

ANSWER KEY

FIRST YEAR HIGHER SECONDARY EXAMINATION MARCH 2021

PART III

SUBJECT : STATISTICS

CODE NO : FY232

SORES : 60

VERSION : D

TIME : 2 HOURS

Q No	Sub Qns	Answer Key/Value Points	Score	Total score												
1	a)	Indirect Oral Investigation	1	3												
	b)	Explanation of Focus group Discussion	2													
2	a)	Sankhya	1	3												
	b)	Name four Divisions (Any explanation on NSSO - -2 score)	4X(1/2)													
3	a)	Dichotomy or Two way classification	1	3												
	b)	Name four Classification	4X(1/2)													
4	a)	Histogram	1	3												
	b)	Simple Bar diagram--- Rough sketch Multiple bar diagram ----Rough sketch	1 1													
5	a)	10	1	3												
	b)	Any four properties	4X(1/2)													
6	a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Stream/ Gender</th> <th style="width: 25%;">Science</th> <th style="width: 25%;">Arts</th> <th style="width: 25%;">Commerce</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Female</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Stream/ Gender	Science	Arts	Commerce	Male				Female				2	3
		Stream/ Gender	Science	Arts	Commerce											
		Male														
Female																
b)	100	1														
7	a)	29	1	3												
	b)	N=50, $\bar{X} = 65$ Sum of Observations=50x65=3250 Correct Sum=3250-80+18=3188 Correct Mean=Correct Sum/n=3188/50=63.76 (For finding Mean with out correct sum2 score)	4X(1/2)													
8	a)	Independent Events	1	3												
	b)	P(A/B)=P(A and B)/P(B) P(A and B)=P(B).P(A/B)=0.4X0.6=0.24	1 1													

19	a)	Qualitative	1	4																						
	b)	Three differences -Primary and Secondary data (definition give 1 score)	3																							
20		<table border="1"> <thead> <tr> <th>X</th> <th>Y</th> <th>XY</th> </tr> </thead> <tbody> <tr> <td>12</td> <td>14</td> <td>168</td> </tr> <tr> <td>15</td> <td>13</td> <td>195</td> </tr> <tr> <td>18</td> <td>17</td> <td>306</td> </tr> <tr> <td>17</td> <td>15</td> <td>255</td> </tr> <tr> <td>20</td> <td>13</td> <td>260</td> </tr> <tr> <td>Total</td> <td>82</td> <td>72</td> <td>1184</td> </tr> </tbody> </table>	X	Y	XY	12	14	168	15	13	195	18	17	306	17	15	255	20	13	260	Total	82	72	1184	2	4
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Total	82	72	1184																							
		<p>$N=5, \sum x =82, \sum y =72, \sum xy =1184$</p> <p>$cov(x,y)=(\sum xy)/n- (\sum x /n)X(\sum y /n)$</p> <p>$= (1184/5) - ((82/5)(72/5))$</p> <p>$=236.8-236.16=0.64$</p> <p>(Give 3 score if only table is correct)</p>	1 1																							
21		<p>Set I</p> <p>$C V=(S.D/A.M)X100$ $=(21/35) X100=60$</p> <p>Set II</p> <p>$C V=(16/22.85)X100=70.02$</p> <p>C V is less for Set I</p> <p>Set I is more consistent(Conclusion is not necessary)</p>	1 1 1 1	4																						
22	a)	Histogram	1	4																						
	b)	<table border="1"> <thead> <tr> <th>Class</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>40-50</td> <td>6</td> </tr> <tr> <td>50-60</td> <td>8</td> </tr> <tr> <td>60-70</td> <td>12</td> </tr> <tr> <td>70-80</td> <td>14---Model Class</td> </tr> <tr> <td>80-90</td> <td>7</td> </tr> <tr> <td>90-100</td> <td>3</td> </tr> </tbody> </table> <p>Mode = $l + ((f_1 - f_0)c) / (2f_1 - f_0 - f_2)$ $l=70, f_1=14, f_0=12, f_2=7, c=10$ Mode = $70 + ((14-12)X10) / (2X14-12-7)$ $=70+2.22$ $=72.22$</p> <p>(Finding mode by drawing histogram3 score)</p>	Class		Frequency	40-50	6	50-60	8	60-70	12	70-80	14---Model Class	80-90	7	90-100	3	1/2 1 1 1/2								
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40-50	6																									
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80-90	7																									
90-100	3																									

23	a)	CSO - Explanation	2	4																						
	b)	Any applied branch -explanation (Name give 1 score)	2																							
24		<p>Ascending order, 3,4,7,9,11,14,17,20,22,24,27 n=11 $Q1 = ((n+1)/4)^{\text{th}}$ item $= 3^{\text{rd}}$ item=7 $Q3 = 3X((n+1)/4)^{\text{th}}$ item=9th item=22 $Q.D = (Q3-Q1)/2$ $= (22-7)/2 = 7.5$ (Finding Q.D with out arranging in order1 score)</p>	1 1 1 1/2 1/2	4																						
25	a)	<p>Symmetry -> mean=median=mode kurtosis -> relative peakedness or flatness of a curve Positive skewness-> mean > median>mode Negative skewness -> mean<median<mode</p>	4X(1/2)	4																						
	b)	<p>Coefficient of skewness=(mean -mode)/(standard deviation) $= (52-50)/6 = 0.33$</p>	1 1																							
26	a)	14	1	4																						
	b)	<table border="1"> <thead> <tr> <th>Class</th> <th>Tally mark</th> <th>frequency</th> </tr> </thead> <tbody> <tr> <td>0-5</td> <td>III II</td> <td>5</td> </tr> <tr> <td>5-10</td> <td>IIII II</td> <td>7</td> </tr> <tr> <td>10-15</td> <td>IIII I</td> <td>6</td> </tr> <tr> <td>15-20</td> <td>III</td> <td>3</td> </tr> <tr> <td>20-25</td> <td>IIII</td> <td>5</td> </tr> <tr> <td>25-30</td> <td>III</td> <td>4</td> </tr> <tr> <td></td> <td>Total</td> <td>30</td> </tr> </tbody> </table>	Class		Tally mark	frequency	0-5	III II	5	5-10	IIII II	7	10-15	IIII I	6	15-20	III	3	20-25	IIII	5	25-30	III	4		Total
Class	Tally mark	frequency																								
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25-30	III	4																								
	Total	30																								
27	a)	Median	1	4																						
	b)	<p>Average Speed= $n / \sum 1/X$ $= 3 / (1/45 + 1/50 + 1/55)$ $= 3 / (0.022 + 0.020 + 0.018)$ $= 3 / 0.06 = 50 \text{ km/hr}$ (Calculating average by AM 2 score)</p>	1 1 1/2 1/2																							
28	a)	9	1																							

	b)	<p>Ascending Order 38,39,42,45,49,50,54 Median=Middle value=45</p> <table border="1" data-bbox="395 271 1232 651"> <thead> <tr> <th>X</th> <th>I X-Median I</th> </tr> </thead> <tbody> <tr><td>38</td><td>7</td></tr> <tr><td>39</td><td>6</td></tr> <tr><td>42</td><td>3</td></tr> <tr><td>45</td><td>0</td></tr> <tr><td>49</td><td>4</td></tr> <tr><td>50</td><td>5</td></tr> <tr><td>54</td><td>9</td></tr> <tr> <td>Total</td> <td>34</td> </tr> </tbody> </table> <p>M.D= $(\sum IX - AI) / n$ = 34/7=4.85 (M.D about any average give full score)</p>	X	I X-Median I	38	7	39	6	42	3	45	0	49	4	50	5	54	9	Total	34	1/2 1/2 1 1	4																								
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Total		50	1285		36635																															
		$S.D = \sqrt{\sum fx^2/N - (\sum fx/N)^2}$ $= \sqrt{36635/50 - (1285/50)^2}$ $\sqrt{732.7 - 660.49} = 8.49$	1 1/2 1/2																																	
31	a)	$n_1=550 \quad n_2=65 \quad \bar{x}_1 = 5000 \quad \bar{x}_2 = 4500$ Combined Mean = $(n_1 \bar{x}_1 + n_2 \bar{x}_2) / (n_1 + n_2)$ $= (550 \times 5000 + 650 \times 4500) / (550 + 650)$ $= 4729.16$	1 1 1/2 1/2																																	
	b)	<table border="1"> <thead> <tr> <th>Class</th> <th>x</th> <th>f</th> <th>x.f</th> </tr> </thead> <tbody> <tr> <td>40-49</td> <td>44.5</td> <td>3</td> <td>133.5</td> </tr> <tr> <td>50-59</td> <td>54.5</td> <td>5</td> <td>272.5</td> </tr> <tr> <td>60-69</td> <td>64.5</td> <td>6</td> <td>387</td> </tr> <tr> <td>70-79</td> <td>74.5</td> <td>9</td> <td>670.5</td> </tr> <tr> <td>80-89</td> <td>84.5</td> <td>8</td> <td>676</td> </tr> <tr> <td>90-99</td> <td>94.5</td> <td>7</td> <td>661.5</td> </tr> <tr> <td colspan="2">Total</td> <td>38</td> <td>2801</td> </tr> </tbody> </table> Arithmetic Mean = $\bar{x} = \sum fx/N$ $= 2801/38 = 73.71$	Class	x	f	x.f	40-49	44.5	3	133.5	50-59	54.5	5	272.5	60-69	64.5	6	387	70-79	74.5	9	670.5	80-89	84.5	8	676	90-99	94.5	7	661.5	Total		38	2801	1 1/2 1 1/2	6
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Members of Scheme finalisation meeting

Subject :Statistics

Code:FY232

School Code	PEN	Name	Phone No.	Subject
14043	245429	HARI KRISHNAN K B	9496358371	Statistics
01050	155146	LEKSHMI PAVITHRAN	8281553503	Statistics
02034	446709	SREELATHA G	9496626844	Statistics
03021	157209	PREETHA P	9495457074	Statistics
04027	156702	VIDYA RAMACHANDRAN	9744243430	Statistics
05051	209471	LATHA S G	9496465889	Statistics
06054	443480	REJANI SATHEESH	9497793534	Statistics
07060	194581	SUSAN DAVID	9495983264	Statistics
08063	210387	MANOJ K	9447235515	Statistics
09053	411329	INDHU VERGHESE	9946759100	Statistics
10113	283899	BINDU KUTTIAN PADIKKOTH	9496303893	Statistics
11057	233663	MOHAMED ASLAM K	9447925991	Statistics
13099	453792	RAGHURAJ K V	9744342008	Statistics