CONTINUOUS INTERNAL EVALUATION- 2

Dept:BS	Sem / Div:IV/A,B	Sub:Complex Analysis, Probability and Statistical methods	S Code:18MAT41
Date:24-06-2021	Time: 9:30-11:00 am	Max Marks: 50	Elective:N
Note: Answer any 2 full questions, choosing one full question from each part.			

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QN		Questions	Marks	RBT	COs
		PART A			
1	a	A random variable X has the following probability distribution x: 0 1 2 3 4 5 6 7 8 P(x): a 3a 5a 7a 9a 11a 13a 15a 17a Find the value of 'a'. Also find (i)P(x<3) (ii) $P(x\geq 3)$ (iii) $P(2\leq x<5)$ (iv)What is the smallest value of x such that $P(X\leq x)>0.5$	8	L2	CO2
	b	It was found that 10% of boys in a certain class were suffering from short sight .What is the probability that a random sample of 5 boys will contain (i)No boy suffering from short sight (ii) exactly one boy suffering from short sight (iii) not more than 4 boys suffering from short sight?	8	L3	CO2
	c	Discuss the transformation $W=e^{Z}$ with respect to the lines parallel to co-ordinate axes in Z-plane	9	L3	CO1
2	a	A random variable X has the following probability distribution x: -2 -1 0 1 2 3 4 P(x): 0.1 0.1 k 0.1 2k k k Find k and P(x<0). Also find Mean,Variance and Standard deviation	8	L2	CO2
	b	In a normal summer,a truck driver gets on an average one puncture in 1000km. Applying Poisson distribution find the probability that he will have (i) one puncture (ii) two punctures (iii)at most 3 punctures, in a journey of 3000km	8	L3	CO2
	c	Discuss the transformation $W=Z^2$	9	L3	CO1
		PART B			
3	a	The probability density function of a random variable X is . $f(x)=\begin{cases} kx^2 & , -3<x<3 \\ 0 & , otherwise \end{cases}$ Find the value of k . Also find $P(1\leq x<2)$, $P(x>1)$	8	L3	CO2

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	b	The telephone conversation has been found to have an exponential distribution with mean 3 minutes .Find the probability that conversation may last (i)More than 1 minute (ii)less than 3 minute	8		CO2
	c	Find the bi linear transformation that maps the point $z=-2,0,2$ onto the points $w=\infty,\frac{1}{2},\frac{1}{3}$ respectively	9	L2	CO1
		OR			
4	a	The probability density function of a random variable is given by $p(x)=y_o e^{-\lvert x\rvert}, -\infty<x<\infty$ .Find y_o and mean	8	L3	CO2
	b	The life of a compressor manufactured by a company is known to be 200 months on an average following an exponential distribution. Find the probability that the life of a compressor of that company is less than 200 months	8	L3	CO2
	c	Find the bi linear transformation which maps the point z= -1,0,1 onto the points w=0,i,3i respectively	9	L3	CO1

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