

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**Online End Semester Examination, December 2020**

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

**Semester : V**

**Course Name : Statistical methods in Geosciences**

**Time : 03 hrs**

**Course Code : PEGS 3014**

**Max. Marks: 100**

**Nos. of page(s) : 2**

**Instructions:** Answer each question in separate page.

**SECTION-A (6 x 5=30)**

**Attempt all questions**

Sl. No.	Answer in one or two lines	Marks	CO
Q1	Why variance of a sample population cannot be negative?	5	CO1
Q2	Describe central limit theorem.	5	CO1
Q3	For standardized normal distribution what is the value of mean?	5	CO1
Q4	What is factor in an experimental unit?	5	CO3
Q5	For comparing two population variances what statistical test we perform?	5	CO2
Q6	When t-distribution approximates a normal distribution?	5	CO2

**SECTION-B (5 x 10=50)**

**Attempt all questions.**

	Answer in few lines		
Q7	What is nugget, span and sill in a semivariogram model?	10	CO4
Q8	What is the difference between point estimator and interval estimator? Explain with example.	10	CO3
Q9	What is Type I and Type II error?	10	CO2
Q10	What is kriging in special statistics and how it is practiced?	10	CO5
Q11	Over a long period of time it has been observed that a given rifleman can hit a target on a single trial with probability equal to 0.8. Suppose he fires four shots at the target. a. What is the probability that he will hit the target exactly twice? b. What is the probability that he will hit the target at least once?	10	CO1

**SECTION-C (20 x 1=20)**

**Attempt all**

Q12	Labels on 1-gallon cans of paint usually indicate the drying time and the area that can be covered in one coat. Most brands of paint indicate that, in one coat, a gallon will be covered between 250 and 500 square feet, depending on the texture of the surface to be painted. One manufacturer however claims that a gallon of its paint will cover 400 square foot of area. To test this claim a random sample of ten 1-gallon	20	CO2
-----	---	----	-----

cans of white paint were used to paint ten identical areas using the same kind of equipment. The actual areas (in square feet) covered by these 10 gallons of paint are given here:

310 311 412 368 447

376 303 410 365 350

Do the data present sufficient evidence to indicate that the average coverage differs from 400 square feet? Present your evidence with 90% confidence level.

P value of the critical test statistics is 1.383 for 90% confidence level.