Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (INFORMATION TECHNOLOGY / COMPUTER AND COMMUNICATION ENGINEERING)

MAKEUP EXAMINATIONS, JUNE 2017

PROGRAM ELECTIVE III: PATTERN RECOGNITION [ICT 4020]

REVISED CREDIT SYSTEM
(22/06/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data, if any may be suitably assumed.

1A. Consider the class conditional probabilities of independent binary features of two category problem. Construct the Bayesian decision boundary for $P(\omega1)=P(\omega2)=0.5$ and $p_1=p_2=0.8$, $p_3=0.5$ and $q_1=q_2=q_3=0.5$. **5**

1B. With a neat diagram, explain design cycle of a pattern recognition system. **3**

1C. What is the goal of boosting? How is it achieved? **2**

2A. Draw the chain code and differential chain code for the shapes given in Fig. Q.2A. Assume unit distance in each direction. Arrow indicates the starting point.

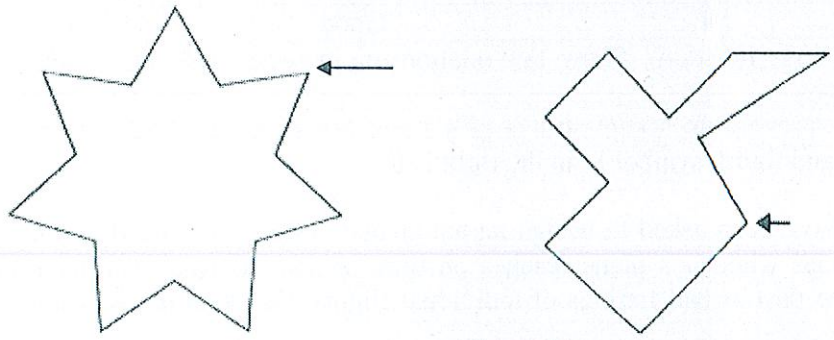

Fig. Q.2A **5**

2B. Write the generalizations for Bayesian continuous features. Consider a two category case problem of Bayesian continuous features, arrive at the decision rule in terms of posterior probabilities and loss functions. **3**

2C. Explain how pattern recognition finds its application in **2**

i) Medical signal analysis
ii) Speech recognition