# BOARD OF INTERMEDIATE AND SECONDARY EDUCATION,

Name of Subject Station A Session MULTAN

Name of Subject Station Session

Q. Nos.	Paper Code	Paper Code	Paper Code	Paper Code
. 1031	1	8183	100	8187
1.	a	Ь	Ь	Ь
2.	0.00	a	a	a
3.	C	c	c	a
4.	B	6	6	5
5.	a	a	C	a
6.	a	2, 7	a	c
7.	6	2,7	C.	Ь
8.	a	6	6	c
9,	C	a	a	a
10.	B	a	c	c
11.	c	6	5	Ь
12.	a	a	a	a
13.	C	C	and	C
14.	6	Ь	C	b
15.	a	C	Ь	a
16.	c	a	a	abd
17.	5	C	a	C
18.		THE TO		17
19.	T		1	133
20.		-	1	1

(Subjective & Objevtive) کو تظریمی چیک کرایا ہے ہے پر چیسیس کے میں مطابق Set کیا کیا ہے۔ اس موالیہ پر چیسی کی سم کالولی فلطی نہ ہے۔ یہ نے موالیہ پر چیسی کی محالات (Syllabus) محلومی کی چیک کرایا ہے ہیں مطابق کو کہتا ہے۔ یہ نہوں در مطابق کی جی ادر موالی کی کہتا ہے۔ یہ مطابق بھی جی ادر موالی کی کہتا ہے کہ مطابق کی جانے ہے۔ یہ مطابق کی بھی کہ میں کہتا ہے کہ میں کہتا ہے۔ یہ موالی کر کی اس کی کا کو کہنا مالی میں انداز کر دوم بدایا ہے وہ مول کر کیا ان کا بنور مطابقہ کرایا ہے ادران کی دوشن انداز کردوم بدایا ہے وہ مول کر کیا ان کا بنور مطابقہ کرایا ہے ادران کی دوشن انداز کردوم بدایا ہے وہ مول کر کیا ان کا بنور مطابقہ کرایا ہے ادران کی دوشن انداز کی دوشن کی کہتا ہے۔

PREPARED & CHECKED BY

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Note: 2,6, 13, 16 as per code:

Sr.Ne	Aftab Ansari	Designation  Associa	Institution	Mobile No.	Signature.	7
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aper Co		01	20	16 (A)	LASS) OWED: 20 Minutes
umber:	Marie Control	81	INTERMEDIAT		TIME ALLOWED: 20 Minutes MAXIMUM MARKS: 17 MAXIMUM MARKS: 17
FATIS		PAPE	R-II OBJ	ECTIVE	C and D. The choice which you
ote: Y	ou have	four choi	ces for each objective	e type question as A, B,	arker or pen to fill the circles.
			to the will result	in zero mark in the	all will be awarded
given i	n object	ive type q	De not robe question	eave others blank. No c n on this sheet of OBJE	redit will be awarded in case CCTIVE PAPER.
No.1		AND THE STATE			
) Ti	ne norma	d distribu		(C) Bimodel	(D) Tri-model
(A	) Unimo	del	(B) Multimodel		
) In	a norma	l distribut	tion $\mu - 0.6745$ or is	(C) #	(D) θ <sub>1</sub>
(A	θ <sub>3</sub>		(B) $\frac{2}{3}$	(C) µ	N-40-W
) F	or the sta	andardize	d normal viarate P (	( ≤ z ≤ ∞ ) =	(D) 0.75
					n of even numbers is:-
) A	populati	on consis	ts of 5 members 1, 2	, 3, 4, 5 then proportio	(D) $\frac{4}{5}$
(A	1) 5		(B) $\frac{2}{5}$	(C) 5	5
		lculated i	from population is cal	lled:-	(D) Sample
CA	) Param	eter	(B) Statistic	(C) Population	(0)
) If	$\bar{X} = 22$	and µ	= 20 then sampling of	error is equal to:-	(D) 42
				(C) 22	(D) 42
70	n = 0	$\sum x = 12$	$20, \ \sum (x-\overline{x})^2=30$	2 then unbiased estimat	tes of the population variance is
		ZA - 12	(B) 43.14	(C) 37.75	(D) 120
(A	1) 15	resolut.	y accepting $H_0$ if $H$		
				(C) Sampling erro	or (D) None of these
(A	() Type	II error	()	(c) camping	CONTRACT LA LA MARCHANIA
) Le	evel of s	ignifican	ce is denoted by:-	(C) α	(D) 1 - β
	A) β		(B) 1 – α		
0) R	egressio	n co-effic	cient is independent	or-	B (D) None of these
(A	() Scale		(B) Origon	(C) Both A and F	, (5)
			ficient lies between:	2000 2000000	(D) $-\infty$ to $+\infty$
100	() -1 to		(B) 0 to 1	(C) - 1 to $+ 1$	(D) - w to + w
-000 502			$b_{x,y} = 0.04  \text{then } t$	y is:-	
				(C) 0.16	(D) 0.04
(A	x) 0.08	50	(B) 0.8		
3) Fo	or (4×	5) conti	ngency table the no	of cells is equal to:-	(D) 16
-	A) 4		(B) 15	(C) 20	(D) 16
4) In	a chi-se	quare tes	t for independence i	no expected frequency	should be than 5.
	() Great		(B) Less	(C) Both A and	B (D) None of these
000	and the second				
			series is called:-	gram (C) Frequency	Curve (D) Histogram
(A	A) Histo	rigram			
6) T	he best	fitting tr	end is one in which	the sum of squares of	residuais is.
100	Maxi		(B) Zero	(C) Least	(D) Negative
- 70			r system has base:-		
7) A	decima	Hamile	(B) 10	(C) 2	(D) 16
	1) 8		1355 111	(6) 4	1

_	per Code	91	92		2016 (A)	Roll No
70000	ATISTIC	01	83	INTERMEDIA	TE PART-II (12th C	TIME ALLOWED: 20 Minutes
			PAPE	TOTAL TOTAL	JECTIVE	MAXIMUM MARKS: 17
Cu	tting or fill	ling t	wo or m	ces for each object rele in front of that ore circles will rest	ve type question as A, I question number. Use	B, C and D. The choice which you marker or pen to fill the circles. question. Attempt as many questions credit will be awarded in case
Q.N (1)	Vo. I				expected frequency shou	
(0)	(A) Gro			(B) Less	(C) Both A and B	(D) None of these
(2)				ries is called:-		
	(A) His	storig	ram	(B) Scatter Diagra	am (C) Frequency Curv	ve (D) Histogram
(3)	The be	st fit	ting trend	d is one in which the	e sum of squares of resid	duals is:-
	(A) Ma	xim	ım	(B) Zero	(C) Least	(D) Negative
(4)	A decir	nal r	umber sy	stem has base:-		(D) 16
	(A) 8			(B) 10	(C) 2	(D) 16
(5)	(4.000.000	0.000,000		ion is a:-	(C) Dimodel	(D) Tri-model
818			lel		(C) Bimodel	(4)
(6)				ion $\mu - 0.6745$ or2		(D) θ <sub>1</sub>
				(B) $\frac{2}{3}$	(C) μ	(6) 4
(7)	For the	star	dardized	normal viarate P		(D) 0.75
	(A) 1			(B) 0	(C) 0.5	(D) 0.75
(8)	A popul	latio	n consist	s of 5 members 1,	2, 3, 4, 5 then proport	tion of even numbers is:- (D) $\frac{4}{5}$
					(C) $\frac{1}{5}$	(1) 5
(9)	A value	calc	ulated fr	om population is c		(D) Cample
	(A) Para			(B) Statistic	(C) Population	(D) Sample
(10)	If $\overline{X} =$	22 1	and $\mu =$	20 then sampling	error is equal to:-	
	(A) 2			(B) 20	(C) 22	(D) 42
(11)	If $n = 8$	3. 5	x = 120	$\sum (x - \overline{x})^2 = 3$	02 then unbiased estim	nates of the population variance
()		-	6	(B) 43.14	(C) 37.75	(D) 120
	(A) 15	de	ada bo	700		
(12)					H <sub>1</sub> is actually true:-	ror (D) None of these
	(A) Type				(C) Sampling er	ioi (b) None of these
13)	Level of	sign	ificance	is denoted by:-		(D) 1 (2)
	(A) β			(B) $1 - \alpha$	(C) α	(D) $1 - \beta$
14)	Regressi	on c	o-efficie	nt is independent	of:-	
	(A) Scal			(B) Origon	(C) Both A and	B (D) None of these
(5)	Carried Section		co-effic	cient lies between		
15)			co-ciii	(B) 0 to 1	(C) - 1 to $+ 1$	(D) $-\infty$ to $+\infty$
	(A) - 1 t			The state of the s		
6)	If $b_{y,x} =$	= 0.	16, $b_{x}$	y = 0.04 then	r <sub>xy</sub> is:-	
	(A) 0.08			(B) 0.8	(C) 0.16	(D) 0.04
7)			conting	DATE NO.	of cells is equal to:-	
7)		3)	continge			(D) 16
	(A) 4			(B) 15	(C) 20	Obj)(*****)-2016(A)-2700 (MUL'

_	Paper Code	20	016 (A)	Roll No
799	Number: 8185	AND THE RESIDENCE OF THE PARTY	ΓΕ PART-II (12 <sup>th</sup> (	TI ASS)
S	STATISTICS PA	APER-II	E PARI-II (12 °C	TIME ALLOWED: 20 Minutes
	Votes V	OBJ	ECTIVE	MAXIMUM MARKS: 17
C as	utting or filling two o s given in objective ty	t circle in front of that q	uestion number. Use in zero mark in that ave others blank. No	B, C and D. The choice which you marker or pen to fill the circles. question. Attempt as many question credit will be awarded in case ECTIVE PAPER.
(1	100000	120 5(* - =)2 - 302 :	then unbiased estimate	s of the population variance is:
***	(A) 15		(C) 37.75	(D) 120
(2	A. F. Indian	by accepting $H_0$ if $H_1$ i		(5) 124
			(C) Sampling error	(D) None of these
(3)		ince is denoted by:-	(c) Samping cross	10,
	(A) β	(B) 1 – α	(C) α	(D) $1 - \beta$
(4)	Regression co-eff	ficient is independent of:-		
	(A) Scale	(B) Origon	(C) Both A and B	(D) None of these
(5)	A correlation co-	efficient lies between:-		
	(A) -1 to 0	(B) 0 to 1	(C) - 1 to $+ 1$	(D) $-\infty$ to $+\infty$
(6)	If $b_{y.s} = 0.16$ ,	$b_{x,y} = 0.04  \text{then } r_{xy} \text{ is}$	s:-	
	(A) 0.08	(B) 0.8	(C) 0.16	(D) 0.04
(7)	For (4 × 5) conti	ngency table the no of ce	ells is equal to:-	
	(A) 4	(B) 15	(C) 20	(D) 16
(8)	In a chi-square tes	t for independence no ex	pected frequency show	uld be than 5.
	(A) Greater	(B) Less	(C) Both A and B	(D) None of these
(9)	The graph of time	series is called:-		
	(A) Historigram	(B) Scatter Diagram	(C) Frequency Curv	ve (D) Histogram
(10)	The best fitting tre	end is one in which the st	um of squares of resid	duals is:-
	(A) Maximum	(B) Zero	(C) Least	(D) Negative
(11)	A decimal number	system has base:-		
	(A) 8	(B) 10	(C) 2	(D) 16
(12)	The normal distrib	ution is a:-		
	(A) Unimodel	(B) Multimodel	(C) Bimodel	(D) Tri-model
(13)	In a normal distribu	ation $\mu = 0.6745$ or is e	equal to:-	
	(A) θ <sub>3</sub>	(B) $\frac{2}{3}$	(C) µ	(D) θ <sub>1</sub>
14)	For the standardize	d normal viarate $P(0)$	$\leq z \leq \infty$ ) =	
	(A) 1	(B) 0	(C) 0.5	(D) 0.75
15)	A population consis	ts of 5 members 1, 2,	3, 4, 5 then proport	ion of even numbers is:-
	(A) $\frac{3}{5}$	(B) $\frac{2}{5}$	(C) $\frac{1}{5}$	(D) $\frac{4}{5}$
6)	A value calculated f	rom population is calle	d:-	
	(A) Parameter	(B) Statistic	(C) Population	(D) Sample
7) ]	If $\overline{X} = 22$ and $\mu =$	= 20 then sampling erro	or is equal to:-	
(	(A) 2	(B) 20	(C) 22	(D) 42 (C)-2016(A)-2700 (MULTA)

(17

	aper Code	201	16 (A)	Roll No
Maria	iumber: 8187	INTERMEDIAT		CLASS)
S	TATISTICS PAP	ER-II		TIME ALLOWED: 20 Minutes MAXIMUM MARKS: 17
N	ote: You have four che		ECTIVE	C and D. The choice which you
th	ink is correct, fill that c	ircle in front of that qu	estion number. Use	marker or pen to fill the circles.
as	given in objective type	nore circles will result i	n zero mark in that	credit will be awarded in case
В	JBBLES are not filled. No.1	Do not solve question	on this sheet of OBJ	ECTIVE PAPER.
(1)	A population consis	sts of 5 members 1, 2, 3	, 4, 5 then proportio	n of even numbers is:-
	(A) $\frac{3}{5}$	(B) $\frac{2}{5}$	(C) $\frac{1}{5}$	(D) $\frac{4}{5}$
(2)	A value calculated i	from population is called	l:-	
	(A) Parameter	(B) Statistic	(C) Population	(D) Sample
(3)	If $\overline{X} = 22$ and $\mu$	= 20 then sampling erro	r is equal to:-	
	(A) 2		(C) 22	(D) 42
(4)	If $n = 8$ , $\sum x = 12$	0, $\sum (x - \bar{x})^2 = 302 \text{ th}$	nen unbiased estimate	es of the population variance of is:-
	(A) 15		(C) 37.75	(D) 120
(5)	An error is made by	accepting $H_0$ if $H_1$ is	actually true:-	
	(A) Type II error	(B) Type I error	(C) Sampling error	(D) None of these
(6)	Level of significance	e is denoted by:-		
	(A) β	(B) 1 – α	(C) α	(D) 1 – β
(7)	Regression co-effici	ent is independent of:-		
	(A) Scale	(B) Origon	(C) Both A and B	(D) None of these
(8)	A correlation co-effi	icient lies between:-		
	(A) -1 to 0	(B) 0 to 1	(C) - 1 to $+ 1$	(D) -∞ to +∞
(9)	If $b_{y.x} = 0.16$ , $b_x$	$r_{xy} = 0.04$ then $r_{xy}$ is	E-	
	(A) 0.08	(B) 0.8	(C) 0.16	(D) 0.04
(10)	For (4×5)conting	ency table the no of ce	lls is equal to:-	
	(A) 4	(B) 15	(C) 20	(D) 16
(11)		or independence no ex	pected frequency she	ould be than 5.
	(A) Greater	(B) Less	(C) Both A and B	
12)	The graph of time se	ries is called:-		
	(A) Historigram	(B) Scatter Diagram	(C) Frequency Cu	rve (D) Histogram
13)		d is one in which the s	um of squares of res	iduals is:-
	(A) Maximum	(B) Zero	(C) Least	(D) Negative
14)	A decimal number sy			
.,	(A) 8	(B) 10	(C) 2	(D) 16
(5)	The normal distribut			
,	(A) Unimodel	(B) Multimodel	(C) Bimodel	(D) Tri-model
6	The state of the s	and the second second second		(2) 111 1110421
6)		ion $\mu = 0.6745$ or is e		
	(A) $\theta_3$	(B) $\frac{2}{3}$	(C) µ	(D) $\theta_1$
7)	For the standardized	normal viarate P (0	$\leq z \leq \infty$ ) =	
	(A) 1	(B) 0	(C) 0.5	(D) 0.75
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			30(00)( 2	- 20 1-2010(N)-2100 (MULIAN

7.(a)	In a sample of 500 items, 40 are defective.	Compute 95% confidence interval for the
111/49	proportion of defective in the population.	1shing

4

(b) A class of six students was given a test before coaching and after one month coaching their marks were as follows:

Before coaching (X) 45 35 57 60 38 51

Before coaching (X) 45 35 57 60 38 51

4

After coaching (Y) 52 40 57 63 47 53

Test the hypothesis that coaching on the average has improved the performance of Students. Use  $\alpha = 5\%$ 

8.(a) The following table shows the marks obtained by students in Economics(X) and Statistics (Y).

4

X 40 40 32 34 50 Y 43 56 70 68 57

Find the least squares regression line y on x and show that  $\sum y = \sum \hat{y}$ .

(b) Compute co-efficient of correlation by finding missing value when  $\overline{X} = 6$ ,  $\overline{Y} = 8$  for the data given below:-

4

X 4 6 ? 2 8 Y 8 9 5 11 7

9.(a) Test H<sub>0</sub>: the two attributes are independent if 470 passed out of 750 appeared students. 465 had attended classes and 58 of them failed.

4

(b) Suppose  $\hat{Y} = 50 + 2x$  with origin at 1983 and unit of measurement for x is one year. Shift the origin at 1980.

4

## SECTION-III (PRACTICAL)

#### NOTE: - Attempt any three parts.

 $3 \times 5 = 15$ 

- (a) A population has values 4, 5, 7, 9. Take all possible samples of size two without replacement from this population. Verify that (i)  $\mu \bar{x} = \mu$  (ii)  $\sigma^2 \bar{x} = \frac{\sigma^2}{n} \left( \frac{N-n}{N-1} \right)$
- (b) Given that  $n_1 = 9$ ,  $\overline{X}_1 = 75$ ,  $\sum (X_1 \overline{X}_1)^2 = 1482$ ,  $n_2 = 16$ ,  $\overline{X}_2 = 60$ ,  $\sum (X_2 \overline{X}_2)^2 = 1830$ . Find 90% confidence interval for  $(\mu_1 \mu_2)$
- (c) Given the following data, find regression equation of y on x:

x	6	2	10	4	8
y	9	11	5	8	7

(d) Compute co-efficient of rank correlation from the following ranks:-

	City	uic c	o em	101011	T CAT	LOUIN	COLL	iatio
I	x	5	2	7	1	4	3	6
1	y	7	4	5	1	3	2	6

(e) Compute 4 - years centred moving average from the following time series:-

Years	2003	2004	2005	2006	2007	2008
Values	331	344	349	332	364	395

-	70			,		
- 2	u	ж	6	ø.	A.	1
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Roll No:

#### INTERMEDIATE PART-II (12th CLASS)

STAT	TOTT	ce i			-
SIAI	PETT	CO	PAI	PER	811

TIME ALLOWED: 3.10 Hours

#### SUBJECTVE

MAXIMUM MARKS: 83

NOTE: - Write same question number and its part number in answer book, as given in the question paper.

SECTION-I

 $8 \times 2 = 16$ 

- 2. Attempt any eight parts.
  - (i) In a normal distribution  $\mu_4 = 243$  find parameter  $\delta$
  - What are the mean and variance of Normal Distribution? (ii)
  - Find the value of maximum ordinate for a normal distribution, when  $\mu = 25$  and  $\delta^2 = 25$ (iii)
  - What are the parameters of Normal Distribution? (iv)
  - What are the Q. D and M.D of the Normal Distribution? (v)
  - Given  $\overline{X} = 120$ ,  $\mu_0 = 100$ , S = 34.75 and n = 25 find t. (vi)
  - Define Level of Confidence. (vii)
  - Define Statistical Inference. (viii)
  - Define type II-error. (ix)
  - Define Simple Hypothesis. (x)
  - What do you know DOS? (xi)

In Computer Studies, what do you understand by Binary Number System? (xii)

8 × 2 = 16

- Attempt any eight parts. Define Sampling Frame. (i)
- Elaborate the term Statistic. (ii)
- Explain Probability Sampling. (iii)
- What do you understand by Standard Error? (iv)
- In a population with  $\mu = 50$  and  $\delta^2 = 250$ . Find the mean and variance for the sampling (v) distribution of mean if sampling is done with replacement with n = 50.
- Given  $\mu = 40$ ,  $\delta = 4$ ,  $S.E(\overline{X}) = 2$ . Find n. (vi)
- What is meant by regression co-efficient? (vii)
- Write down two properties of slope. (viii)
- Define simple linear regression. (ix)
- Explain the term negative correlation. (x)
- Interpret the mean, of r = +1(xi)
- Given  $\overline{X} = 1$ ,  $\overline{Y} = 8$ , b = 2. Find the value of intercept 'a'. (xii)

Attempt any six parts.

 $6 \times 2 = 12$ 

- Explain the term rank correlation. (i)
- What is meant by independence of attributes? Explain (ii)
- Given the pairs of ranks (4, 2), (1, 3), (2, 1), (5, 6), (6, 5), (3, 4). Find  $\sum d^2$ . (iii)
- Define Time Series. (iv)
- Explain the term Secular Trend. (v)
- Given  $(y \hat{y}) = 0.5, -0.5, 1, -1, 0.5, -0.5$ . Find sum of squares of residuals. (vi)
- In a time series Y = 16 + 0.2x. Determine Y intercept and slope of the line. (vii)
- Write down additive model of time series. (viii)
- What are the different components of a time series? (ix)

### SECTION-II

NOTE: - Attempt any three questions.

 $X \sim N(50, a^2)$  and P(x < 69.9) = 0.993 find the value of a. 5.(a)

- If  $X \sim N$  (24, 16) find (i)  $P_{20}$ (b)
- (ii) D.

What will be the mean and variance of sample means if a sample of 36 is drawn with 6.(a) replacement from the population 1, 2, 3, 4, 4, 4, 5, 6, 6, 7.

- Given  $P_1 = \frac{1}{3}$ ,  $P_2 = \frac{2}{3}$ ,  $n_1 = 2$ ,  $n_2 = 2$  sampling is done with replacement. (b)
  - Find (i)  $E(\hat{P}_1 \hat{P}_2)$  (ii)  $S.E(\hat{P}_1 \hat{P}_2)$