Name:

Enrolment No:

UPES
UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Geostatistics — **Semester: VI**
Program: B.Tech Mining — **Time 03 hrs.**
Course Code: GSEG 327 — **Max. Marks: 100**

Instructions: Answer all questions. However, there are internal choice in some questions.

SECTION A

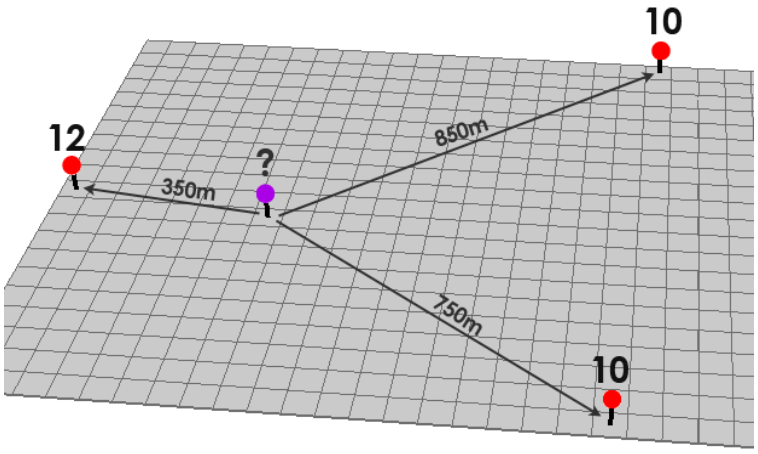
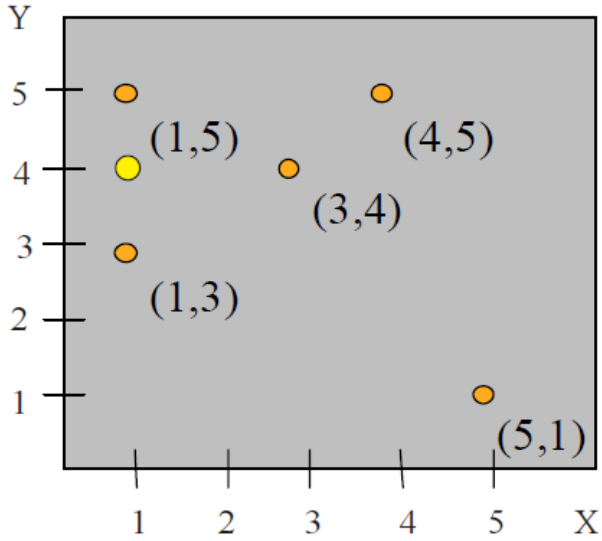
S. No.		Marks	CO
Q 1	Define the term 'Semivariogram' with suitable sketch diagram	5	CO1
Q 2	Why Spherical model is considered to be the more appropriate model for data modelling?	5	CO1
Q 3	Differentiate between autocorrelation and correlation coefficients with example	5	CO2
Q 4	Justify the statement that sample data collected for geostatistical modelling is required to be normally distributed	5	CO2

SECTION B

Q 5	Draw a semivariogram for a lag distance of 5,10,15 units for the data value of distances (1,2,3,4,5……50) with semivariances of (2,4,6,8,….100) respectively	10	CO3
Q 6	How Geostatistics plays an important role in surface generation of Mineral prospective map?	10	CO3
Q 7	Find the correlation coefficient between Cr and Ni in a given set of observations from mineral potential area considering linear relationship. . Ni (ppm) / Cr (ppm) 5 / 4 10 / 6 15 / 9 20 / 10	10	CO4
Q 8	Evaluate the thiessen polygon method (Triangulated Irregular network) of interpolation with sample data **OR** Develop a statistical method for tonnage estimation with suitable example	10	CO4

SECTION-C

Q 9	Find out the value at unknown location from given figure using Inverse Distance	20	CO5

	Weightage (IDW) method considering that weightage is inversely proportional to distance. Evaluate the effect of changing the power of distance on weightage of known points.  		
Q 10	Demonstrate the basic concept of Ordinary Kriging with given Sample data from figure, Take location (1,4) as unknown point for manipulation.  **Values:** at (1,5) observe = 100 at (3,4) observe = 105 at (1,3) observe = 105 at (4,5) observe = 100 at (5,1) observe = 115 **OR** Critically examine the various fitting model available in Kriging. Evaluate the key difference of Block kriging, probalistic kriging, Non-linear kriging, Universal kriging from Ordinary kriging	**20**	**CO5**
	***END**		