Time: 3 hours **Max. Marks: 80**

N.B. (1) Question one is Compulsory.
(2) Attempt any 3 questions out of the remaining.
(3) Assume suitable data if required.

Q. 1 a) Describe the different guided transmission medias used in the network 05

b) Explain Repeater, Hub, Bridge, Switch & Routers. 05

c) Enumerate the main responsibilities of the DLL 05

d) Differentiate between TCP and UDP. 05

Q. 2 a) Explain TCP/IP reference model & compare it with OSI reference model. 10

b) With the help of suitable example explain sliding window protocol using Go-Back-N technique. 10

Q. 3 a) Consider an error detecting CRC With the generator10101.

(i) Compute the transmitted bit sequence for the data bit sequence 110010101.

(ii) The string of bits 110011001100 is received. Check whether there are errors in the received code word. 10

b) What is routing? what are desirable characteristics of routing algorithm? Explain Dijkstra's algorithm as shortest path routing with suitable example. 10

Q. 4 a) What is subnetting? Given the class C network 192.168.10.0 use the subnet mask 255.255.255.192 to create subnets and answer the following: 10

(i) What is the number of subnets created?

(ii) How many hosts per subnet?

(iii) Calculate the IP address of the first host, the last host and the broadcast address of each subnet

b) Explain in brief classic three-layer Hierarchical model for network design by Cisco 10

Q. 5 a) Explain with the help of suitable diagram TCP connection management and release? 10

b) Elaborate the architecture of Nox and Pox controller of SDN with their comparison. 10

Q. 6 Write a short note on :

a) DNS 05

b) SDN 05

c) PPDIOO Network design Methodology. 05

d) NAT 05