Course: B.SC.(Physical Sciences)

Paper: Computer Networks

Semester: VI

Marks:75 Theory+25 Internal Assessment

Week	Topic
Week 1-2	**Unit 1** Introduction: Introduction to data communications and networking, use of Computer Networks, classification of networks, OSI model, function of the layers, TCP/IP Protocol suite.
Week 3-4	**Unit 2** Network Topologies: Bus, star, ring, mesh, tree, hybrid topologies with their features, advantages and disadvantages of each type. Transmission Modes: simplex, half duplex and full duplex.
Week 5-6	**Unit 3** Transmission Media: Guided Media (Wired) (Twisted pair, Coaxial Cable, Fiber Optics. Unguided Media (Radio Waves, Infrared, Micro-wave, Satellite). **(Test-1)**
Week 7-8	**Unit 4** Data Communication and Switching Techniques: Framing, flow control, error control, circuit switching, message switching, packet switching, routing. **(Assignment-1)**
Week 9-11	**Unit 5** Switching Devices: Repeaters, hubs, switches, bridges, routers, gateways. Multiplexing: (FDM, WDM, TDM) **(Test -2)**
Week 12-14	Unit 6 Internet: Internet Service Providers (ISP), internet addressing system: IP address with their classification and notation, application layer protocols: (DNS, URL, WWW, FTP, SMTP, HTTP, TELNET), web pages, introduction to HTML. **(Assignment-2)**

Practical

1. Simulate Cyclic Redundancy Check (CRC) error detection algorithm for noisy channel.
2. Simulate and implement stop and wait protocol for noisy channel.
3. Simulate and implement go back n sliding window protocol.
4. Simulate and implement selective repeat sliding window protocol.

References
1. Comer, D. E. (2015). Computer Networks and Internet (6th edition). Pearson Publication.