

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2020

Course Name : Data Communication and Networking

Semester: V

Program Name : B. Tech ECE

Time : 03 hrs

Course Code : ECEG 3004

Max. Marks : 100

Instructions:

- 1) *Attempt and answer all Questions in serial manner*
- 2) *Answer must be in brief and diagrams must be clear.*

SECTION A

Each Question will carry 5 Marks

Instruction: Complete the statement / Select the correct answer(s)

S. No.	Question	CO
Q 1	The encapsulation task of each layer of Internet model are(application layer),(transport layer),(network layer),(datalink layer),(physical layer) respectively.	CO1
Q 2	Amongst the following (IPv6, MAC, UDP, NAT, CATV, FTTH, FTP, HTTP, VoIP, coaxial, LAN, NAT,), the protocol assigned in the five layers of TCP/IP model are.....(application layer),(transport layer),(network layer),(datalink layer),(physical layer) respectively.	CO1
Q 3	Select whether the following IPv4 addresses are True or False.. (a) 111.56.045.78 (b) 221.34.7.8.20 (c) 192.68.301.14 (d) 172.45.301.14 (e) 11100010.23.14.67	CO4
Q 4	Change the following IPv4 addresses from dotted- decimal notation to binary and Hexadecimal notation. (a) 111.56.45.78 (b) 221.34.7.82 (c) 256.256.0.300	CO4
Q 5	The bandwidth / rate of transmission achieved by multiplexing the 12 telephone lines, 5 DS0 telephone line, 2 E1 line, 4 T1 line and 100 telephone line are.....,,,, and respectively.	CO2

Q 6	Which mode of communication (full duplex/ simplex/ half duplex) is required in the following cases? (a) Requesting a webpage from server. (b) Sending a mail (c) TV transmission (d) Telephone line (e) Data link's flow control	CO1
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SECTION B

Each question will carry 10 marks

Instruction: Write short / brief notes

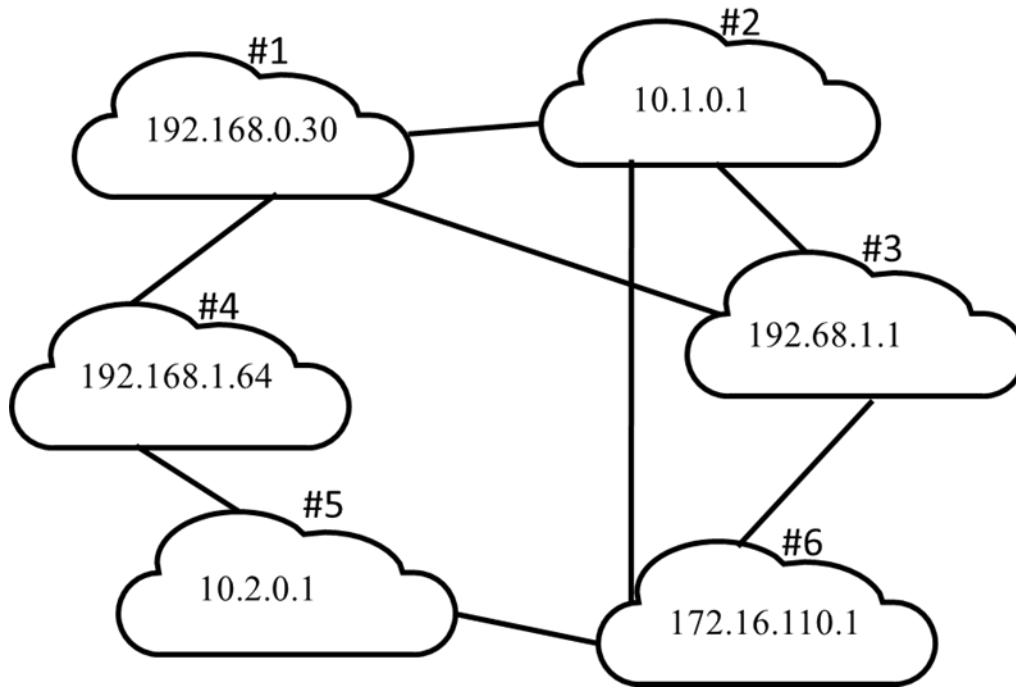
Q 1	Discuss the handshake process of TCP	CO3
Q 2	Sketch the Go Back-N ARQ flow control and ENQ/ ACK flow control of data link layer	CO3
Q 3	Determine the CRC code for the message 1101 with generator x^3+1 . Also show how the receiver accept this code.	CO3
Q 4	Why twisted pair cable, coaxial cable and optical fiber cable finds its usage in LAN, CATV and WAN respectively.	CO2
Q 5	Compare the two widely used protocol of transport layer.	CO2

SECTION C

Each Question carries 20 Marks.

Instruction: Write long answer.

Q 1	Consider this an inter-connection of six network numbering from #1 to #6.	CO4
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Find the **optimum path** in **routing** of each of these packets from the correct source network to the correct destination network, between the following pair of source and destination IP given below.

If there is **no path** available do mention it also

Also mention the **class** of **source IP** address

Case No	Source	Destination
1	192.168.0.73	10.2.100.1
2	192.168.1.81	10.1.254.254
3	10.3.1.32	10.1.32.1
4	10.1.240.240	10.2.240.240
5	172.16.100.1	10.2.1.1
6	127.1.10.1	172.16.100.1
7	234.72.0.1	10.2.0.1
8	172.16.21.1	10.1.32.1
9	10.3.0.0	10.2.0.1
10	10.2.101.250	10.2.101.252

Mention the class of IP address of each of 10 source.
