Ahsanullah University of Science & Technology

BSc (Hons) in CSE

Class Test - II

Subject: Mathematics III (MATH 2101)

This class-test is due on Saturday September 05, 2020. Please upload the answer script of this class-test on google classroom. If it is not possible for you, then send your answer script in a pdf file with an explanation to Dr. Md Rezaul Karim (mrkarim5556@gmail.com) via email. The latter (sending pdf to my email) should however be avoided. Answer script that come in too late get a zero mark. If you do have a serious problem with the class-test (e.g. you really do not understand the questions), then you can contact with me. However, this should really be an exception.

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1. Dottie's Tax Service specializes in federal tax returns for professional clients, such as physicians, dentists, accountants, and lawyers. A recent audit by the IRS of the returns she prepared indicated that an error was made on 7% of the returns she prepared last year. Assuming this rate continues into this year and she prepares $(z + 80)$ returns, where z is the sum of the last two digits of your class ID number (e.g., $z = 4 + 5 = 9$ if your id is 01466345). What is the probability that she makes errors on:

(a). More than six returns?

(b). At least six returns?

(c). Exactly six returns?

2. Suppose you have a population of size 10. The observations are 2, 4, 8, 7, 10, 5, 3, 0, 11, 5.

(a). What is the population mean?

(b). What is the sampling distribution of the sample mean for samples of size 2?

(c). What is the mean of the sampling distribution?

(d). What is the mean of the sampling distribution?

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3. The management of White Industries is considering a new method of assembling its golf cart. The present method requires a mean time of $5(z + 1)$ minutes to assemble a cart, where z is the sum of the last two digits of your class ID number (e.g., $z = 4 + 5 = 9$ if your id is 01466345). The mean assembly time for a random sample of 24 carts, using the new method, was $5(z + 1.2)$ minutes, and the standard deviation of the sample was 2.7 minutes. Using the 0.10 level of significance, can we conclude that the assembly time using the new method is faster?