

Answer Key (S. Y. B. A. Sem-III) Paper-III, UAST302 Set-II

C. P. Code (6443)

Q.1(a)	i. $\rightarrow c$, ii. $\rightarrow c$, iii. $\rightarrow d$, iv. $\rightarrow d$, v. $\rightarrow c$, vi. $\rightarrow a$ and vii. $\rightarrow a$		
Q.2(b)	Maximize $Z = 50x_1 + 20x_2$ subject to constraints: $20x_1 + 10x_2 \leq 500$, $50x_1 + 50x_2 \leq 300$, $x_1, x_2 \geq 0$, $x_1 = 6, x_2 = 0$ and $Z = 300$		
Q.2(c) (i)	Minimize $Z = 3w_1 + 20w_2$ subject to constraints: $w_1 + w_2 \geq 4$, $w_1 - w_2 \geq 2$, $w_1, w_2 \geq 0$		
Q.3(a)	$x_{14} = 11, x_{21} = 6, x_{22} = 3, x_{24} = 4, x_{32} = 7$ and $x_{33} = 12$ and $Z = 1592$		
Q.3 (b) (i)	$x_{11} = 1200, x_{13} = 800, x_{22} = 1500, x_{32} = 300, x_{33} = 200$ and $x_{34} = 500$ and $Z = 86700$		
Q.4 (b)	$1 \rightarrow 4 \rightarrow 7 \rightarrow 2 \rightarrow 6 \rightarrow 3 \rightarrow 5$, total minimum time = 59 hrs, idle time for $M_1 = 13$, idle time for $M_2 = 37$, idle time for $M_3 = 7$		
Q.4 (c) (ii)	$A \rightarrow G, B \rightarrow E, C \rightarrow F, D \rightarrow H$ total time is = 59 hrs		
Q.5 (a) (i)	Vertex	Co-ordinates	Value of $Z = 20x_1 + 40x_2$
	A	$(x_1 = 0, x_2 = 18)$	$Z = 720$
	B	$(x_1 = 2, x_2 = 6)$	$Z = 280$
	C	$(x_1 = 4, x_2 = 2)$	$Z = 160$ (Minimum)
	D	$(x_1 = 12, x_2 = 0)$	$Z = 240$
Q.5 (a) (ii)	Maximize $Z = 0.5x_1 - 0.1x_2$ subject to constraints: $x_1 + x_2 \leq 20$, $0.5x_1 - 0.1x_2 \geq 6$, $2x_1 + 5x_2 \leq 80$, $x_1, x_2 \geq 0$		
Q.5 (b) (i)	$x_{11} = 16, x_{12} = 3, x_{22} = 15, x_{23} = 22$ and $x_{33} = 9, x_{34} = 25$ and $Z = 580$		
Q.5 (b) (ii)	$x_{12} = 40, x_{14} = 80, x_{21} = 10, x_{23} = 30, x_{24} = 30$ and $x_{31} = 50$ and $Z = 3520$		
Q.5 (c) (ii)	$4 \rightarrow 1 \rightarrow 3 \rightarrow 2 \rightarrow 5 \rightarrow 6$, minimum total elapsed time = 430 hrs, idle time for $A = 10$ and $B = 60$		