This question paper contains 2 printed pages. Roll No. .....

B.C.A. (Pt.-III) Netw. Tech.

303/333

B.C.A. (Part-III) Examination, 2023

(Faculty of Science)

(Three Year Scheme of 10+2+3 Pattern)

Networking Technologies

Paper : 303/333

Time Allowed : 3 Hours **Maximum Marks : 100**

Answer of all the questions (Short answer as well as are to be given in the main answer-book only. Answers of short answer type questions must be given in sequential order. Similarly all the parts of one question of descriptive part should be answered at one place in the answer-book. One complete question should not be answered at different places in the answer-book.

Write your roll number on question paper before you start writing answers of questions.

Question paper consists of **Three** parts.

All Three parts are **Compulsory**

PART-I : (Very short answer) consists of 10 questions of 2 marks each. Maximum limit for each question is up to 40 words.

PART-II : (Short answer) consists of 5 questions of 4 marks each, Maximum limit for each question is up to 80 words.

PART-III : (Long answer) consists of 5 questions of 12 marks each with one question from each unit with internal choices.

PART-I

1. Attempt all questions. Each question carries 2 marks. 10×2=20

(a) What is Line Configuration in a Network?

(b) Write any two differences between LAN and WAN?

(c) What is Bandwidth and Data Rate?

(d) What do you mean by Network Protocols?

(e) What is Telnet?

(f) Explain MIME Protocol.

(g) What do you understand by Multiplexing?

(h) What is the difference between Asynchronous and Synchronous Transmission?

(i) What is a Satellite?

(j) What are the benefits of Optical Fiber Communication?

PART-II

2. (a) Briefly explain the Key Components of Data Communication. 5×4=20

(b) Explain Router and Gateway.

(c) Explain the layers of TCP/IP Protocol with proper diagram.

(d) What is Time Division Switching? Explain.

(e) Briefly explain the multiple layers used in SONET Protocol.

PART-III

3. What do you mean by Network Topologies? Explain the types of topologies used in networking with proper diagram. 12

Or

What are the types of Transmission Media? Explain each of them with proper diagram. 12

4. Explain the OSI reference model in detail. 12

Or

Define the term error detection. Explain Cyclic Redundancy Check (CRC) with example. 12

5. Write the differences between following : 6×2=12

(a) IPV4 and IPV6 protocol.

(b) TCP and UDP.

Or

Explain the following : 3×4=12

(a) DNS (b) SMTP

(c) HTTP

6. What is Switching and explain the different types of Switching Techniques? 12

Or

What is Modem? Explain Modulation and Demodulation process of Modem. 12

7. Describe Geo-synchronous Satellites. 12

Or

Explain the mechanism of light propagation in optical fiber cable. 12

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B.C.A. (Part-III) **Net. Tech.**

303

B.C.A. (Part-III) EXAMINATION, 2020

(Faculty of Science)

(Three-Year Scheme of 10+2+3 Pattern)

NETWORKING TECHNOLOGIES

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***PART - III :** (Long answer) consists of 5 questions of 12 marks each with internal choice.*

PART - I

1. Attempt **all** questions. Each question carries **2** marks. **10x2=20**

   (a) What are the advantages of using network ?

   (b) What is Network Topology ?

   (c) What are the different types of networks ?

   (d) What are the different data transmission modes ?

   (e) What is Bandwidth ?

   (f) What is the difference between Asynchronous and Synchronous transmission ?

   (g) What is TCP/IP ?

   (h) What is DHCP ?

   (i) What is DNS ?

   (j) What is Multiplexing ?

PART - II

2. Attempt all questions. Each question carries 4 marks. 5x4=20

(a) What is the difference between Analog Signal and Digital Signal ? Also discuss their characteristics.

(b) What are the types of transmission media ?

(c) What is the difference between Unicast, Broadcast, Multicast and Anycast ?

(d) What is the difference between Peer-to-Peer Networks and Server-based Networks ?

(e) Explain the advantages and disadvantages of Microwave Communication.

PART - III

3. (a) Discuss different Network Topologies with their advantages and disadvantages. 12

OR

(b) Discuss different components of data communication network. Also discuss different types of network architecture ? 10+2=12

4. (a) Explain the OSI Reference model in detail. 12

OR

(b) What is Congestion ? Discuss Leaky Bucket Algorithm and Token Bucket Algorithm for congestion control. 12

5. (a) Differentiate between the following : 6+6=12

(i) Static and Dynamic Routing

(ii) IPv4 and IPv6

OR

(b) Write short notes on the following : 3x4=12

(i) Telnet

(ii) SMTP

(iii) FTP

6. (a) Describe in detail about circuit switching network and its merits and demerits. 12

OR

(b) Explain in detail Time Division Multiplexing (TDM) with their advantages and disadvantages. 2+4+6=12

7. (a) What is the need of Satellite Communication ? How a Satellite works ? Also discuss applications of satellite communication. 3+6+3=12

OR

(b) Write short notes on the following : 6+6=12

(i) Light propagation in optical fiber

(ii) SONET

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This question paper contains 3 printed pages. Roll No. .....

B.C.A. (Part-III) **Net. Tech.**

303

B.C.A. (Part-III) Examination, 2021

(Faculty of Science)

(Three-Year Scheme of 10+2+3 Pattern)

NETWORKING TECHNOLOGIES

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PART-II : **(Short Answer) consists 5 questions of 4 marks each.** Maximum limit for each **question is** upto **80 words.**

PART-III : **(Long Answer) consists 5 questions of 12 marks each** with internal choice.

PART-I

1. Attempt all questions. **Each question carries 2 marks :**

   (a) What is a Network?

   (b) What is Bandwidth?

   (c) Define DNS.

(d) What is Link?

(e) What is Gateway?

(f) Define DHCP scope.

(g) What is MAC Address?

(h) What is TCP/IP?

(i) What is SSL?

(j) What is Computer Network? 10×2=20

PART-II

2. Attempt all questions. Each questions carries 4 marks : 5×4=20

(a) Explain types of Networks.

(b) Define the types of Transmission Modes.

(c) Differentiate between LAN & WAN.

(d) What is Packet Switching? Explain.

(e) Define Microwave Communication.

PART-III

3. What are the different types of Computer Networks? Explain with suitable example. 12

OR

Explain Network Topology with example. 12

4. **What is Error Detection & Correction? Explain with example.** 12

OR

What is Open System Interconnection? Explain with example. 12

5. **Write short notes on any four :**

(a) MAC Address.

(b) DNS.

(c) TCP/IP.

(d) IPv4 and IPv6.

(e) SMTP.

(f) ISDN. 3×4=12

6. What is Data Encoding? Explain with example. 12

OR

Define TDM with example. 12

7. Write short notes on any **three** :

(a) Satellite Communication.

(b) SONET.

(c) Fiber Cable.

(d) Light sources.

(e) Microwave. **4×3=12**

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This question paper contains 2 printed pages. Roll No. .....

303/333

B.C.A. (Part-III) EXAMINATION - 2022

(Faculty of Science)

(Three-Year Scheme of 10+2+3 Pattern)

NETWORKING TECHNOLOGIES

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PART - III : (Long Answer) consists **5** questions of **12** marks each with internal choice.

PART - I

1. Attempt **all** questions. Each question carries **2** marks. **10x2=20**

(a) What are components of Network ?

(b) What is Transmission Mode ?

(c) Differences between Half-duplex and Full-duplex modes.

(d) What is Bandwidth ?

(e) Difference between Bridge and Router.

(f) Define scope of UDP protocol.

(g) What is Switching Network ?

(h) What is Packet Switching ?

(i) What are types of Fiber cable losses ?

(j) List any five applications of Satellite Communication.

PART - II

2. (a) Explain types of Networks. **5x4=20**
   (b) Explain Checksum error detection technique.
   (c) Differentiate between Asynchronous and Synchronous transmission.
   (d) Explain role and working of DNS.
   (e) Explain Satellite Microwave Communication briefly.

PART - III

3. Discuss Network Architecture in detail. **12**

   OR

   What is meant by Network Topology ? Explain various types of Network Topologies with merits and demerits. **12**

4. Discuss OSI model with functions of each layer. **12**

   OR

   Explain Link Routing algorithm in detail. **12**

5. Discuss TCP/IP suite with the help of layered diagram. **12**

   OR

   Write short note on the following protocols : **3x4=12**
   (a) UDP
   (b) TCP
   (c) ARP

6. Explain Space Division Switching technique. **12**

   OR

   Discuss Packet switching transmission technique. **12**

7. Write short note on **any three** of the following : **3x4=12**
   (a) Optical Fiber Communication
   (b) Integrated Services Digital Network (ISDN)
   (c) Terrestrial Microwave Transmission
   (d) DSL : Digital Subscriber Line
   (e) Geostationary Satellites
   (f) Encoded Data Formats

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This question paper contains 2 printed pages.

Roll No. .....

B.C.A. (Part-III)

Net. Tech.

333

B.C.A. (PART-III) EXAMINATION, 2019

(Faculty of Science)

(Three-Year Scheme of 10+2+3 Pattern)

NETWORKING TECHNOLOGIES - 333

Time Allowed : Three Hours

Maximum Marks : 100

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PART - III : (Long answer) consists of 5 questions of 12 marks each with internal choice.

PART - I

1. Attempt all questions. Each question carries 2 marks. **10x2=20**

   (a) Define a network.

   (b) What is IP address ?

   (c) What are the various types of networks ?

   (d) What is the role of a switch in a network ?

   (e) What is the importance of the OSI Physical Layer ?

   (f) What are MAC addresses ?

   (g) What advantages does fiber optics have over other media ?

   (h) What is SMTP ?

   (i) What is IPv6 ?

   (j) What are some drawbacks of implementing a ring topology ?

PART - II

2. Attempt **all** questions. Each question carries 4 marks. 5x4=20

(a) Explain the relationship between Band Width and Data Rate.

(b) Explain different modes of communication.

(c) Differentiate between Multicast and Broadcast.

(d) What is the difference between Asynchronous and Synchronous transmission ?

(e) What basic function does a communication satellite perform ? Give a good reason why up - link and down - link frequencies are not same ?

PART - III

3. (a) Explain different types of Network Topologies with their advantages and disadvantages. 12

OR

(b) Explain different components of data communication network. What is the need of a data communication network ? 10+2=12

4. (a) How does the transport layer ensure that the complete message arrives at the destination, and in the proper order ? 12

OR

(b) Define the term Error detection. Explain Cyclic Redundancy Check (CRC) with example. 12

5. (a) Describe the various layers in TCP/IP. 12

OR

(b) Write short notes on the following : 4x3=12

(i) SMTP

(ii) FTP

(iii) Telnet

(iv) IPv6

6. (a) Compare between circuit switching and packet switching w.r.t. 4x3=12

(i) Transmission Delay

(ii) Path

(iii) Bandwidth

(iv) Intermediate Storage

OR

(b) What is multiplexing ? Explain Time division multiplexing with a suitable diagram. What are the advantages of TDM ? 2+4+6

7. (a) Explain characteristics of micro waves and its applications in detail. 12

OR

(b) Describe the structure of an optical fiber and explain the mechanism of light propagation along the fiber. 12

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Networking Technologies

B.C.A. (Part-III) Examination, 2017

[Time: Three Hours] **[Maximum Marks: 100]**

Part – I

a) What is Line Configuration?
b) Define Network.
c) What is Bandwidth?
d) What is protocol?
e) What is Telnet?
f) What is MIME?
g) What is Multiplexing?
h) What do you mean by SS7?
i) What is data communication?
j) What is microwave?

Part – II

2. Explain the various transmission modes.
3. Describing Routing Algorithms.
4. Define TCP/IP protocol.
5. What is time division switching? Explain.
6. List the various layers used in SONET.

Part – III

7. What is Topology? Explain various topologies use in networking.

OR

What are the difference between LAN, MAN, WAN and Internet? Explain.

8. Write short notes on:
   a) Error detection and correction.
   b) Transmission Media.

OR

What is OSI model? Explain the different layers of OSI Model.

9. Illustrate the features of DHCP and explain TCP messaging and signaling.

OR

Write short notes on:

a) DNS
b) UDP
c) IP Multicasting.

10. Explain the packet Switching? Also define Space Division Switching.

OR

Differentiate between Asynchronous and Synchronous transmission.

11. What is Data Communication System/ Explain its characteristics and components.

OR

a) Describe Geo-synchronous Satellites.
b) Explain Optical Fiber Communication.