	Utech
Name:	
Roll No.:	In Summar IV Exercising 2 and Experiment
Invigilator's Signature :	

2012

PATTERN RECOGNITION AND MACHINE INTELLIGENCE

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A (Multiple Choice Type Questions)

1. Choose the correct alternatives for any <i>ten</i> of the following	1.	Choose th	ne correct	alternatives	for an	ny ten o	f the following
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 $10 \times 1 = 10$

i)	"Predicate logic is a type of non-monotonic logic".
	The given statement is

a) True

- b) False.
- ii) Which one of the following is a technique for pattern classification?
 - a) Bayes' classifier
- b) Rule based classifier
- c) Fuzzy classifier
- d) All of these.
- iii) Which one of the following cannot be regarded as soft computing?
 - a) Artificial neural nets
- b) Genetic algorithm
- c) Fuzzy logic
- d) None of these.

SS-323 Turn over

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iv)		-	_	segmentation is called
	the	thresholding method". 7	The gi	ven statement is
	a)	True	b)	False.
v)	Mac	thine vision image proce	essing	methods include
	a)	Segmentation	b)	Pattern recognition
	c)	Blob analysis	d)	all of these.
vi)		ntrol system is an int n statement is	egral	part of robotics". The
	a)	True	b)	False.
vii)	Reco	overing information fror	n a ca	arrier is known as
	a)	demultiplexing	b)	modulation
	c)	detection	d)	carrier recovery.
viii)	Sup	port vector machines (S	SVM) a	are model.
	a)	Unsupervised learning	;	
	b)	Supervised learning		
	c)	Reinforcement learnin	g	
	d)	Transduction.		
ix)	Whi tree	_	not a	a limitation of decision
	a)	Overfitting		
	b)	Biased information gai	in	
	c)	G		
	d)	NP-complete problem.		
x)	Con	nectivity based clusteri	ng is	known as
•	a)	Fuzzy clustering	C	
	b)	Subspace clustering		
	c)	Hierarchical clustering	g	
	d)	Co-clustering.	-	
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- xi) Which of the following is/are found in Genetic Algorithms?
 - a) Evolution
- b) Selection
- c) Reproduction
- d) Mutation.
- xii) Where is Artificial Life applicable?
 - a) Film (movie, video) production
 - b) Biology
 - c) Robotics
 - d) Air traffic control.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

 $3 \times 5 = 15$

- 2. What are problem decomposition and constraint satisfaction?
- 3. Write the general merits of a production system.
- 4. What is a production system ? Explain the types of production systems.
- 5. What is predicate logic? Explain with example.
- 6. What is non-monotonic reasoning? Explain different types of non-monotonic reasoning.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following.

 $3 \times 15 = 45$

- 7. a) What do you mean by problem solving by intelligent search?
 - b) Explain the search algorithms like generate and test, hill climbing, means and ends analysis.
 - c) Discuss heuristic search with appropriate example.

2 + 8 + 5



- 8. a) Describe probabilistic reasoning.
 - b) Briefly explain Pearl's scheme for evidential reasoning
 - c) Explain the Dempster-Shafer Theory. 4 + 6 + 5
- 9. a) What is machine learning? Explain four different categories of machine learning techniques.
 - b) What are the methods of intelligent planning? 10 + 5
- 10. Write short notes on any *three* of the following: 3×5
 - a) Visual and Linguistic Perception
 - b) Pattern Clustering and Pattern Classification
 - c) Linear and Non-linear Classification
 - d) K means clustering
 - e) Fuzzy c-means clustering
 - f) Principal component analysis.

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