University of Engineering & Management, Kolkata

2nd Term Examination, November, 2022

Programme Name: B.Tech (CSE / CSE (AIML) / CSE (IOT, CYS, BCT))

Semester: 3rd

Course Name: MATHEMATICS - III

Course Code: BSC301

Full Marks: 30 **Date: 4th November, 2022** **Time: 9:30 am to 10:30 am**

GROUP – A (10 marks)

Answer the following questions. Each question is of 2 marks **5 x 2 = 10**

1. **i)** Explain the following terms : Population , Sample.
   ii) Explain the following terms : Parameter , Statistics.
   iii) Explain Type I and Type II error.
   iv) What should be the calculated value of the test statistics to reject null hypothesis if the acceptance interval is (-4.6,6.8)?
   v) Find the s.d. of the following observation 2,3,6.

GROUP – B (10 marks)

Answer the following questions. Each question is of 5 marks **2 x 5 = 10**

2. The marks obtained by 17 students in an examination have a mean 57 and variance 64. Find 99% confidence interval for the mean of the population of marks assuming it to be normal. [Given that $P(t>3250)=0.005$ for 16 d.f
3. From the random sample of size 49 drawn from a normal population of s.d.2 find the 99% confidence interval of the population mean. Find the interval if the mean of such a sample is 3. [Given $P(0<Z<2.58)=0.495$].

GROUP - C (10 Marks)

Answer the following question. The question is of 10 marks **1 x 10 = 10**

4. A random sample of 900 members has a mean 3.4 cms. Can it be reasonably regarded as a sample from a large population of mean 3.25 cms and standard deviation 2.61 cms? Test at 5% significance level. Given that the significant value of Z at 5% level of significance is 1.96.

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