

Reg. No. :

Question Paper Code : 12099

M.E./M.Tech. DEGREE EXAMINATIONS, JANUARY 2022.

First Semester

Computer Science and Engineering

CP 4153 – NETWORK TECHNOLOGIES

(Common to M.E. Computer Science and Engineering (With Specialization in Cyber Security)/M.E. Computer Science and Engineering (With Specialization in Networks)/M.E. Mobile and Pervasive Computing/M.Tech. Information Technology)

(Regulations 2021)

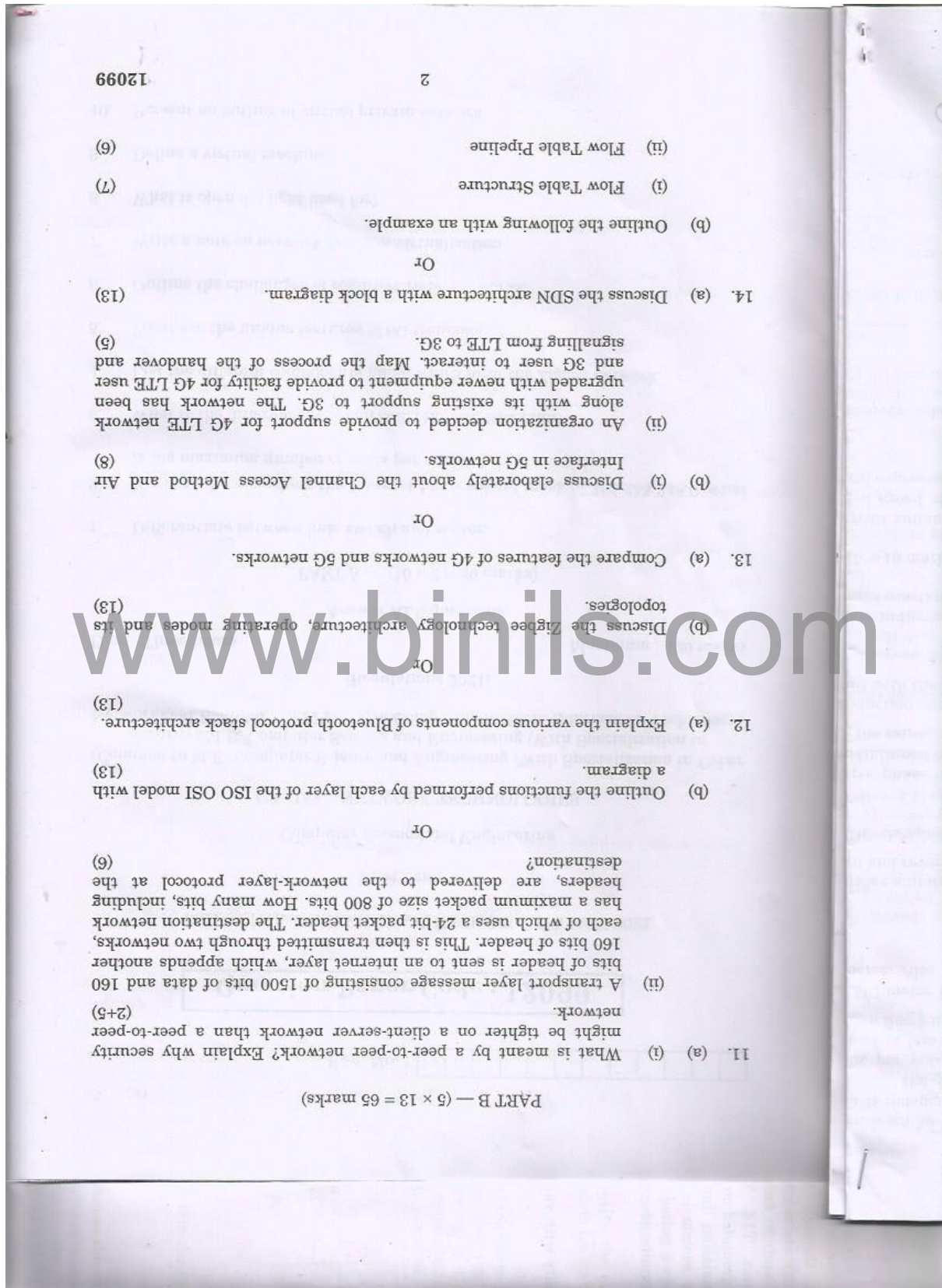
Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A – (10 × 2 = 20 marks)

1. Differentiate between hub, switch and router.
2. If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?
3. What is the difference between 802.11ac and 802.11ax?
4. List the different components name which form the Zigbee network.
5. What are the unique features of 6G technology?
6. Outline the challenges of cognitive radio networks.
7. Write a note on network function virtualization.
8. What is open daylight used for?
9. Define a virtual machine.
10. Present an outline of virtual private network.



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- (6) (ii) Flow Table Pipeline
- (7) (i) Flow Table Structure
- (b) Outline the following with an example.

Or

- 14. (a) Discuss the SDN architecture with a block diagram. (13)
- (ii) An organization decided to provide support for 4G LTE network along with its existing support to 3G. The network has been upgraded with newer equipment to provide facility for 4G LTE user and 3G user to interact. Map the process of the handover and signalling from LTE to 3G. (5)
- (b) (i) Discuss elaborately about the Channel Access Method and Air Interface in 5G networks. (8)

Or

- 13. (a) Compare the features of 4G networks and 5G networks. (13)
- (b) Discuss the ZigBee technology architecture, operating modes and its topologies. (13)

Or

- 12. (a) Explain the various components of Bluetooth protocol stack architecture. (13)
- (b) Outline the functions performed by each layer of the ISO OSI model with a diagram. (13)

Or

- 11. (a) (i) What is meant by a peer-to-peer network? Explain why security might be tighter on a client-server network than a peer-to-peer network. (2+5)
- (ii) A transport layer message consisting of 1500 bits of data and 160 bits of header is sent to an internet layer, which appends another 160 bits of header. This is then transmitted through two networks, each of which uses a 24-bit packet header. The destination network has a maximum packet size of 800 bits. How many bits, including headers, are delivered to the network-layer protocol at the destination? (6)

PART B — (5 × 13 = 65 marks)

15. (a) Where Network Functions Virtualization (NFV) network is required?
Discuss the NFV infrastructure and architecture with a diagram. (13)

Or

- (b) Present an outline of VPN Protocols. (13)

PART C — (1 × 15 = 15 marks)

16. (a) (i) Discuss briefly about C-RAN with a neat architecture block diagram. (7)
- (ii) An IT enterprise has been started newly. They are interested to build a big network which is optimal in cost within the budget, there is a need for virtualization and cloud adoption to deliver/share their applications. Also due to growing amount of data that would be generated from the enterprise, they require Big data applications. Suggest a Network to address these requirements of the enterprise. Justify your suggestion. (8)

Or

- (b) Present a VLAN design for a library in a college with a diagram, outline the building blocks used to design the VLAN. (15)

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