HIME HORK-2 Name: Sai Robit Kalyon Gordhom Studenzo: 1002070794 Emaillo: Sxg0724@ mavs. Uta.edu. (4.4) Given Confinuous Jundom Humber problem (SOI)

SoI)

Lini= Sk-x150 for Ozneloyen

o for our other to Need to findok, @ failur in 5 years 3 Entition a) O => Standn21 $\int f(n) dx_2 \int (k-x) 50) dx_2 \quad kx = x^{\gamma} \Big|_{0}^{10}$ j. 1011-1:1 :> 10k: 2 12:115:0.2

BB p & x < 5 4 = \ (0.2-3/50) ch = 0.21-27 \ 5.5 \ : 1-0.25:075

Sol) Frondom Monible = 12 Second ?

If then bend to point at 10.00 But print 10.01

$$\begin{array}{ll}
\vdots (60 \text{Second } S) & p(x \cdot 60) \\
\vdots (x) = 1/\lambda = 12 & = 1 - p(xx, 60) \\
\vdots & \vdots & \vdots & \vdots \\
p(xx, a) = e^{x} & = 1 - e^{5}
\end{array}$$

$$\begin{array}{ll}
\vdots & \vdots & \vdots & \vdots \\
\vdots & \vdots & \vdots & \vdots \\$$

 $\partial B = (x) = \int_{0}^{\pi} (0.2 - 2/50) dx = 0.22^{4} = \frac{x^{3}}{35} \Big|_{0}^{10}$

(4.7) Given the Expectation of Exponential.

= 10 - 20 = 31/3 (D) 3.33 years

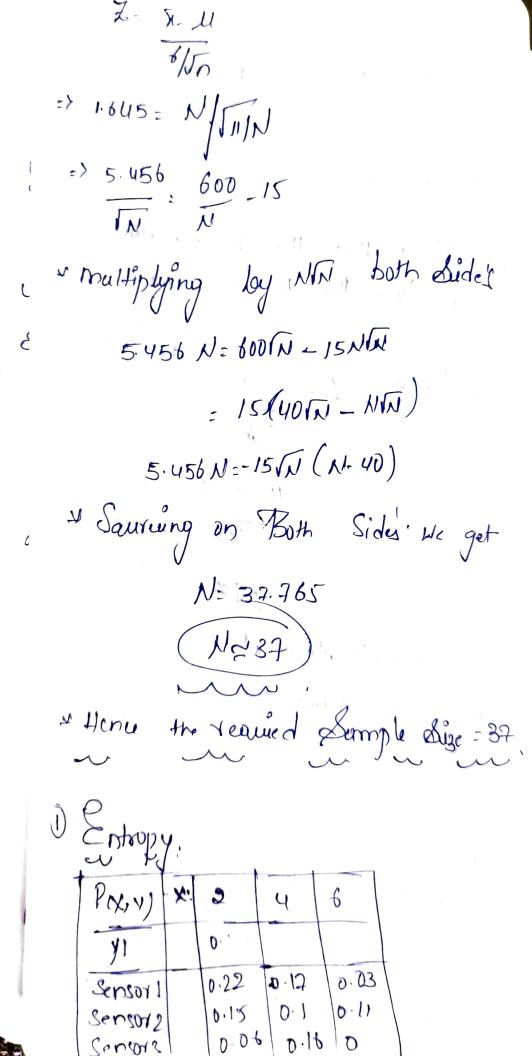
4.30) let x: Connection time of the line 2 Sol) Thun Xn Grammar (3,2) :1 few : 23 x3-1 = 2x une - 2x , xx0

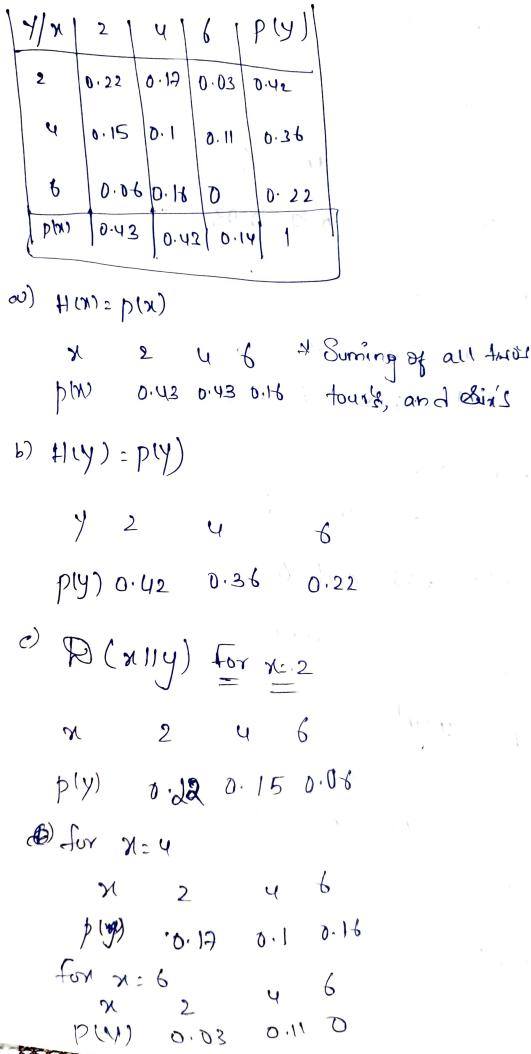
= 0. 9926

let y2 Connection time of the line I Then you uniform (30,50) => -1(y) = 1 = 1 , y \ [30, 50] P (Line O tale more thon 30 Sewado E) D(x x 30/60) p(x x 0.5) = Sunverie dx = 0.91978 p (line & face more thon 30 Sewas) : p (yr 30) 2 | f 1/20 dy = 1 Pravise of possibility:

p [line () connected) p(x)0.5) + plline @ 2 also connected) p(xx30 = 0.8×0.91978 +02x1 : 0.935

4.31) Given 801) The population mean time to install one file les 154 The population Variance 5 = 11 see The Sample Size n= 68 files a) The perobability that the kitcle parlinge is upgraded in less than 12 min = 12 x 60 58 By using I testing. Z= x-4 = 10.59-15 -4.41 J1168 - 0.402 = p[Z < -2.20] = 0.0143 b) Given Somph Size = N & 10 mins to upload whole parluge :10 x 60 I the probability that the whole paulinge is upgraded in less than 10 mins: 0.95 By using Standard edlormal devication)





g. H(y)-H(y/x) in the second second Hly): ply) 2 Dia) p.13 p.13 p.19 HIA/X) 0.13 0.13 0.14 H1Y)-H(W/X): 0.45+0.10+0.14-0.47 = 0.15 year of his began in

Soi) The entropy p.d=(5.8) bit's Soi) one Hartley = log11 bit = 3.322 bits One Hartley = 2.303 nod8
Entropy: 5.8 bits This information is enough to colour hartly Entropy: 5.8 Hantley's 3.322
In Not's Entropy: 1.746 +2.303 Entropy: 4.021 not-S M. M. M. M.
(3) (Given (QAm):) Darnto lan enwode 16 Sol) I The Original alphabet is 8 bits long with values between 0 and 255 (or byth 300) The maximum Expected lode kingth of QAMIG Symbols is 4.

This is belowe there are (16) possible value that Con be encoded by a RAMIG Symbol So each Symboli con be dend as con-- taing 4 leits of the given duta. The Original is given is 8 bûts long. I There form the aleone Statement the Expected take length is (4 DAMIG). Symbols. Athe maximum Expected Gode length of Jam 16: 4 + and given the proablity distribution given's n: 255, p: 0.19 I we also know that probability of the geometric distribution is dirived from the Binomial distribution, and given from (3 a) be know that maximum Expected code length of 4 Symbole.