

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, May 2021**

**Course Name : Computer Networks**  
**Program Name : B. Tech Mechatronics**  
**Course Code : CSEG 4002P**

**Semester: VIII**  
**Time : 03 hrs**  
**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 de-capsulation task of each layer of Internet model are .....( physical layer), .....(datalink layer), .....(network layer), .....(transport layer), .....(application layer) respectively.	CO1
Q 2	Which mode of communication (full duplex/ simplex/ half duplex) is required in the following cases? (a) Transmission of message through Hub. (b) Sending a mail (c) TV transmission (d) Telephone line (e) Packet flow through router	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) 1110010.23.14.67	CO1
Q 4	State the class of each of the following IP address. (a) 111.56.45.78 (b) 221.34.7.82 (c) 256.256.0.300 (d) 127.0.0.0 (e) 192.168.9.0	CO2
Q 5	Name the <b>five</b> widely used topology applied in networking.	CO1

Q 6	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
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**SECTION B**

**Each question will carry 10 marks**  
**Instruction: Write short / brief notes**

Q 1	Discuss the specific usage of <b>Hub, Switch</b> and <b>Router</b> in networking.	CO1
Q 2	Illustrate the <b>Go Back-N</b> ARQ flow control and <b>ENQ/ ACK</b> flow control of data link layer.	CO3
Q 3	Compare the two widely used <b>protocol</b> of <b>Network layer</b> .	CO3
Q 4	Why <b>twisted pair cable, optical fiber cable</b> and <b>coaxial cable</b> are preferably use in <b>networking in campus, wide area networking</b> and distribution of <b>cable TV</b> respectively.	CO2
Q 5	For the IP address <b>192.68.38.40/ 30</b> (a) Convert into Binary and Hexadecimal form. (b) Find the default subnet mask (c) Find the subnet mask used for sub-netting. (d) Find the number of networks that can be created. (e) Find the total number of host that could be assigned the IP address	CO4

**SECTION C**

**Each Question carries 20 Marks.**  
**Instruction: Write long answer.**

Q 1	<p>A company installed a full networking of all its devices / nodes distributed in its 4 rooms. The rooms are labeled as W, X, Y and Z respectively with the following devices installed.</p> <p>No of computer in Room W = 40;      No of computer in Room X = 50  No of computer in Room Y = 20;      No of computer in Room Z = 20.</p> <p>Rooms W and X have one dedicated <b>gateway router</b>, whereas room Y and Z shared a common gateway router, and these two rooms are connected with <b>one hub</b>.</p> <p>The specification of the private IP is as follows:  Subnet Mask                      = 255.255.255.248;      IP address for sub-netting = 192.168.40.0</p> <p>Now,</p> <p>(a) Design the networking layout of the company.  (b) Assign the IP address to each gateway router.  (c) Assign the IP address to one hub.  (d) Subnet the IP to different devices in each room.</p>	CO4
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