

KENDRIYA VIDYALAYA SANGATHAN, KOLKATA 1**SAMPLE QUESTION PAPER:2021-22****CLASS : XI****SUBJECT:-APPLIED MATHEMATICS****MARKING SCHEME****SECTION A**

Q.1	Using property $C(n,r)+C(n,r-1)=C(n+1,r)$ And using property $C(n,n-r)=C(n,r)$ $=0$ OR $P(9,4)$ $=3024$	$\frac{1}{2}$ $\frac{1}{2}$ 1 1 1
Q.2	Differentiate by chain rule $=7(3x^2 - 5x + 1)^6 (6x-5)$	1 1
Q.3	$S=\{HHH,HHT,HTH,HTT,THH,THT,TTH,TTT\}$ $A=\{TTT\}$ $B=\{HTT,THT,TTH\}$ $C=\{HHT,HTH,THH,HHH\}$ Now,for mutually exclusive $a \cap B = \emptyset$ $B \cap C = \emptyset$ AND $A \cap C = \emptyset$ They are mutually exclusive OR $S=\{(1,2),(1,3),(1,4),(1,5),(2,1),(2,3),(2,4),(2,5),(3,1),(3,2),(3,4),(3,5),(4,1),(4,2),(4,3),(4,5),(5,1),(5,2),(4,3),(5,4)\}$ $E=\{(2,1),(3,1),(4,1),(4,2),(5,1)\}$ Prob. $=1/4$	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ $1/2$
Q.4	$P(A \cap B^c) = P(A-B)$ $=0.54-0.35=0.19$	1 1
Q.5	Area of triangle $=0$ $X=-1$	1 1
Q.6	$A = P\left(1 + \frac{r_1}{100}\right) \left(1 + \frac{r_2}{100}\right)$ Using above formula $A = \text{Rs. } 27300$	1 1

SECTION B

Q.7	Compare with the standard equation Focus $(0,-3/5)$ Equation of directrix $5y-3=0$ Length of L.R. $= 12/5$	1 1 1
Q.8	Purchase Price $= P\left(1 - \frac{R}{100}\right)^{-n}$ $= \text{Rs. } 60,000$ OR $A(7,0.14) = 500\left[\frac{(1+0.014)^7-1}{0.14}\right]$ $= \text{Rs. } 5365.35$	11/2 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$
Q. 9	Paid amount $= \text{Rs } x + \frac{18}{100} x = \frac{59}{50} x$	1

	A.T.Q. $x=750$	1
	Therefore reduced price of the leather coat =Rs(.885-750)=Rs.135	1
Q.10	No. of units consumed =5678-4803= 875	1
	Fixed charge= 440	$\frac{1}{2}$
	Surcharge= 227.50	$\frac{1}{2}$
	Energy tax= 304.50	$\frac{1}{2}$
	Electricity bill= Rs. 6622.00	$\frac{1}{2}$

SECTION C

Q.11	(i) $C(15,4)= 1365$ (ii) $C(14,10)= 1001$ (iii) $C(14,11)= 364$ (iv) $C(2,1) \cdot C(13,10)= 572$	1 1 1 1
Q. 12	By using continuity definition $LHL=RHL=f(1)$ $5a-2b=11$ $3a+b=11$ Solving these eq. ,we get $a=3, b=2$	1 1 2
Q.13	$P(A)= 25/50, P(B)=16/50, P(C)= 5/50, P(A \cap B)= 8/50, P(B \cap C)=1/50$ $,P(A \cap C)=5/50, P(A \cap B \cap C)=1/50$ $P(A \cup B \cup C) = 33/50$ OR $P(E1)= 7/10, P(E2)=3/10, P(A/E1)= 8/10, P(A/E2)= 9/10$ $P(E1/A)= 56/83$	3 1 2 2
Q.14	Gross income =Rs 7,28,000 Less S.D. =Rs. 50,000 Balance= Rs. 6,78,000 Deduction under section 80 c =Rs. 1,62,825 But allowed deduction = Rs.1,50,000 (a) Taxable income =Rs. 6,78,000 – Rs. 1,50,000= Es. 5,28,000 (b) Income tax = Rs. 12500 +20% of Rs 28000 = Rs. 18100 Health and education cess 4% of Rs 18100= Rs. 724 Total income tax= Rs. 18824	$\frac{1}{2}$ $\frac{1}{2}$ 1 1 $\frac{1}{2}$ $\frac{1}{2}$