INDIAN INSTITUTE OF INFORMATION TECHNOLOGY DHARWAD

END-TERM EXAMINATION-2021

DS105 --PROBABILITY and STATISTICS

Date: 19-07-2021 Duration: 90 minutes Max. Marks:30 Reg. No.:

Note:

- *Clearly mention the assumptions made (if any) in derivations or solving problems.*
- *Answer all questions, briefly to the point. All questions carry equal marks.*

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1. Let X~P(λ). By using MGF, find the mean and standard deviation. **(2+3=5M)**
2. Explain the Normal distribution and find the mean and SD. **(2+3=5M)**
3. Let X~N(μ,σ^2). Find the MLE of μ and σ^2 when both the parameters known. **(2+3=5M)**
4. Find the moment estimators of 'a' and 'b' to the following uniform distribution. **(5=5M)**

   f(X=x)={1/(a-b)}; a<x<b and equal to zero otherwise.
5. Let X~B(n,p). Find the MLE of parameter 'p' and also find its variance. **(2+3=5M)**
6. A sample of 63 students taken from a normal population with a SD of 4.5. Sample mean is 65. Determine the 90% confidence intervals for the population mean. **(Z=2.648) (5=5M)**