

ABES Engineering College, Ghaziabad B.Tech Odd/Even Semester Sessional Test-1

Printed Pages: 3

Session: 2022-23

Roll No.

Date of Exam: 20 October

Time:10-12 PM

Course Code: KCS056

Course Name: Applications of Soft Computing

Maximum Marks: 75

1. Attempt All sections. 2. If require any missing data, then choose suitably.

Q.No.								Marks	CO	KL	PI	
Town .				Se	ction-A							
1	Attempt ALL Parts		(5x2=10)									
a)	List any five applications	oplications of neural networks.							CO1	KI	1.3.1	
b)	List any one real-life appl	ny one real-life application for each of supervised learning, unsupervised learning and preement learning techniques.						2	CO1	ΚI	1.2.1	
	How does the learning ra							1+1	CO2	K2	2.3.1	
	Compute the result Y of a below.	a single no	euron whe	on input $X_1 = X_2 = 0.5$ 0.5 x_1	0.5	hold is 0. ≿2	9 as given in figure	2	CO1	K1	2.41	
e)	Differentiate fuzzy set and crisp set with the help of example of each.							2	CO3	Kı	1.3.1	
					ection-B							
2	Attempt ANY ONE pa	rt from th	e followir	ng				er alvel	/1-5	-5		
a)	A 4-input neuron has weights 1 2 3 and 4 The target of					is linear	with the second		(1x5=5)			
	Y. The inputs are 4, 10, 5 and 20 respectively. Compute the output Y.						5	CO1	К3	2.4.1		
b)	Design a single artificial	esign a single artificial neuron model and explain each component with neat and clean diagram.						5	CO1	K2	1.4.1	
3	Attempt ANY ONE part from the following Explain the concept of linearly seperable and linearly nonseperable tasks with the help of examples of AND and XOR problem.											
	AND and XOR problem	inearly ser	perable an	d linearly nonseper	rable tasks	with the	help of examples of		(1x5	=5)		
							or champies of					
			uts x2	Output (y)	X1	X ₂	Output (y)					
a)		0	0	0	0	0	0		1			
,		1	0	0	0	1	1	2.5+2.5		Kt	2.4.1	
		1	1	0	1	0	1		CO2			
				1	1	1	0					
				roblem		XOR Pr				<i>y</i> 1		
b)	Summarize the steps of Also explain the signific	backpropa cance of g	agation er	Tor correction met	hod in mul	611	16 mond notwork	2.5+2.5	CO2	Kl	1,4.1	

	Attempt ANY ON	NE part from the follo	wing							_		(1 x5:		1.3.1
	What are the advan	ntages and disadvantag	es of fuzzy l	ogic?							5	CO3	Kl	1.5.1
1	Differentiate fuzzy	fication and defuzzific	eation proces	s with th	ne help o	of an e	xample				5	CO3	К2	2.4.1
					Section	-C		77					-10)	
	Attempt ANY Of	NE part from the follo	owing									(1x10	=10)	<u> </u>
	five activation fun	function and it's important or with their mathe	matical form	ula and	plotting	(Diagr	ram).				5+5	CO1	K2	1.3.1
	Calculate the weig neural network an	ghts of a single neural and show the weight cor	network whi nputations.	ch comp The train	ing set	is giver	n below	V:		0.20	. 1 9		-	
				x_1	x_2	X_3	0	(X ₁ ,	X,	<i>X</i> 3)		1 9	-	
			1.	1	1	1			1					
			2.	1					1	1 11 11	111		-51	
			3.	I	0	0			1			CO:	K4	2.4.1
)			4.		1				0		5	COI	N4	2.4.1
,			5.						0					
		1		0	0	0			0					
			6.						,			1		
	44 4.2		7.	1	0	1			1					1
													-	
											•			1
									_			/1×1	0=10)	
_	Attampt ANY C	ONE part from the fol	lowing									(1x1	0=10)	
5	m · hataaaaa	ONE part from the fol	rk using Het	ob rule to	store in	nput ro	w vect	or s=(s	s1,s2,s3	s,s4) to		(1x1	0=10)	
5	m · hataaaaa	soistive memory netwo	rk using Het	ob rule to	store is	nput ro	w vect	or s=(s	s1,s2,s3	3,s4) to		(1x1	0=10)	
5	m · hataaaaa	ociative memory netwo or t=(t1,t2), the vector p	rk using Het pair given in	tuoie oc	-		1		s1,s2,s3	t2				
5	m · hataaaaa	ociative memory netwo or t=(t1,t2), the vector p	rk using Het pair given in	tuoie oc	s1	s2	s3	s4	t1	t2		(1x1		
	m · hataaaaa	inputs an	rk using Het pair given in	tuoie oc	s1 0	s2 1	s3 1	s4 1	t1	t2				
	m · hataaaaa	Inputs an 1st 2nd	rk using Het pair given in	tuoie oc	s1 0 1	s2 1 1	s3 1 0	s4 1	t1 1	t2 0				
	m · hataaaaa	Inputs an 1st 2nd 3rd	rk using Het pair given in	tuoie oc	s1 0 1	s2 1 1	s3 1 0	s4 1 1	t1 1 1 0	t2 0 0				
	Train a hetroasso output row vecto	Inputs an 1st 2nd 3rd 4th	rk using Het pair given in	gest	s1 0 1 1	s2 1 1 1	s3 1 0 1	s4 1 1 1 0	t1 1 0	t2 0 0 1	10	con	K4	
	Train a hetroasso output row vecto	Inputs an 1st 2nd 3rd 4th	rk using Het pair given in	gest	s1 0 1 1	s2 1 1 1	s3 1 0 1	s4 1 1 1 0	t1 1 0	t2 0 0 1	10 5+5	con	K4	
a)	Train a hetroasso output row vecto What do you un	Inputs an 1st 2nd 3rd 4th derstand by the concer	ork using Het pair given in a d Tar	gest	s1 0 1 1 0	\$2 1 1 1	s3 1 0 1	\$4 1 1 0	t1 1 0 0	t2 0 0 1 1	5+5	con	K4	
a) b)	Train a hetroasso output row vecto What do you un	Inputs an 1st 2nd 3rd 4th derstand by the concer	ork using Het pair given in a d Tar	gest	s1 0 1 1 0	\$2 1 1 1	s3 1 0 1	\$4 1 1 0	t1 1 0 0	t2 0 0 1 1	5+5	cor co	K4 1 K4 10=10)	
a) b)	What do you un Computing? Attempt ANY	Inputs an Ist 2nd 3rd 4th derstand by the conceptive from the formula to the conception of the co	ot of computing lowing lyweight vectors.	gest ing? Wh	s1 0 1 1 0 o at are th	\$2 1 1 1 1 1-1,1] ar	s3 1 0 1 0 ecterist	\$4 1 1 0 ics of l	t1 1 1 0 0	t2 O O 1 1 d Soft	5+5	cor co	K4 1 K4 10=10)	
b) 7	What do you un Computing Attempt ANY For a given inpu	Inputs an Ist 2nd 3rd 4th derstand by the concept ONE part from the four vector X=[1,0,1,-1,2] le neuron having follows.	rk using Het pair given in de Tari	gest ing? Wh	s1 0 1 1 1 0 0 at are the (0,-1,-1, tion.	\$2 1 1 1 1 1- 1-1,1] are charge	s3 1 0 1 0 ecterist	s4 1 1 0 ics of l	t1 1 0 ohard an	t2 O O 1 1 d Soft	5+5	cor co	K4 1 K4 10=10)	
b) 7	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) three	Inputs an 1st 2nd 3rd 4th derstand by the concept tector X=[1,0,1,-1,2] le neuron having followshold (0.5) c) Rectifie	ork using Het pair given in ad Tari of computing llowing ly weight very wing activated Linear United States and Linear United Li	ing? Wheter Welton function function (ReLU	s1 0 1 1 0 at are th (0,-1,-1, tion. J) d) signet rule	s2 1 1 1 1 1 ae chare	s3 1 0 1 1 0 ecteristement bias	s4 1 1 0 ics of l	t1 1 0 ohard an	t2 O O 1 1 d Soft	5+5	cor co	K4 1 K4 10=10)	
b) 7	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) three	Inputs an 1st 2nd 3rd 4th derstand by the concept tector X=[1,0,1,-1,2] le neuron having followshold (0.5) c) Rectifie	ork using Het pair given in ad Tari of computing llowing ly weight very wing activated Linear United States and Linear United Li	ing? Wheter Welton function function (ReLU	s1 0 1 1 0 at are th (0,-1,-1, tion. J) d) signet rule	s2 1 1 1 1 1 ae chare	s3 1 0 1 1 0 ecteristement bias	s4 1 1 0 ics of l	t1 1 0 ohard an	t2 O O 1 1 d Soft	5+5	cor co	K4 1 K4 10=10)	
b) 7	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) three	Inputs an Ist 2nd 3rd 4th derstand by the concept ONE part from the four vector X=[1,0,1,-1,2] le neuron having follows.	ork using Het pair given in ad Tari of computing llowing ly weight very wing activated Linear United States and Linear United Li	ing? Wheter Welton function function (ReLU	s1 0 1 1 0 at are th (0,-1,-1, tion. J) d) signet rule	s2 1 1 1 1 1 ae chare	s3 1 0 1 1 0 ecteristement bias	s4 1 1 0 ics of l	t1 1 0 ohard an	t2 O O 1 1 d Soft	5+5	cor co	K4 1 K4 10=10)	
b) 7	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) three	Inputs an ard	ork using Het pair given in ad Tari of compute of compute of lowing activated Linear Unork using Oue (t1,t2), the very large of the compute o	ing? Wheter well and the confunction function fu	s1 0 1 1 0 at are the (0,-1,-1, tion. U) d) signet rule tir given	s2 1 1 1 1 ae chare	s3 1 0 1 0 ecteristed	s4 1 1 0 ics of l se B=+ anh (ta	t1 1 0 0 hard an	t2 O O 1 1 1 d Soft	5+5	CO1 (1x) 2+; CO	1 K4 10=10) 2 K3	2.4.
b) 7	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) three	Inputs an ard	ork using Het pair given in ad Tari of compute of compute of lowing activated Linear Unork using Oue (t1,t2), the very large of the compute o	ing? Wheter well and the confunction function fu	s1 0 1 1 0 at are the (0,-1,-1, tion. U) d) signet rule tir given	s2 1 1 1 1 1 ae chare -1,1] are moid are to store in tab	s3 1 0 1 0 ecteristem d bias and e) tre input le bello	s4 1 1 0 ics of li se B=+ anh (ta	t1 1 0 o hard an 2, compansigmorector	t2 O O 1 1 d Soft	5+5	cor co	1 K4 10=10) 2 K3	2.4.
a) 7 a)	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) thre Train a hetroass s=(s1,s2,s3,s4)	Inputs and Ist Inputs and Ist Inputs and Ist Inputs and Ist Inputs and Inputs and Inputs and Ist Inputs and Ist Inputs and Ist Inputs and Input	ork using Het pair given in ad Tari of compute of compute of lowing activated Linear Unork using Oue (t1,t2), the very large of the compute o	ing? Wheter well and the confunction function fu	s1 O at are the (0,-1,-1, tion. U) d) signer rule ir given	s2 1 1 1 1 1 ae chare amoid ae to stor in tab	s3 1 0 1 0 ecterist and bias and e) tre inpute bello	s4 1 1 0 ics of l anh (ta	t1 1 0 0 hard an	t2 O O 1 1 1 d Soft	5+5	CO1 (1x) 2+; CO	1 K4 10=10) 2 K3	2.4.
b) 7	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) thre Train a hetroass s=(s1,s2,s3,s4)	Inputs and Ist Inputs and Ist Inputs and Ist Inputs and Ist Inputs and Inputs	ork using Het pair given in ad Tari of compute of compute of lowing activated Linear Unork using Oue (t1,t2), the very large of the compute o	ing? Wheter well and the confunction function fu	\$1 0 1 1 0 at are the (0,-1,-1, tion. J) d) signet rule air given	s2 1 1 1 1 ae chare -1,1] ar moid a to stor in tab	s3 1 0 1 0 ecterist and bias and e) tree inpute the bello	s4 1 1 0 ics of l se B=+ anh (ta t row v	t1 1 0 o hard an 2, compansigment rector	t2 O O 1 1 d Soft puter the	5+5	CO1 (1x) 2+; CO	1 K4 10=10) 2 K3	2.4.
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a) 7 a)	What do you un Computing Attempt ANY For a given inpu output of a sing a) Linear b) thre Train a hetroass s=(s1,s2,s3,s4)	Inputs and Ist Inputs and Ist Inputs and Inputs	ork using Het pair given in ad Tari of compute of compute of lowing activated Linear Unork using Oue (t1,t2), the very large of the compute o	ing? Wheter well and the confunction function fu	\$1 0 1 1 0 at are the (0,-1,-1, tion. J) d) signet rule air given	s2 1 1 1 1 1 1 se chare a moid a to stor in tab	s3 1 0 1 0 ecterist and bias and e) tree inpute the bello	s4 1 1 0 ics of l se B=+ anh (ta t row v	t1 1 0 o hard an 2, compansigment rector	t2 O O 1 1 d Soft puter the	5+5	CO1 (1x) 2+1 CO	1 K4 10=10) 2 K3	2.4.
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