N19 - 00510

TED (15) – 6042

(REVISION — 2015)

Reg. No.....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

COMMUNICATION SYSTEMS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. List any four applications of microwave.
2. Describe velocity modulation.
3. Distinguish between uplink and downlink frequency.
4. Name any two optical sources and optical detectors.
5. Define the term frequency reuse. (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain the working of tunnel diode and draw the V-I characteristics.
2. Draw the block diagram of satellite communication system.
3. Distinguish between Geo stationary & Geo synchronous satellite.
4. With suitable diagrams explain about fibre optic communication systems.
5. Elaborate on the working principle of LED.
6. Discuss about different Hand-off strategies in mobile communication.
7. Compare GSM and CDMA. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) With neat diagram explain the working of Reflex Klystron. 9

(b) Identify any four characteristics of microwaves. 6

OR

IV (a) With neat sketch explain working of TWT. 9

(b) Briefly elaborate the functions of waveguides. 6

UNIT — II

V (a) With help of block diagram explain Earth station. 9

(b) List any four application of satellite communication. 6

OR

VI (a) Explain DTH. 6

(b) Compare CDMA, TDMA & FDMA. 9

UNIT — III

VII (a) Briefly explain about the principle of LASER with neat diagrams. 9

(b) Write any four advantages of fibre optic communication systems. 6

OR

VIII (a) Explain the working of PIN diode. 7

(b) Compare single mode & multimode fibers. 8

UNIT — IV

IX (a) Explain CDMA technology. 9

(b) Compare 3G & 4G mobile technologies. 6

OR

X Write notes on

(a) Wi-Fi and list any two advantages & disadvantages. 8

(b) Bluetooth. 7

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

COMPUTER HARDWARE AND NETWORKING

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Write the function of Power Good signal in ATX SMPS.
2. Name the pins of USB connector.
3. Define the term Motherboard form factor.
4. What is the need of a file system in a computer ?
5. State the role of a hub in computer network. (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Describe the working principle of laser printer.
2. Explain DRAM and SRAM.
3. How cache memory improves processor's speed and state the different types of cache memory.
4. Describe boot sector in FAT file system.
5. State the terms track, sector & cluster.
6. Describe LAN and WAN.
7. Explain TCP/IP protocol architecture. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Explain the working of display adapter with suitable diagram. 9

(b) Explain the working optical mouse. 6

OR

IV (a) Explain the working of SMPS with necessary diagram. 10

(b) Enumerate the features of AGP bus architecture. 5

UNIT — II

V (a) Describe the functions of graphics card, NIC and sound expansion card. 9

(b) Explain the memory modules SIMM and DIMM. 6

OR

VI (a) Describe the role of BIOS in a Computer. 7

(b) Briefly explain the need and functions of chipset. 8

UNIT — III

VII (a) With necessary diagram explain the constructional details of hard disk. 9

(b) Explain any two ESD protection devices. 6

OR

VIII (a) List the need for hard disk formatting and explain two types of formatting. 9

(b) Compare CD and DVD. 6

UNIT — IV

IX (a) List the layers of ISO-OSI reference model & describe functions of each layer. 9

(b) Explain Virtual Private Network. 6

OR

X (a) Describe different network topologies. 8

(b) Explain the architecture of Wireless LAN. 7

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

RADAR AND NAVIGATION

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define minimum detectable signal.
2. List the advantages and disadvantages of radar.
3. State the application of FM-CW radar.
4. State the limitations of DME.
5. List any two types of landing system. (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Describe different frequencies ranges used in radar.
2. Write short notes on radar displays A scope and B scope.
3. Explain the working of tracking radar.
4. Describe the working principle of Goniometer.
5. Explain the working principle of LORAN.
6. Differentiate GPS and DGPS.
7. Briefly explain Inertial Navigation System. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Draw and explain the block diagram of radar. 8

(b) Explain the applications of radar system. 7

OR

IV (a) Derive radar range equation. 8

(b) Write short notes on radar performance factors. 7

UNIT — II

V (a) Draw and explain the block diagram of MTI Radar. 9

(b) Explain Doppler effect in CW Radar. 6

OR

VI (a) Explain the block diagram of FM CW Radar. 8

(b) Draw and explain the block diagram of MTI signal processor. 7

UNIT — III

VII (a) Explain the working principle of OMEGA and DECCA hyperbolic navigation systems. 10

(b) Describe the working principle of loop antenna. 5

OR

VIII (a) Write short notes on DME & VOR. 7

(b) Describe the four methods of navigation. 8

UNIT — IV

IX (a) Explain instrument landing system. 7

(b) Write short notes on GALILEO, COMPASS, IRNSS, QZSS. 8

OR

X (a) Briefly explain Microwave Landing System. 8

(b) Explain the significance of Glide Slope and Markers. 7

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

TELEVISION ENGINEERING

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. State the working principle of a loud speaker.
2. Define aspect ratio.
3. Define hue in the colour system.
4. Define compression ratio in digital TV.
5. Expand the abbreviation OLED. (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Draw and explain the working of a crystal microphone.
2. Explain Dolby A and Dolby B system.
3. Explain additive and subtractive mixing of colours.
4. What are the merits and demerits of the PAL system.
5. Explain MPEG - 4 technique.
6. What are the features of HDTV ?
7. Explain the operation of LCD. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) With the help of a neat diagram explain the play back process of compact disk. 8

(b) Draw and explain the working of a moving coil loud speaker. 7

OR

IV (a) Draw the block diagram of a PA system and explain. 8

(b) What are the requirements of Hi-Fi system ? 7

UNIT — II

V (a) With the help of a neat diagram explain the working of a CCD camera. 8

(b) Draw and explain composite video signal. 7

OR

VI (a) What are the reasons for selecting (R-Y) and (B-Y) signals in colour transmission ? 7

(b) Draw the block diagram of PAL encoder and explain. 8

UNIT — III

VII (a) With the help of a neat diagram explain the working of a Delta gun picture tube. 8

(b) Draw the block diagram of Digital TV receiver. 7

OR

VIII (a) Draw the block diagram of MAC encoder and explain. 8

(b) With the help of a neat diagram explain the working of a PIL colour picture tube. 7

UNIT — IV

IX (a) Draw the block diagram and explain the working of CATV. 9

(b) Explain set-top box used in the TV system. 6

OR

X (a) Draw the block diagram of DTH receiver and explain. 9

(b) What are the advantages of LED display ? 6
