RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. FOURTH SEMESTER EXAMINATION, MAY-JUNE 2013

SECOND YEAR

Date : 20/5/2013 **COMPUTER SCIENCE (Honours)**

Time : 11 am – 3 pm Paper : IV Full Marks : 75

[Use separate Answer Books for each group]

Group – A

Answer **any four** questions :

1. a) Discuss in brief, about the importance of transport and data-link layer in network models. [6]
   b) What are the advantages of using IMAP over POP3 as an email receiving protocol? [4]

2. a) What are the different types of Multiplexing? Why we need Multiplexing? Differentiate between Synchronous TDM and Statistical TDM. [1+2+3]
   b) Explain different types of PSK for Digital-to-Analog Conversion. [4]

3. a) Explain the operations of PAM with proper diagram. [5]
   b) Identify the main five principals that were used to arrive at the seven layers of ISO OSI reference model? [5]

4. a) Is it possible to transmit a binary data in 50 kbps using a 3 KHz channel with 30 dB SNR? Give explanations to your answer. [6]
   b) Describe the format of an electronic mail. How an email address is represented? [3+1]

5. a) Explain the error-correction process of Hamming codes for the below problem.
   Let say the dataword 1011 becomes the codeword 1011001, which is sent. But the codeword 1001001 is received. Correct the error using Hamming Code. [5]
   b) If M be the K bit menage, F be the n bit Frame check sequence (FCS), generated by CRC, T be the (K+n) bit frame to be transmitted and P be the (n–1) bit predetermined divisor, then prove T/P has no remainder. [3]
   c) Differentiate between centralized and distributed computing. [2]

6. Write short notes on **any four** : [2½×4]
   a) Intranet and Extranet
   b) SMTP
   c) HTTP
   d) Wireless medium
   e) ADSL modem
   f) IP address

Group – B

7. Answer **any five** questions : [5×2]
   a) What happens if the READY input of 8085 microprocessor is activated?
   b) What is meant by Bus Idle machine cycle?
   c) Write the main differences between 8085 and 8086 microprocessor.
   d) What is the function of DAD instruction.
   e) How many cycles the execution of instruction INC will require when carry = 1 and when carry ≠ 1?
   f) What for HOLD and HLDA signals are used?
   g) What is the size of total addresable memory by 8086 mpu?

Answer **any five** questions :

8. a) What is the difference between a Microprocessor and Microcontroller? [3]
   b) How does 8085 differentiate between address and a data? [2]

9. Draw the timing diagram for INR M instruction. [5]

10. Describe different interrupts of 8086 MPU. [5]

11. Find out the second smallest element from a set of numbers using 8085 instructions. (without sorting). [5]

12. a) Describe the role of SIM in interrupt processing. [3]
    b) "In an interrupt driuen system. EI instruction should be incorporated at the beginning of the program"—Why? [2]

13. a) Explain the role of control words in programmable devices with suitable example. [2]
    b) Write down the steps to initialize the DMA controller 8237 and then initialize CH3 to transfer 1K bytes from the system memory to an external device assigned to CH3. [3]

14. Draw a Schematic diagram for interfacing an external I/O device to the microprocessor and memory using DMA. [5]