Program: BE Engineering Curriculum Scheme: R-2016 Examination: Final Year Semester VII

Course Code: ILOC 7015 Course Name: Operations Research Time: 1 hour Max. Marks: 50

Question Paper Set No. 04

Note: Each question is for 2 marks.

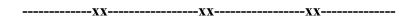
Lacii	question is for 2 marks.														
		Multip	Multiple Choice Questions (MCQ)												
		ALL qu	uestio	ns are	comp	ulsory	7.								
		There a	are 25	questi	ions, e	each q	uestio	n carr	ies 2 n	nark.					
1.	Th	unit of traffic intensity is:													
	a)	Poisson													
	b)	Markov	W												
	c)	Erlang													
	d)	Kendall													
2.	Arrival rate of telephone calls at a telephone booth is according to Poisson distribution, with an average time of 9 minutes between consecutive arrivals. The length of telephone call is exponentially distributed with a man of 3 minutes. Find the average queue length that forms from time to time														
	a)	1.5 per	sons												
	b)	1 perso	n												
	c)	2.5 per	sons												
	d)	12.5 pe	ersons												
3.	mi arr	ick up their needs by themselves. The arrival rate is 9 customers for every 5 ninutes and the cashier can serve 10 customers in 5 minutes. Assuming Poisson rrival rate and exponential distribution for service rate. Find average number of ustomers in the system.													
	a)	0.11 customers													
	b)	9 customers													
	c)	11 customers													
	d)														
4.	De	termine t	the idl	e time	of the	e serv	ice fac	ility							
	a)	1 min													
	b)	2 min													
	c)	3 min													
	d)	0 min													
	Re	ad the gi	ven qı	ıestioı	n answ	er the	follo	wing o	questic	ons 11	,12				
		Read the given question answer the following questions 11,12 A company manufactures around 200 bikes. Depending upon the availability of raw													
	ma	terial and	d othe	r cond	litions	, the d	laily p	roduc	tion h	as bee	n vary	ing fr	om 19	6 to 2	04
_	bik	es. The f	finishe	ed bike	es are	transp	orted	in a s _l	peciall	ly desi	igned	three-	storie	d lorr	y
5.	tha	t can acc	commo	odate (only 2	00 bik	kes, w	hose 1	probal	oility o	distrib	ution	and ra	ndom	
	nu	mbers are	e give	n in th	e follo	owing	table:								
	D	a 1	2	3	4	5	6	7	8	9	10	11	12	13	14
	l y														

	Ra 82		89	78	24	53	61	18	45	04	23	50	77	27	54
	nd														
	om														
	No)													
	Pro	20	20	20	19	20	20	19	20	19	19	20	20	19	20
	du		3	2	8	0	1		0	6	8	0	2	9	0
	tio														
	n/d	i													
	ay														
	Simulate the process to find out what will be the average number of								of bik	es					
	waiting in the factory														
	a) b)	2													
	c)	3													
	d)	4													
6.		at will b	e the	averag	e nun	nber o	f emp	tv spa	ce in t	he lor	TV				-
	a)	0		., 0100	30 110,11		- -	·y spu		110 101	-)				
		1													
	(c)	2													
	d)	3													
7.	If a problem can be broken into sub-problem which are reused several times, the														
/.	problem possessesproperty.														
	a)	Overla				lem									
	b)	Optima			re										
	c)	Memor		1											
8.	d)	Greedy d a recu		roloti	on on	1 initi	al aon	dition	for 1	5 17	7 52	161 /	95		
0.	a)	$\frac{1 \text{ a recu}}{a_n = 3a_{n-1}}$				1 1111116	ar com	JILIOII	5 101 1	, 3, 1	7, 33,	101, 4			
	b)	$a_n = 3a_n$													
	c)	$a_n=3a_{n-1}$													
	d)	$a_n=3a_n$													
9.	For	which o	of the	follow	ing pi	oblen	ns is n	nost su	ıitable	for P	robab	ilistic	Dyna	mic	
9.	prob	olem so	lving 1	metho	d?										
	a)	Distrib						ies							
	b)	Schedu				levels									
	c)	Winnin													
10	d)	Stagec				•		1 ,	T ·			. ,	D 11		
10.	+	two per							a Line	ar Pro	ogram	ming	Proble	em,	
	a)	Number						ly							
	b)	There y						m Co	Jump	nlave	r renra	acent I	Jual n	rohlar	
	c) Row player represents Primal problem, Column player represent Duald) Number of constraints is two only							Juai p	100161	11					
11.	/	of the						v is—							
	a)														\dashv
	a) All players act rationally and intelligentlyb) Winner alone acts rationally														
	c) Loser acts intelligently								\neg						

	d)	Both the players believe luck
12.		a two person zero sum game, the following does not hold correct:
	a)	Row player is always a loser
	b)	Column Player is always a winner.
	c)	Column player always minimizes losses
	d)	If one loses, the other gains.
	The	EOQ for the following data
	An	nual usage = 1000 pieces
	Ex	pending cost = Rs. 4 per order
13.	Co	st per piece = $Rs. 250$
	Inv	entory holding cost= 20% of average inventory
	Oro	dering $cost = Rs. 6$ per order
	Ma	terial holding cost= Re.1 per piece
	a)	22
	b)	23
	c)	20
	d)	24
14.	He The	contractor has to supply 10,000 bearings per day to an automobile manufacturer. finds that, when he starts production run, he can produce 25,000 bearing per day. e cost of holding a bearing in stock for a year is Rs. 2 and set up cost of a duction run is Rs. 1800. How frequently should production run be made.
	pro	duction run is Rs. 1800. How frequently should production run be made
	a)	10.44 days
	b)	11.44 days
	c)	12 days
	d)	11 days
15.	Re	-order level of an item is always
	a)	Less than its minimum stock
	b)	Less than its maximum stock
	c)	More than its maximum stock
	d)	More than its minimum stock
16.		the Simplex method to convert a constraint of type ≤, to equation form, we need
	to a	add what type of variable?
	a)	surplus variable
	b)	slack variable
	c)	artificial variable
	d)	dual variable
17.		nsider the constraints for a LPP $3a + 5b = 15$ and $5a + 2b = 10$. Given $a, b \ge 0$. e number of vertex points in the feasibility convex region are?
	a)	1
	b)	2
	c)	3
	d)	4
18.		nsider the constraints for a LPP $7a + 3b \le 24$, $a + 2b \le 6$ and $b \le 6$. Given a, $b \ge 0$. The number of vertex points in the feasibility convex region are?
	a)	4
	b)	6
	c)	8
		I .

19. Consider the constraints for a LPP 7a + 3b ≤ 24 and b ≤ 2. Given a, b ≥ 0. The number of vertex points in the feasibility convex region are? a) 2 b) 4 c) 6 d) No Feasible region Four people A, B, C and D are standing on one bank of a river and wish to ore the opposite bank using a canoe. The canoe can hold maximum 2 people at a canoe are in the canoe, the slower person dictates the crossing time. What is the smallest time to move all 4 people to the other side of the river? a) 28 min b) 27 min c) 25 min d) 26 min Three people A, B, and C are standing on one bank of a river and wish to crost the opposite bank using a canoe. The canoe can hold maximum 2 people at canoe, the slower person dictates the crossing time. What is the smallest time move all 3 people to the other side of the river? 21. A can row across in 1min, B takes 6min and C takes 12min. If two people at canoe, the slower person dictates the crossing time. What is the smallest time move all 3 people to the other side of the river? a) 19 min b) 12 min c) 18 min d) 13 min A company produces two products: Product A and Product B. Each product Intrough two processes: assembly and painting. The times required (in minutes cach product in each process as well as the per unit profit for each product are below: Product A B Revenue S 27.00 S 30.00 Unit Assembly Time (minutes) 6 3 The company has 60 hours of assembly time and 80 hours of painting time available each week. If a linear programming model is used to determine to optimal number of Products A and B to produce next week, the optimal number of Product S A and B to produce next week, the optimal number of Products A and B to produce next week, the optimal number of Products A and B to produce next week, the optimal number of Products A and B to produce next week, the optimal number of Products A and B to produce next week, the optimal number of Products A and B to produce next week, the optimal number of Products A and B to produce next week, the optimal number of Pro	1										
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programming model are known as	23.										
a) objective function											

	b)	constraints					
	c)	extreme points					
	d)	slack variables					
24.	Having more than one shipping distribution but with the same total cost is known as						
	a)	a prohibited solution					
	b)	an unequal solution					
	c)	an alternative optimal solution					
	d)	a transshipment solution					
25.	In linear programming extreme points are:						
	a)	variables representing unused resources					
	b)	variables representing an excess above a resource requirement					
	c)	all the points that simultaneously satisfy all the constraints of the model					
	d)	corner points on the boundary of the feasible solution space					



Program: BE Engineering Curriculum Scheme: R-2016

Curriculum Scheme: R-2016 Examination: Final Year Semester VII

Course Code: ILOC 7015, Course Name: Operations Research

Time: 1 hour Max. Marks: 50

Answer Keys to Question Paper Set no. 04

Enter a, b, c, or d in the correct option column

Question	Correct Option	Question	Correct Option
Q.1	c	Q.14	a
Q.2	a	Q.15	с
Q.3	b	Q.16	b
Q.4	d	Q.17	a
Q.5	С	Q.18	a
Q.6	a	Q.19	b
Q.7	a	Q.20	d
Q.8	С	Q.21	a
Q.9	С	Q.22	d
Q.10	c	Q.23	b
Q.11	a	Q.24	С
Q.12	a	Q.25	d
Q.13	С		