Vivekananda College of Engineering & Technology, Puttur
[A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]
Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08	Rev 1.10	BS	25/08/22

CONTINUOUS INTERNAL EVALUATION- 3

Dept:BS(MAT)	Sem / Div: IV/A&B	Sub: Complex Analysis, Probability and Statistical Methods	S Code: 18MAT41
Date: 30/08/2022	Time:9:30-11:00 am	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	COs
	PART A			
1 a	x: 1, 2, 3, 4, 5, 6, 7, 8, 9 / y: 2, 6, 7, 8, 10, 11, 11, 10, 9. Fit a best fitting parabola of the form $y=ax^2+bx+c$ for the data.	8	L2	CO3
b	x: 1, 2, 3, 4, 5, 6 / y: 2.98, 4.26, 5.21, 6.1, 6.8, 7.5. Fit best fitting curve of the form $y=ax^b$ for the data. Claculate the value of y when x=3.5	8	L2	CO3
c	A random sample of 10 boys had the following IQ 70, 120, 110, 101, 88, 83, 95, 98, 107, 100. Does this data support the assumption of a population mean IQ of 100 at 5% level of significance.($t_{0.05}$ =2.262 for 9 degrees of freedom).	9	L3	CO4
	OR			
2 a	x: 1, 3, 4, 6, 8, 9, 11, 14 / y: 1, 2, 4, 4, 5, 7, 8, 9. Fit a straight line of the form y=a+bx to the above data.	8	L2	CO3
b	x: 1, 2, 3, 4, 5 / y: 0.5, 2, 4.5, 8, 12.5. Fit a least geometric curve $y=ax^b$ for the data	8	L2	CO3
c	Ten individuals are chosen at random from a population and their heights in inches are found to be 63, 63, 66, 67, 68, 69, 70, 70, 71, 71. Test the hypothesis that mean height of the universe is 66 inches. ($t_{0.05}$ =2.262 for 9 degrees of freedom)	9	L3	CO4
	PART B			
3 a	(joint distribution table below)	9	L3	CO4

1 a

x	1	2	3	4	5	6	7	8	9
y	2	6	7	8	10	11	11	10	9

Fit a best fitting parabola of the form $y=ax^2+bx+c$ for the data.

b

x	1	2	3	4	5	6
y	2.98	4.26	5.21	6.1	6.8	7.5

2 a

x	1	3	4	6	8	9	11	14
y	1	2	4	4	5	7	8	9

b

x	1	2	3	4	5
y	0.5	2	4.5	8	12.5

3 a

X↓ Y→	-4	2	7
1	1/8	1/4	1/8
5	1/4	1/8	1/8

Prepared by: Madhavi R Pai   HOD: Prof. M Ramananda Kamath

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CONTINUOUS INTERNAL EVALUATION- 3

	The joint probability distribution of two random variables X and Y is as follows. Compute (a) Marginal distributions of X and Y (b)E(X), E(Y) (c) Standard deviation of X and Y (d) Coefficient correlation between X and Y.			
b	Sample analysis of examination results of 500 students was made. It was found that 220 students failed, 170 secured 3rd class, 90 has secured 2nd class and 20 had secured 1st class. Do these figures support the general examination result which is in the ratio 4:3:2:1 for the respective categories.($\chi^2_{0.05}=7.815$ for 3d.f)	8	L3	CO4
c	Explain the terms (i)Null hypothesis (ii)Alternate hypothesis (iii)Type I and Type II errors (iv) Confidence intervals.	8	L3	CO4

OR

4	a							9	L3	CO4

$X\downarrow$ $Y\rightarrow$	-2	-1	4	5
1	0.1	0.2	0	0.3
2	0.2	0.1	0.1	0

The joint probability distribution of two random variables X and Y is as follows. Compute (a) Marginal distributions of X and Y (b) E(X), E(Y) (c) Standard deviation of X and Y (d) Coefficient correlation between X and Y.

b						8	L3	CO4

x	0	1	2	3	4
f	122	60	15	2	1

Fit a Poisson distribution for following data and test the goodness of fit given that $\chi^2_{0.05}=7.815$ for 3 degrees of freedom.

c	It is claimed that a random sample of 49 tyres has mean life of 15,200kms.Is the sample drawn from a population whose mean is 15,150kms whose standard deviation is 1200kms? Test significance at 0.05 level.	8	L3	CO4

MRPai
26/08/22
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