Seat No.

Total marks: 70

GANPAT UNIVERSITY B.TECH.SEM.III (CE/IT) EXAMINATION. Nov/Dec - 2011 Sub : 2IT305/2CE305 - Probability & Statistics

Time: 3 hrs

Instruction: (1) All questions are compulsory.

- (2) Write answer of each section in separate answer books.
- (3) Figures to the right indicate marks of questions.

Section – I

Que-1

(a) Calculate the correlation co-efficient from the following data between The age of husband (H) and age of wife (W).

Н	23	27	28	29	30	31	33	35	36	39
W	18	22	23	24	25	26	28	29	30	32

(b) Calculate Probable error between income and expenditure from following data.

Income	18	65	19	14	30	19	27	30	25	21	35
Expenditure	43	38	16	26	23	27	11	20	16	19	97

Que-1

(a) Calculate Sperman's rank correlation co-efficient between X and Y for following data

K

Х	24	29	19	14	30	19	27	30	20	28	11
Y	37	35	16	26	23	27	19	20	16	11	21

(b) Show that If one of the regression co-efficients is greater than unity ; the other must be less than unity

Que-2

(a) From the following data between X and Y; Find two Regression equations between them.

X	40	34	28	30	44	38	31
Y	32	39	26	30	38	34	28

Also find Y when X=22

- (b) Suppose the height measurement H of 800 people are normally distributed with mean 66 cms. and standard deviation 5 cms. Find the numbers of people with height
 - (1). Between 35 cms. and 40 cms.
 - (2). Grater than or equal to 28 cms.

OR

Que-2

(a) State Baye's theorem. In a bolt factory machines A, B and C manufacture 25%, 35% and 40% (05) of the total product respectively. Of their output 5%, 4% and 2% respectively are defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine A?

P. A ME

(12)

(12)

R.S.S.

(05)

(06)

(b) Given the following data:

A TIMERSITY S	X	Y
Arithmetic mean	48	62
Variance	24	53

Correlation co-efficient between x and y = 0.48.

Find (1) Two Regression equation and (2) Estimate the value of y when x = 36.

Que-3

- (a) Assume that on the average one telephone number out of 15 called between 2 p.m. and 3 p.m. on weekdays is busy. What is the probability that if 6 randomly selected telephone numbers are called
 - (1) Not more than 3 will be busy and
 - (2) At least 3 of them will be busy.
- (b) If 5% of the electric bulbs manufactured by a company are defective; Use poisson distribution to find the probability that in a sample of 100 bulbs (1) None is defective

 - (2) Not more than 3 will be defective.

(12)

Section – II

(a) Make a frequency table having grades of wages with class-interval of Rs.2 each from the following data of daily wages received by 30 workers in a certain factory. Daily wages rupees are: 14 16 16 16 14 22 13 15 24 12 23 14 20 17 21 2 18 18 19 20 17 16 15 11 12 21 20 17 18 19 2 Define Classification. Explain (1) Qualitative classification and (2) Chroological classification of data with suitable example. (c) Derive step deviation method to compute Mean. Using it compute mean of following diverses the provide the data with suitable example. (a) Define Classification Explain (1) Qualitative classification of data with suitable example. (b) Erio 20 43 75 67 72 45 39 9 8 6 . Puestion-4 OR Define Frequency distribution and explain grouped frequency distribution with approprexample. (b) Find the lower and upper quartiles for the following distribution. Marks No. of Students Marks No. of Students Marks No. of Students 0-4 10 12-16 7 24-26 4 . 4-8 12 16-20 5 26-28 6 . 8-12 18 20-24 8 . (c) The weight of 50 apples picked at random from a consignment are as follows: 106 107 76 82 109 93 187 195 123 12 . 111 99 86 70 126 68 130 129 139 11 . 135 128 100 185 98 110 78 90 107 14 . 136 123 90 145 98 110 78 90 107 11 . Form grouped frequency table by dividing the variate range into intervals of equal wide each corresponding to 20 gms. in such a way that the mid-value of first class corresponding to 20 gms. in such a way that the mid-value of first class corresponding to 20 gms. in such a way that the median. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families Above 60 28 Above 40 55 Above 90 8 Above 60 28 Above 40 55 Above 90 8 Above 40 55 Above 90 70 16 Above 50 43 Above 100 77 Above 70 16 Above 50 43 Above 100 77 Above 70 16 Above 50 43 Above 100 77 Above 70 16 Above 50 43 Above 100 77 Above 70 16 Above 50 43 Above 100 77 Above 70 16 Above 50 43 Above 100 77 Above 70 16 Above 50 43 Above 100 77 Above 70 16 Above 60 72 Above 80 100 Above 60 72 Above 80 100 Above 50 43 Above 100 77 Abov	Question-4	Attem	pt the	e follow	ing.											54	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	(a)	Make a followi rupees	n frequ ng da are:	uency ta ta of da	able h aily w	aving ages	g grade receiv	es of w ed by	vages 30 w	with orker	class s in a	-interv certaii	al of F n facto	Rs.2 each ry. Daily	fron wag	the ses in	
(b)Define Classification. Explain (1) Qualitative classification and (2) Chronological classification of data with suitable example.(c)Derive step deviation method to compute Mean. Using it computemean of following di \overline{X} 5 101520253035404550 \overline{Y} 20437567724539986Puestion-4OROR(a)Define Frequency distribution and explain grouped frequency distribution with approprexample.(b)Find the lower and upper quartiles for the following distribution.MarksNo. of StudentsMarksNo. of Students0.41012-16526-2868-121820-24868-121820-2481010610776821099318719512312(c)The weight of 50 apples picked at random from a consignment are as follows:1061077682109931871951231211198877012668130129139111151281001868499113204111118123981107890107141361239010778901071413612390107801188210711197 <t< td=""><td></td><td>14 18</td><td>16 18</td><td>16 19</td><td>14 20</td><td>22 17</td><td>13 16</td><td>15 15</td><td>24 11</td><td>12 12</td><td>23 21</td><td>14 20</td><td>20 17</td><td>17 18</td><td>21 19</td><td>22 23</td></t<>		14 18	16 18	16 19	14 20	22 17	13 16	15 15	24 11	12 12	23 21	14 20	20 17	17 18	21 19	22 23	
(c) Derive step deviation method to compute Mean. Using it compute mean of following di X 5101520253035404550Puestion-4(a)(a)Define Frequency distribution and explain grouped frequency distribution with approprexample.(b)Find the lower and upper quartiles for the following distribution.MarksNo. of StudentsMarksNo. of StudentsMarksNo. of StudentsMarksNo. of Students0.41012.160724.264.4.81216-20526-2868-121820.248(c)The weight of 50 apples picked at random from a consignment are as follows:106107768210993187195123123111986701266813012911113376841021881001882107111512810018684991132041111413612390107810771890107115128100186849911320411114136123901078107188210714413612392101188210718 <th colspatib<="" td=""><td>(b)</td><td>Define classifi</td><td>Class cation</td><td>sification of dat</td><td>on. Ex a with</td><td>plain 1 suit</td><td>able ex</td><td>ualitat kampl</td><td>e.</td><td>lassif</td><td>icatio</td><td>n and (</td><td>(2) Ch</td><td>ronologic</td><td>al .</td><td>52</td></th>	<td>(b)</td> <td>Define classifi</td> <td>Class cation</td> <td>sification of dat</td> <td>on. Ex a with</td> <td>plain 1 suit</td> <td>able ex</td> <td>ualitat kampl</td> <td>e.</td> <td>lassif</td> <td>icatio</td> <td>n and (</td> <td>(2) Ch</td> <td>ronologic</td> <td>al .</td> <td>52</td>	(b)	Define classifi	Class cation	sification of dat	on. Ex a with	plain 1 suit	able ex	ualitat kampl	e.	lassif	icatio	n and ((2) Ch	ronologic	al .	52
X 5 10 15 20 25 30 35 40 45 50 Puestion-4 (a) OR OR Optime Frequency distribution and explain grouped frequency distribution with approprexample. (b) Find the lower and upper quartiles for the following distribution. Marks No. of Students Marks No. of Students 0.4 10 12-16 7 24-26 4 (b) Find the lower and upper quartiles for the following distribution. Marks No. of Students Marks No. of Students 0.4 10-20 5 26-28 6 8-12 18 20-24 8 106 107 7 24-26 6 8-12 18 0 195 123 12 111 99 107 18 111	(c)	Derive	step	deviatio	on me	thod	to con	npute	Mean	. Usi	ng it c	compu	te mea	n of follo	wing	g da	
OR Operation of the second stribution of the second stribution and explain grouped frequency distribution with approprexample. (b) Find the lower and upper quartiles for the following distribution. Marks No. of Students Marks No. of Students Marks No. of Students 0.4 10 12-16 7 24-26 4 4-8 12 16-20 5 26-28 6 8-12 18 20-24 8 1 1 (c) The weight of 50 apples picked at random from a consignment are as follows: 106 107 7.6 8.2 109 93 187 195 123 12 111 99 8.6 70 126 68 130 129 139 11 135 128 100 186 84 99 113 204 111 14 136 12.3 90 15 98 110 78 90 107 8 <td></td> <td>X F</td> <td>5</td> <td>10) 43</td> <td>15 75</td> <td>20 67</td> <td>25 72</td> <td>30 45</td> <td>35 39</td> <td>4</td> <td>0 4</td> <td>5 5</td> <td>0</td> <td></td> <td></td> <td></td>		X F	5	10) 43	15 75	20 67	25 72	30 45	35 39	4	0 4	5 5	0				
(a) Define Frequency distribution and explain grouped frequency distribution with approprexample. (b) Find the lower and upper quartiles for the following distribution. Marks No. of Students Marks No. of Students 0.4 10 12-16 7 24-26 4 4.8 12 16-20 5 26-28 6 8-12 18 20-24 8	Duestion-4	1465 1	1365	610.	3708	10.	377988		OR								
(b) Find the lower and upper quartiles for the following distribution. Marks No. of Students Marks No. of Students 0.4 10 12-16 7 24-26 4 4.8 12 16-20 7 24-26 4 4.8 12 16-20 8 6 6 8.12 18 20-24 8 6 6 106 107 76 82 109 93 187 195 123 12 111 99 86 70 126 68 130 129 139 11 115 128 100 186 84 99 113 204 111 14 136 123 90 15 88 110 78 90 107 8 131 76 84 104 110 80 118 82 107 11 Find average marks of students from the distribut	(a)	Define examp	Frequere Fre	uency c	listrib	ution	and e	xplain	grou	ped f	Freque	ncy di	stribut	ion with	appro	opri	
	(b)	Find th	e lòw	ver and	upper	quar	tiles fo	or the	follo	wing	distri	bution.		14306	0.4	1	
(c) $\frac{0.4}{4.8} = 10 = 12 \cdot 16 \cdot 7 = 24 \cdot 26 \cdot 4 + 4 \cdot 8 \cdot 12 = 16 \cdot 20 \cdot 5 = 26 \cdot 28 \cdot 6 + 4 \cdot 8 \cdot 12 = 18 = 20 \cdot 24 \cdot 8 = 100 \cdot 16 \cdot 107 \cdot 76 \cdot 82 \cdot 109 \cdot 93 = 187 \cdot 195 \cdot 123 \cdot 12 + 111 \cdot 99 \cdot 88 \cdot 70 \cdot 126 \cdot 68 = 130 \cdot 129 \cdot 139 \cdot 11 + 115 \cdot 128 \cdot 100 \cdot 186 \cdot 84 \cdot 99 = 113 \cdot 204 \cdot 111 \cdot 14 + 136 \cdot 123 \cdot 90 \cdot 115 \cdot 98 \cdot 110 \cdot 78 \cdot 90 \cdot 107 \cdot 8 + 131 \cdot 76 \cdot 84 \cdot 104 \cdot 110 \cdot 80 \cdot 118 \cdot 82 \cdot 107 \cdot 11 + 136 \cdot 123 \cdot 90 \cdot 115 \cdot 98 \cdot 110 \cdot 78 \cdot 90 \cdot 107 \cdot 8 + 131 \cdot 76 \cdot 84 \cdot 104 \cdot 110 \cdot 80 \cdot 118 \cdot 82 \cdot 107 \cdot 11 + 116 \cdot 176 \cdot 118 \cdot 82 \cdot 107 \cdot 118 \cdot 118 \cdot 108 $		Mark	s N	lo. of S	tuden	ts	Marks	s N	o. of	Stude	ents	Mark	S N	lo. of Stud	dents	5	
(c) The weight of 50 apples picked at random from a consignment are as follows: 106 107 76 82 109 93 187 195 123 12 111 99 86 70 126 68 130 129 139 11 115 128 100 186 84 99 113 204 111 14 136 123 90 115 98 110 78 90 107 8 131 76 84 104 110 80 118 82 107 11 Form grouped frequency table by dividing the variate range into intervals of equal wide each corresponding to 20 gms. in such a way that the mid-value of first class correspond to 70 gms. Puestion-5 Attempt the following. (a) Find average marks of students from the distribution given in below. Marks No of Students Marks No. of students Above 10 77 Above 70 16 Above 30 65 Above 90 8 Above 40 55 Above 90 8 Above 40 55 Above 90 8 Above 40 55 Above 90 8 Above 40 65 Above 90 8 Above 40 65 Above 90 8 Above 40 65 Above 90 8 Above 50 43		0-4		1	0		12-16			7	-	24-2	.6	4	-	-	
(c) 18 20-24 8 The weight of 50 apples picked at random from a consignment are as follows: 106 107 76 82 109 93 187 195 123 12 111 99 86 70 126 68 130 129 139 11 115 128 100 186 84 99 113 204 111 14 136 123 90 115 98 110 78 90 107 8 131 76 84 104 110 80 118 82 107 11 Form grouped frequency table by dividing the variate range into intervals of equal wid each corresponding to 20 gms. in such a way that the mid-value of first class correspont to 70 gms. Question-5 Attempt the following. Image: state		4-8		1	2		16-20			5		26-2	.8	6			
(c) The weight of 50 apples picked at random from a consignment are as follows: 106 107 76 82 109 93 187 195 123 12 111 99 86 70 126 68 130 129 139 11 115 128 100 186 84 99 113 204 111 141 136 123 90 115 98 110 78 90 107 8 131 76 84 104 110 80 118 82 107 11 Form grouped frequency table by dividing the variate range into intervals of equal wide each corresponding to 20 gms. in such a way that the mid-value of first class correspont to 70 gms. Question-5 Attempt the following. Find average marks of students from the distribution given in below. Marks No of Students Marks No. of students Above 10 77 Above 60 28 Above 10 Above 20 72 Above 80 10 Above 60 43 10		8-12	2	1	8		20-24	ł		8	C. 13			. 11	11.4		
	(c)	The we	eight	of 50 aj	oples	picke	ed at ra	ndom	from	a co	nsign	ment a	re as t	ollows:			
$(a) \begin{array}{c c c c c c c c c c c c c c c c c c c $		106	1	07	76		82	.10	9	93		187	195	5 123	3	12	
(a) 115 128 100 186 84 99 113 204 111 14 136 123 90 115 98 110 78 90 107 8 131 76 84 104 110 80 118 82 107 11 Form grouped frequency table by dividing the variate range into intervals of equal wide each corresponding to 20 gms. in such a way that the mid-value of first class correspondent to 70 gms. Puestion-5 Attempt the following. (a) Find average marks of students from the distribution given in below. Marks No. of Students Marks No. of students Above 0 80 Above 60 28 Above 10 77 Above 70 16 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 40 55 Above 100 0 Above 50 43 From the distribution given below, find the median. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families 80-100 14 180-200 7 100-120 20 7 Using method of grouping, compute mode of the distribution. X 4 5 6 7 8 9 10 11 12 13 10 11 12 13 11 10 11 12 13 13 10 11 11 10 11 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15		111	(99	86		70	12	6	68		130	129) 139)	11	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		115	1	28	100		186	84	401	99		113	204	1 11		14	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		136	1	23	90		115	98		110		78	90	107	7	8	
	3,4861 0	131		76	84		104	11	0	80		118	82	107	7	11	
$(a) \begin{array}{c c c c c c c c c c c c c c c c c c c $		Form	group	ed freq	uency	tabl	e by d	ividin	g the	varia	te ran	ge into	o interv	vals of eq	ual v	vid	
to 70 gms. Question-5 Attempt the following. (a) Find average marks of students from the distribution given in below.		each co	orresp	onding	to 20) gms	. in su	ch a v	vay th	at the	e mid	-value	of firs	t class co	rresp	on	
Question-5 Attempt the following. (a) Find average marks of students from the distribution given in below. Marks No. of Students Marks No. of students Above 0 80 Above 60 28 Above 10 77 Above 70 16 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 50 43		to 70 g	ms.			10											
(a) Find average marks of students from the distribution given in below. Marks No. of Students Marks No. of students Above 0 80 Above 60 28 Above 10 77 Above 70 16 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 40 55 Above 100 0 Above 50 43	Juestion-5	Attem	pt the	e follov	ving.	7 1 11											
(a) Marks No of Students Marks No. of students Above 0 80 Above 60 28 Above 10 77 Above 70 16 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 40 55 Above 90 8 Above 50 43	(9)	Find a	verag	e marks	s of st	uden	ts from	the c	listrib	oution	give	n in be	low.				
Marks No. of Statistics Marks No. of families Above 0 80 Above 60 28 Above 10 77 Above 70 16 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 40 55 Above 100 0 Above 50 43	(a)	Mark	c	No	of Stuc	dents	Ma	rks		No.	of stu	dents]				
Above 10 77 Above 70 16 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 40 55 Above 100 0 Above 50 43 $$		Aboy	<u>s</u>	110.0	80		Ah	ove 6	$\overline{)}$	1.50	28						
Above 10 11 10 10 Above 20 72 Above 80 10 Above 30 65 Above 90 8 Above 40 55 Above 100 0 Above 50 43 $$		Abov	e 10		77	510	Ab	ove 7	$\frac{1}{2}$	102	16	19.4					
(b) From the distribution given below, find the median. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families 20-40 6 120-140 15 20-40 6 120-140 15 20-40 6 8 11 160-180 8 80-100 14 180-200 7 100-120 20 7 (c) Using method of grouping, compute mode of the distribution. X 4 5 6 7 8 9 10 11 12 13		Abov	0 20		72	012	Ah	ove 8	$\frac{1}{2}$	10.4	10	10.4	89				
Above 30 0.5 Above 70 0 Above 40 55 Above 100 0 Above 50 43 1 (b) From the distribution given below, find the median. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families 20-40 6 120-140 15 40-60 9 140-160 10 60-80 11 160-180 8 80-100 14 180-200 7 100-120 20 20 11 12 13 (c) Using method of grouping, compute mode of the distribution. X 4 5 6 7 8 9 10 11 12 13	U.A.ZOI U	Abov	0 20		65	10	Ah	ove 9	$\frac{1}{2}$	Th	8	10.4	1921				
Above 40 33 Above 100 0 Above 50 43 0 From the distribution given below, find the median. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families 20-40 6 120-140 15 40-60 9 140-160 10 60-80 11 160-180 8 80-100 14 180-200 7 100-120 20 10 11 12 (c) Using method of grouping, compute mode of the distribution. 12 13	0.499	Abov	e 50		55		Ab	ove 1	$\frac{1}{20}$		0	10.0					
(b) From the distribution given below, find the median. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families 20-40 6 120-140 15 40-60 9 140-160 10 60-80 11 160-180 8 80-100 14 180-200 7 100-120 20 (c) Using method of grouping, compute mode of the distribution. \overline{X} 4 5 6 7 8 9 10 11 12 13	0.494	Abov	e 40		43		AU		50	12		1.5					
(b) From the distribution given below, find the medial. Monthly Rent (Rs.) No. of families Monthly Rent (Rs.) No. of families 20-40 6 120-140 15 40-60 9 140-160 10 60-80 11 160-180 8 80-100 14 180-200 7 100-120 20 (c) Using method of grouping, compute mode of the distribution. X 4 5 6 7 8 9 10 11 12 13 X 4 5 6 7 8 9 10 11 12 13		- AUUV	the di	atuibuti	on giv	on h		Find th	e me	dian							
(c) Wonthly Kent (Ks.) No. of families Monthly Kent (Ks.) Heref ((b)	From	the all	Stribuli	on giv	No	of far	nilies		Mont	hlv R	ent (R	(2	No. of	fami	lies	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1008	20-40 40-60		110	. 01 Tai	mics	19 3	110110	120-	140	0.)	1	5				
(c) Using method of grouping, compute mode of the distribution. $\begin{array}{c c} \hline & 40-80 & 9 & 140 & 100 & 100 \\ \hline & 60-80 & 11 & 160-180 & 8 \\ \hline & 80-100 & 14 & 180-200 & 7 \\ \hline & 100-120 & 20 & 7 \\ \hline & 100-120 & 14 & 180-200 & 7 \\ \hline & 100-120 & 20 & 7 \\ \hline & 100-120 & 20 & 7 \\ \hline & 110 & 112 & 13 \\ \hline & 110 & 110 & 12 \\ \hline &$					· 0		19/19		140-	160	7.79	0.49991	0	453			
(c) Using method of grouping, compute mode of the distribution. $X \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \ 10 \ 11 \ 12 \ 13 \ 12 \ 12 \ 12 \ 12 \ 12$	Contraction of the	40-60			817	9	10	TO N	18	160-	180		0.3000	8			
(c) $\begin{array}{c c c c c c c c c c c c c c c c c c c $	0.4995	14999	00-	100		215	14	141		1.54	180-	200		0.0000	7	101	
(c) Using method of grouping, compute mode of the distribution. X 4 5 6 7 8 9 10 11 12 13		000	80-	120	0.85 0	911	20		1.16		100-	200		A 2000			
(c) Using method of grouping, compute mode of the distribution. \overline{X} 4 5 6 7 8 9 10 11 12 13 \overline{X} 4 5 6 7 8 12 11 12	0.5000 (100-	120	Sile	014	20			ho di	tribu	tion		11.21.11.11.1	Land		
X 4 5 6 7 8 9 10 11 12 15	(c)	Using	meth	od of g	roupir	ng, co	ompute	mod	eort			12	12				
		X	4	5	6	1	8	9		10	11	12	13	-			

Question-5

(a)

Compute Quartile deviation and co-efficient of Quartile deviation of the following data.

OR

X :	0-5	5-10	10-15	15-20	20-25	25-30
F :	4	6	8	12	7	2

(b)

An incomplete distribution is given below. Given that the median value is 46. Calculate the missing frequencies

Variable	Frequency	Variable	Frequency
10-20	12	50-60	?
20-30	30	60-70	25
30-40	?	70-80	18
40-50	65	Total:	229

(c)

Also calculate the Arithmetic mean of the completed data. Calculate Mode of the following distribution

Marks.	1-5	6-10	11-15	16-20	21-25	26-30
No. of Students	7	10	16	32	24	18
Marks.	31-35	36-40	41-45		110 1941	
No. of Students	10	5	1 · · ·			

Attempt the following. **Question-6**

60-70

Calculate the missing frequency from the following data, given that median and mode of 4 (a) the distribution are Rs.25 and Rs.24 respectively.

Expenditure (in	n Rs.) 0-10	10-20	20-3	30 30-40	40-50
No. of family	14	?	27	? ?	15
ind standard de	eviation for the fo	llowing d	ata givir	ng the income of 2	30 persons per da
Income (Rs.)	No. of workers	Income	e (Rs.)	No. of workers	
20-30	12	70	-80	50	1.51
30-40	18	80	-90	45	- English
40-50	35	90-	100	20	and and
60-70	42	100	-110	8	a DC at

(c)

(b)

 $s^2 + \sigma^2 = d^2$ In usual notation prove that

3

4

Areas under standard normal curve.

4		-	2	2	4	5	6	7	8	9	
4	0	1	2	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359	
0.0	0.0000	0.0040	0.0080	0.0120	0.0100	0.0596	0.0636	0.0675	0.0714	0.0754	
0.1	0.0398	0.0438	0.0478	0.0010	0.0948	0.0987	0.1026	0.1064	0.1130	0.1141	
0.2	0.0793	0.0832	0.08/1	0.1203	0.0210	0.1368	0.1406	0.1443	0.1480	0.1517	
0.3	0.1179	0.1217	0.1233	0.1293	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879	
0.4	0.1554	0.1591	0.1020	0.1004	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224	
0.5	0.1915	0.1950	0.1905	0.2017	0.2389	0.2422	0.2454	0.2486	0.2518	0.2549	
0.6	0.2258	0.2291	0.2524	0.2557	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852	
0.7	0.2580	0.2012	0.2042	0.2075	0.2996	0.3023	0.3051	0.3078	0.3106	0.3133	
0.8	0.2881	0.2910	0.2939	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389	
0.9	0.3159	0.3180	0.3212	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621	4
1.0	0.3413	0.3430	0.3401	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830	
1.1	0.3643	0.3003	0.3080	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015	_
1.2	0.3849	0.3809	0.3000	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177	4
1.3	0.4032	0.4049	0.4000	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319	2
1.4	0.4192	0.4207	0.4222	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441	-
1.5	0.4332	0.4343	0.4337	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545	5
1.0	0.4452	0.4403	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633	3
1./	0.4554	0.4504	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706	2
1.0	0.4041	0.404	0.1030	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.476	/
1.5	0.4712	0.4715	0.1720	0.4788	0.4793	0.4798	3 0.4803	3 0.4808	0.4812	0.481	8
2.0	0.4772	0.4770	5 0 4830	0.4834	0.4838	0.4842	0.4840	5 0.4850	0.4854	0.485	1
2.	0.4021	0.402	1 0 4868	0.4871	0.4875	0.4878	8 0.488	0.4884	0.4887	0.489	0
4.4	0.480	2 0 489	5 0 4898	0.4901	0.4904	4 0.4900	6 0.490	9 0.4911	0.4913	3 0.491	6
2	0.409.	2 0 492	0 0 4922	0.4925	0.492	7 0.492	9 0.493	1 0.4932	2 0.4934	4 0.493	6
2.	1 0.4910	8 0.494	0 0 4941	0.4943	0.494	5 0.494	6 0.494	8 0.4949	0.495	1 0.495	2
2.	6 0.495	3 0 495	5 0.4956	0.495	7 0.495	9 0.496	0 0.496	1 0.4962	2 0.496	3 0.496	4
2.	7 0 106	5 0.496	6 0.496	0.496	3 0.496	9 0.497	0 0.497	1 0.4972	2 0.497	3 0.497	4
2.	0.490	4 0 497	5 0.4976	5 0.497	7 0.497	7 0.497	8 0.497	9 0.497	9 0.498	0 0.498	51
2.	0 0.497	1 0 498	2 0.4982	2 0.498	3 0.498	4 0.498	4 0.498	5 0.498	5 0.498	6 0.498	50
2.	0 0.490	7 0 498	7 0.498	7 0.498	8 0.498	8 0.498	0.498	9 0.498	9 0.499	0 0.499	10
2	1 0 499	0 0 499	1 0.499	1 0.499	1 0.499	2 0.499	02 0.499	0.499	2 0.499	0.499	13
2	2 0 499	3 0 499	03 0.499	4 0.499	4 0.499	0.499	0.499	04 0.499	5 0.499	0.499	13
2	3 0 490	5 0.499	05 0.499	5 0.499	6 0.499	6 0.499	06 0.499	06 0.499	6 0.499	0 0.49	00
2	1 0 490	7 0 499	07 0.499	7 0.499	7 0.499	07 0.499	0.499	07 0.499	0.499	0.49	98
2	5 0 490	8 0.499	0.499	8 0.499	8 0.499	0.499	0.499	0.499	8 0.499	0.49	98
2	6 0 490	0.49	0.499	9 0.499	9 0.499	0.499	99 0.499	0.499	0.499	0.49	99
2	7 0 490	0.49	99 0.499	9 0.499	0.499	0.499	99 0.49	0.499	0.49	0.49	99
2	8 0 49	99 0.49	99 0.499	9 0.499	0.499	99 0.49	99 0.49	99 0.499	0.49	99 0.49	99
1	.9 0.50	00 0.50	00 0.500	0 0.500	0 0.50	00 0.50	00 0.50	00 0.500	0.50	00 0.50	00

GANPAT UNIVERSITY