Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Long Answer Questions:

Attempt all questions: (2x10=20)

1. Explain the functioning of 7 layers of OST model. What is the necessity of using 7 layers concept in OST Model? **OR**

   Explain the various layers of TCP/IP. Also, list the protocols used in each layer.

2. Explain how does CRC detect the errors with multiple bits? Given message is $M(x) = x^{7} + x^{4} + x^{3} + x^{2} + 1$ and the generator is $G(x) = x^{3} + 1$. Show the actual bit string transmitted, suppose the third bit from the left is inverted during the transmission. Show how the error is detected at the receiver's end.

Group B

Short Answer Questions:

Attempt any eight: (8x5=40)

3. What are sliding window protocol? Explain one-bit sliding window protocol with an appropriate diagram.
4. Explain how slatted Aloha improves the performance of system over pure Aloha.

5. Describe multimedia networking and its various applications.

6. Why routing is important in a computer network? Differentiate between adaptive and non-adaptive routing algorithms

7. Differentiate between broadband and base band services.

8. How does ATM differ from frame relay? List and briefly define the ATM service classes.

9. Compare and contrast the IPv4 and the IPv6 header files. Do they have any fields in common?

10. Define multiplexing. Discuss the need for multiplexing in network system.
    What is meant by "domain name"? How is a domain name translated to an equivalent
    IP address? Explain **with** the help of an example.