Faculty of Computers & Artificial Intelligence
1st Term (2019) Final Exam
Class: 2nd Year Students (Scientific Computing Major) **Course Code:** : SCC223
Subject: Probability & Statistics

Benha University
Date: 5/ 1 /2020
Time: 3 hours
Total Marks: 75 Marks
Examiner(s): Dr/ *Amal*

Answer the following questions [5 questions in 2 pages]:

Question No. 1 [10 Mark

True or false for the following statements.

1- Bernolli process: *q is* number of success. ✗
2-If $p \to -\infty, n \to 0, np \to \mu$, *then* $b(x;n,p) \to p(x;\lambda\mu)$. ✗
3- Area right to Z = -2.3 is .0208. ✗
4- For standard normal dist $E(X) = 0$, $V(X) = 1$ ✗ ✓
5 – $\mu = \sigma^2$ for poisson dist ✓

Question No. 2 [15 Mark

$f(x,y) = \frac{2}{5}(2x + 3y) \qquad 0 < x < 1, \quad 0 < y < 1$

From the above pdf *find the following:*

1- g(X), *h(Y)*, ✓ 2- *f* (Y / X), *f* (X / Y) ✓

3- $p(\frac{1}{2} \le Y / X = 1)$, ✓ 4 - $p(X \le 1 / Y = \frac{1}{4})$ ✓

5-*Is X, Y indep-* ✓

Question No. 3 [15 Mark

$f(x,y) = (x + y) \qquad 0 < x < 1, \quad 0 < y < 1$

From the above pdf *find the following:*

1- g(X), *h(Y)*, ✓ 2-E(X), *E(Y)*. ✓

3-σ^2 (X), σ^2 (Y), ✓ 4- E(4X+5), σ^2 (2Y-3) ✓

Question No. 4 [20 Marks]

I-The mean life (normal dist) for batteries 4 and standard deviation .5 find the probability *that* x will :

1- lees than 3.3 2- more than 5.5 3-between 2.7 and 4.8

II-The prob that a people recovers from delicat heart opreration is 0.8 . If 10 people having this opreration. Find the probability *that:*

1- at least 7 survive 2- exactly 5 survive (Binomial dist-)

3-from 2 opreration to 9 survive 4- at most 4 survive 5- Find, μ, σ^2

Question No. 5 [15 Marks]

I- Prove the Bays· Rule

II- A manufacturing firm 3 plans for development a product, plans 1, 2, 3 are used for 30%, 30%, 40%, of products. The defective rate for the 3 plans are 0.02, 0.05, 0.03. of products. *find the following* (Bays· Rule)

1- P (A), 2- *P(B,/A), r=1, 2, 3,*

GOOD LUCK

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