spatial cluster analysis	Incorrect	1	CO2
10	The Index value in an Index model is calculated by-----	Setting the value of each criteria weight in a scale of 0 to 1	Incorrect	By standardizing the values for comparison of multiple variables.	Incorrect	Adding the weights of the individual criteria and dividing by the total of the weights	Correct	By rating the values between 1 and 10	Incorrect	1	CO4
11	The accuracy of geospatial data can best be measured by	Statistical Significance	Incorrect	Z value	Incorrect	P value	Incorrect	Root mean square error	Correct	1	CO2
12	The best results from cross validation are achieved when -----	Root mean square error is close to 1	Incorrect	Average error is close to zero	Incorrect	Average standard error is close to the root mean square error	Incorrect	All of the given options	Correct	1	CO2
13	If you want to find out how precipitation changes with elevation of an area you would choose-----	Kriging	Incorrect	Cokriging	Correct	IDW	Incorrect	Spline	Incorrect	1	CO4
14	In undulating terrain with abrupt changes where cliffs and valley occur, you would use	Exact Interpolator	Incorrect	Abrupt Interpolator	Correct	InExact Interpolator	Incorrect	Global Interpolator	Incorrect	1	CO4
15	An unknown point has three surrounding points of known values of 50, 32 and 50 and measured distances of 4,2,6 respectively. The value of the unknown point using IDW algorithm with a POWER of 2 would be -----	39.4	Incorrect	35.4	Correct	42.4	Incorrect	47.4	Incorrect	4	CO4

16	The minor axis in a standard deviational ellipse signifies	The minimum distance	Incorrect	The minimum angle of rotation	Incorrect	The minimum dispersion	Correct	The axis with minimum sampling points	Incorrect	1	CO2
17	The tool in spatial statistics that will show the direction of cholera spread -----	Standard Deviation ellipse	Correct	Standard distance	Incorrect	Anselin;s Moran's I	Incorrect	Geirs-Ord	Incorrect	1	CO2
18	Which of these measures is a measure of average of data	Median, range, normal distribution	Incorrect	Standard deviation, range and mean	Incorrect	Alpha, mean and mode	Incorrect	Mean, median and mode	Correct	1	CO2
19	What is probability?	The likelihood that your results are true	Incorrect	The central tendency	Incorrect	The likelihood that something occurs due to chance	Correct	The dispersion of the data	Incorrect	1	CO2
20	Which Interpolation method is best for datasets varying very gradually-----	Spline	Correct	IDW	Incorrect	Kriging	Incorrect	Natural neighbor	Incorrect	1	CO4
21	Which Interpolation method fits a linear regression fit between the sample points-----	Spline	Incorrect	IDW	Incorrect	Trend	Correct	Natural neighbor	Incorrect	1	CO4
22	Minimum no. of satellites that must be tracked to provide sufficient measurements to determine the 3D position and receiver clock offset.	2	Incorrect	4	Correct	6	Incorrect	8	Incorrect	1	CO1
23	Principle behind GPS position determination. Select one.	Two way ranging and timing	Incorrect	Control segment calculation and communication back to GPS receiver	Incorrect	One way ranging and timing	Incorrect	All of the given options	Correct	1	CO1

24	The NAVSTAR satellites are	non-geostationary	Correct	geostationary	Incorrect	polar	Incorrect	equatorial	Incorrect	1	CO1
25	The advantage of a Digital elevation model over TINs is that----	DEMs can directly accept inputs from elevation grids.	Correct	DEMs do not require resampling if irregularly spaced input data is used	Incorrect	All of the given options	Incorrect	DEMs can efficiently store data over varied terrain	Incorrect	1	CO1
26	Which of the following is not a source of obtaining DEM data	Cartosat	Incorrect	Landsat	Correct	Aster	Incorrect	SRTM	Incorrect	1	CO2
27	Which of the following models considers presence of some randomness in its variables	Stochastic model	Correct	Deterministic model	Incorrect	Deductive model	Incorrect	Inductive model	Incorrect	1	CO4
28	GWR analysis uses a-----	None of the given options	Incorrect	Logistic Regression model	Incorrect	Local Regression model	Incorrect	Linear Regression model	Correct	1	CO3
29	The most critical component of spatial statistics is-----	Distance	Incorrect	Variability	Incorrect	Proximity	Correct	All of the given options	Incorrect	1	CO2
30	In Ripley's K function if the average number of neighbors for evaluation distance is greater than average concentration of features throughout study area the distribution is-----	Clustered	Correct	Dispersed	Incorrect	Random	Incorrect	Isolated	Incorrect	1	CO3
31	If the data in a QQ plot shows a non normal distribution what would you use to make it near normally distributed.	Histogram Equalization	Incorrect	Linear Stretching	Incorrect	Resampling	Incorrect	None of the given options	Correct	1	CO3
32	Which of the following CO type represents an outlier-----	HH	Incorrect	HL	Correct	LL	Incorrect	HV	Incorrect	1	CO3
33	The null hypothesis in spatial statistics is-----	Complete Spatial Randomness	Correct	Complete spatial autocorrelation	Incorrect	Complete dispersion	Incorrect	Complete closeness	Incorrect	1	CO2

SECTION B

Q 1.	Comment on the general guidelines of choosing the best interpolation method for your application. How do you know which interpolated surface is best?	10	CO4
Q 2.	Discuss one different application individually, where you would choose IDW and Kriging to be the best Interpolation technique for creating the Interpolation surface. Specify what made you choose the selected method.	10	CO4
Q 3.	Discuss the potential applications of spatial statistics (including the tools used) in any TWO problems related to groundwater.	10	CO2
Q 4.	Illustrate the applications of regression modeling in GIS by citing two examples other than the one discussed in the class where regression helps in spatial analysis.	10	CO3

