AR16

CODE: 16EC4036 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Regular Examinations, September, 2020

RADAR ENGINEERING

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain operation of a radar with a neat block diagram.	7M
	b)	Derive the radar range equation and hence obtain minimum detectable signal.	7M
		(OR)	
2.	a)	Give the significance of radar cross section, explain the method to calculate RCS.	7M
	b)	Write a short note on Receiver Noise, SNR and transmitter power, explain what happens when the transmitter power high than required.	7M

UNIT-II

3.	a)	What is doppler effect in radars, explain the concept of isolation between transmitter and receiver in a typical doppler radar.	7M
	b)	With a neat diagram explain the operation of Non-zero IF radar.	7M
		(OR)	
4.	a)	Describe the methodology and operation of multiple frequency FMCW radar.	7M
	b)	Write a short notes on measurement errors with reference to FMCW altimeter.	7M

UNIT-III

5.	a)	With the help of functional block diagram describe the importance of delay line canceller in MTI radars.	7M
	b)	Describe the phenomenon of blind speeds and double cancellation.	7M
		(OR)	
6.	a)	Describe the working and principle of range gated doppler filters with neat diagram	7M
	b)	Discuss various parameters of MTI radar and give four limitations of MTI radar.	7M

UNIT-IV

7.	a)	Explain the working of a conical scanning-based tracking radar.	7M
	b)	With neat diagram describe the phenomenon of amplitude comparison in tracking radars.	7M
		(OR)	
8.	a)	Describe the operation of phase comparison mono pulse tracking radar.	7M
	b)	Elaborate Angular Accuracy and Tracking in Range.	7M

UNIT-V

9.	a)	What is the significance of Matched filter and derive the response of matched filter in radar receivers?	7M
	b)	Elaborate Correlation Function and Cross-correlation Receiver.	7M
		(OR)	
10.	a)	Describe the significance of duplexers in radars, describe the operation of balanced type duplexer with neat diagrams.	7M
	b)	With neat diagrams explain PPI scope, A-scope, B-scope used in radar displays.	7M

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CODE: 16CS4032 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Regular Examinations, September, 2020

HUMAN COMPUTER INTERACTION

(Computer Science And Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain the concept of indirect manipulation	7M
	b)	Discuss the characteristics of web user interface. Explain its popularity.	7M
		(OR)	
2.	a)	What are the benefits of good design? Explain	7M
	b)	Discuss in detail the characteristics of GUI	7M

UNIT-II

3.	a)	How to organize screen elements, Explain in detail	7M
	b)	Compare and contrast direct and indirect methods of requirements analysis	7M
		(OR)	
4.	a)	Discuss about the importance of user's tasks and needs in the design	7M
	b)	Explain about requirement analysis and basic business functions	7M

UNIT-III

5.	a)	Explain Structures of Menus in detail	7M
	b)	What are different types of graphical menus? Explain its navigation schemas	7M
		(OR)	
6.	a)	Explain about different selecting menu choices in detail	7M
	b)	How to write clear text and messages, Explain in detail	7M

UNIT-IV

7.	a)	Explain how to select the Proper Device-Based Controls	7M
	b)	Distinguish between window functions and operations.	7M
		(OR)	
8.	a)	Explain components and presentation styles of window	7M
	b)	What are characteristics of device based controls	7M

UNIT-V

9.	a)	Explain about Choosing Colours for Statistical Graphics Screens	7M
	b)	How to choose colours for textual graphics screens? Explain in detail	7M
		(OR)	
10.	a)	What is Colour? Give effective Foreground/Background combinations	7M
	b)	What type of colours are used and avoid in the icons and interface designing	7M

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CODE: 16IT4003 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Regular Examinations, September, 2020

MACHINE LEARNING
(Information Technology)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Write short notes of the following i) Supervised learning ii) Unsupervised learning iii) Semi-supervised learning iv) Reinforcement learning	8M
	b)	Discuss the issues in machine learning.	6M
		(OR)	
2.	a)	What is a version space? Find the version space generated by the data given in Table 1	8M
	b)	Explain the importance of inductive bias in concept learning.	6M

UNIT-II

3.	a)	Describe the appropriate problems for decision tree learning.	7M
	b)	What is an Occam's razor? Explain in detail.	7M
		(OR)	
4.	a)	Compute the information gain for each attribute of the data given in Table 2	8M
	b)	What is Rule post pruning in decision tree? Discuss in detail.	6M

UNIT-III

5.	a)	Apply Naïve Bayes classifier for the data given in Table 3 and classify the sample X = (color = Red , type = SUV, origin = Domestic)	8M
	b)	Explain an example learning to classify text.	6M
		(OR)	
6.	a)	What is the use of Conditional Independence in Bayes belief networks? Explain with an example.	8M
	b)	Discuss in detail Bayes optimal classifier.	6M

UNIT-IV

7.	a)	Explain about Agnostic Learning and Inconsistent Hypotheses	7M
	b)	Illustrate the VC Dimension for Neural Networks	7M
		(OR)	
8.	a)	Explain k-Nearest Neighbor Learning algorithm.	7M
	b)	What is Instance-based learning? Explain about case-based reasoning.	7M

UNIT-V

9.	a)	Write the sequential covering algorithm for learning a disjunctive set of rules.	7M
	b)	List out and explain common evaluation functions used in LEARN-ONE-RULE.	7M
		(OR)	

10. a) List out the Basic definitions used in first-order logic. 7M

b) Apply inverse resolution to the clauses C = R(B, x) v P(x, A) and C_1 = S(B, y) v R(z, x). Give at least four possible results for C_2. Here A and B are constants, x and y are variables. 7M

Table 1

S.No	Origin	Manufacturer	Color	Decade	Type	Example Type
1	Japan	Honda	Blue	1980	Economy	Positive
2	Japan	Toyota	Green	1970	Sports	Negative
3	Japan	Toyota	Blue	1990	Economy	Positive
4	USA	Chrysler	Red	1980	Economy	Negative
5	Japan	Honda	White	1980	Economy	Positive

Table 2

Day	Outlook	Temperature	Humidity	Wind	PlayTennis
1	Sunny	Hot	High	Weak	No
2	Sunny	Hot	High	Strong	No
3	Overcast	Hot	High	Weak	Yes
4	Rainy	Mild	High	Weak	Yes
5	Rainy	Cool	Normal	Weak	Yes
6	Rainy	Cool	Normal	Strong	No
7	Overcast	Cool	Normal	Strong	Yes
8	Sunny	Mild	High	Weak	No
9	Sunny	Cool	Normal	Weak	Yes
10	Rainy	Mild	Normal	Weak	Yes
11	Sunny	Mild	Normal	Strong	Yes
12	Overcast	Cool	High	Strong	Yes
13	Overcast	Hot	Normal	Weak	Yes
14	Rainy	Mild	High	Strong	No

Table 3

Example	Color	Type	Origin	Stolen?
1	Red	Sports	Domestic	Yes
2	Red	Sports	Domestic	No
3	Red	Sports	Domestic	Yes
4	Yellow	Sports	Domestic	No
5	Yellow	Sports	Imported	Yes
6	Yellow	SUV	Imported	No
7	Yellow	SUV	Imported	Yes
8	Yellow	SUV	Domestic	No
9	Red	SUV	Imported	No
10	Red	Sports	Imported	Yes