



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech(BT)/SEM-8/ID-814A/2013**

**2013**

**INFORMATION TECHNOLOGY/ARTIFICIAL  
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 the following :

10 × 1 = 10

- i) In TCP/IP, there are ..... layers.
  - a) 7
  - b) 3
  - c) 5
  - d) none of these.
- ii) The process to process communication is done in
  - a) application layer
  - b) session layer
  - c) transportation layer
  - d) presentation layer.
- iii) A modem does which of the following jobs ?
  - a) Only modulation
  - b) Only demodulation
  - c) Both modulation and demodulation
  - d) None of these.





**GROUP - B**  
**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. What do you mean by LAN Topology ? Explain in brief.
3. What is the difference between ASK and FSK ?
4. Describe the block coding.
5. Describe stop-and-wait ARQ.
6. Construct XOR gate using minimum number of NAND gates and also with minimum number of NOR gates. Explain with proper diagram.

**GROUP - C**  
**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7.
  - a) What is the difference between classful addressing and classless addressing ?
  - b) An address is given as 200.11.8.45. Describe the meaning of each squad of the said address.
  - c) Write the advantages of IPv6 over IPv4.
  - d) Convert to corresponding decimal number from  $(101101)_2$
  - e) Explain CSMA.  $3 + 3 + 3 + 3 + 3$
8.
  - a) Briefly explain the modes of data communications in a network.
  - b) Write down Checksum technique for error detection.
  - c) Write down the advantages of fibre optic cable over twisted pair and coaxial cables.
  - d) Encode the following bits using NRZ-I, NRZ-I and RZ technique (10011011).  $2 + 4 + 4 + 5$

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9. a) Explain the jobs of Data Link Layer.  
b) Explain Hamming Code technique for single bit error correction.  
c) Write down CRC technique for error detection with example.  $3 + 6 + 6$
10. a) Explain Manchester Line coding technique.  
b) Explain the states for Analog to Digital signal conversion.  
c) What are the different connecting devices in a network ? Explain briefly.  
d) Explain why we are using both Physical address and IP address for Data Communication with example.  $3 + 6 + 3 + 3$
11. Write short notes on any *three* of the following :  $3 \times 5$
- a) TDM im multiplexing
  - b) Go-Back-N-ARQ
  - c) CSMA
  - d) Distributed Database
  - e) HTTP, FTP, Telnet, SMTP and POP3 protocols.
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