Start ✓ 08/Nov/2020

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(Probability & Statistics)

ABDUL RAFEH_CSC-205_104 Assignment # 01

Q: 2.21 :- Solution

CI	F	X	XF
40-49	1	44.5	44.5
50-59	7	54.5	381.5
60-69	7	64.5	451.5
70-79	3	74.5	223.5
80-89	6	84.5	507
90-99	10	94.5	945
100-109	5	104.5	522.5
110-119	4	114.5	458
120-129	2	124.5	249
130-139	3	134.5	403.5
140-149	0	144.5	0
150-159	2	154.5	309
	Sum = 50		Sum (XF) = 4495

mean $(\bar{x})$ = 4495/50 = 89.9 Btus

$(x-\bar{x})^2$		f(x)
$(44.5-89.9)^2$	= 2061.16	2061.16
$(54.5-89.9)^2$	= 1253.16	8772.12
$(64.5-89.9)^2$	= 645.16	4516.12
$(74.5-89.9)^2$	= 237.16	711.48
$(84.5-89.9)^2$	= 29.16	174.96
$(94.5-89.9)^2$	= 21.16	211.6
$(104.5-89.9)^2$	= 213.16	1065.8
$(114.5-89.9)^2$	= 605.16	2420.64

$(124.5-89.9)^2 = 1197.16$	2394.32
$(134.5-89.9)^2 = 1989.16$	5967.48
$(144.5-89.9)^2 = 2981.16$	0
$(154.5-89.9)^2 = 4173.16$	8346.32
	Sum = 36642

σ^2 VAR $= 36642/50 = 732.84$

$sd = \sqrt{732.84} = 27.071$ BTUs Ans

Q: 2.24. Solution

	CI	F	X	XF
	0-1	4	0.5	2
	1-2	8	1.5	12
	2-3	4	2.5	10
	3-4	5	3.5	17.5
	4-5	2	4.5	9
	5-6	1	5.5	5.5
	6-7	1	6.5	6.5
		Sum. 25		Sum(XF). 62.5

mean $(\tilde{x}) = 62.5/25 = 2.5$

$(x-\tilde{x})^2$	F(x)
$(0.5-2.5)^2 = 4$	16
$(1.5-2.5)^2 = 1$	8
$(2.5-2.5)^2 = 0$	0
$(3.5-2.5)^2 = 1$	5
$(4.5-2.5)^2 = 4$	8
$(5.5-2.5)^2 = 9$	9

$(6.5-2.5)^2 = 16$	16
	Sum = 62

σ^{M2} VAR = $62/25 = 2.48$

sd = $\sqrt{2.48} = 1.574$ Ans

Q: 2.25 :- Solution:

CI	F	X	XF
0-1	4	0.5	2
1-2	2	1.5	3
2-3	14	2.5	35
3-4	10	3.5	35
4-5	16	4.5	72
5-6	18	5.5	99
6-7	10	6.5	65
7-8	6	7.5	45
	Sum = 80		Sum(XF) = 356

Mean $(\bar{x})$ = $356/80 = 4.45$

$(x-\bar{x})^2$	f()
$(0.5-4.45)^2 = 15.6025$	62.41
$(1.5-4.45)^2 = 8.7025$	17.405
$(2.5-4.45)^2 = 3.8025$	53.235
$(3.5-4.45)^2 = 0.9025$	9.025
$(4.5-4.45)^2 = 0.1$	1.6
$(5.5-4.45)^2 = 1.1025$	19.845
$(6.5-4.45)^2 = 4.2025$	42.025

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End. Pg.

$(7.5-4.45)^2 = 9.3025$ | 55.815

Sum = 26136

σ^2 VAR = 261.36/80 = 3.267

Sd = $\sqrt{3.267}$ = 1.8074 Ans.