TED (15) – 6042

(REVISION — 2015)

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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. Define transit time of a carrier.

2. Define the terms apogee and perigee of satellite orbit.

3. List optical detectors used in optical communication.

4. Define numerical aperture of optical fiber.

5. State the term frequency reuse in mobile communication.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. With a block diagram explain about microwave receiver.

2. Define microwave communication. List few microwave bands used in microwave communication.

3. Describe about GPS (Global Positioning System) navigation system.

4. Make a comparison of FDMA and CDMA techniques used in satellite communication.

5. List and explain the various areas where optical data communication is used.

6. Describe about 3G technology used in mobile communication.

7. What is meant by hand off (hand over) in mobile communication.   (5×6 = 30)

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 magnetron.   8

    (b) Define wave guides. Explain different types of wave guides used in microwave communication.   7

OR

IV (a) With a block diagram explain about microwave link repeater.   12

    (b) Draw the symbol and structure of GUNN diode.   3

UNIT — II

V (a) Describe with a block diagram about satellite earth station.   8

    (b) What are the advantages and disadvantages of using TDMA technique in satellite communication ?   7

OR

VI (a) What are geostationary satellites ? Write a short note on geostationary satellites.   8

    (b) List and briefly explain various applications of satellite.   7

UNIT — III

VII (a) Draw a block diagram of fiber optic communication system and explain about it.   8

    (b) Explain the working of optical source LED used in optical communication.   7

OR

VIII (a) Explain the working principle of avalanche photo diode. What is the advantage of avalanche photo diode over PIN diode when used as optical detector ?   8

    (b) Draw fiber optic cable (OFC) structure and explain how signal is transmitted through the cable.   7

UNIT — IV

IX (a) Draw and explain the cellular concept of mobile communication.   8

    (b) Compare GSM and CDMA technology used in mobile communication.   7

OR

X (a) Describe about Bluetooth wireless technology.   8

    (b) Explain about wireless technology Wi-Fi.   7

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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. Define the term latency time in hard disk.

2. List any two display adapters.

3. State the need for memory refreshing in RAM.

4. List any two causes of ESD.

5. List any two unguided transmission medias.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the matrix key board organization.

2. Explain different USB interfaces.

3. Define the term motherboard form factor and describe different types.

4. Compare CD, DVD and Blue ray.

5. Explain the mechanism of POST.

6. Explain the principle of VPN.

7. Describe different guided transmission medias.   (5×6 = 30)

PART — C

(Maximum marks : 60)

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

Unit — I

III	(a)	Explain AGP and PCI.	8
	(b)	Differentiate impact and non impact type printers with example.	7

Or

IV	(a)	Explain ATX SMPS with a suitable block diagram.	8
	(b)	Explain the working principle of dot matrix printer.	7

Unit — II

V	(a)	Draw the block diagram of an ATX motherboard and mark relevant parts.	8
	(b)	List different RAM types and explain any two.	7

Or

VI	(a)	Briefly explain different expansion cards used in computer.	8
	(b)	Explain different ROMs used in computer.	7

Unit — III

VII	(a)	Briefly explain FAT32 and NTFS file systems.	7
	(b)	Explain the terms track, sector, cluster and cylinder in a hard disk.	8

Or

VIII	(a)	Explain different antistatic methods to prevent ESD.	8
	(b)	Explain hard disk controller.	7

Unit — IV

IX	(a)	Explain ISO-OSI 7 layer reference model.	8
	(b)	Explain cable modem and dial up modem.	7

Or

X	(a)	Explain the principle of DSL.	7
	(b)	Briefly explain different network topologies.	8

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

ADVANCED MICRO PROCESSOR

[*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. Differentiate HOLD and HLDA.

2. State Auxiliary Carry Flag.

3. Define Assembler directives.

4. Define PVAM of 80386.

5. Define term multi core.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Specify any six signals related to minimum mode of operation of 8086.

2. Discuss flag register of 8086.

3. Describe interrupt instructions INT, INTO, IRET.

4. Discuss shift instructions of 8086.

5. List any six features of 80386.

6. Discuss flag register of 80386.

7. Compare between single core and multicore processor.   (5×6 = 30)

PART — C

(Maximum marks : 60)

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

UNIT — I

III   (a)   Draw read timing diagram of minimum mode.   8

     (b)   Describe memory segmentation of 8086.   7

OR

IV   (a)   Discuss register organization of 8086.   8

     (b)   Describe physical address generation in 8086.   7

UNIT — II

V   (a)   List the types of assembler Directives of 8086.   8

    (b)   Discuss three sources of interrupts of 8086.   7

OR

VI   (a)   State and describe types of pre-defined interrupt.   8

     (b)   Write an ALP to multiple two 16 bit numbers.   7

UNIT — III

VII   (a)   Discuss register organisation of 80386.   8

     (b)   Discuss paging mechanism of 80386.   7

OR

VIII   (a)   Draw architecture of Pentium processor.   10

     (b)   Discuss any five features of Pentium processor.   5

UNIT — IV

IX   (a)   List the advantages of multi core technology.   8

     (b)   Discuss limitations of single core processor.   7

OR

X   (a)   Discuss the concept of hyper thread technology.   8

    (b)   State major issues in multi core processing.   7

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Signature ....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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. List the factors that affect the maximum range of a radar.

2. List the limitations of radars.

3. State the Doppler effect in radar system.

4. State the principle of hyperbolic navigation system.

5. State the use of marker beacons in instrument Landing System.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain any four applications of radar system.

2. Derive the radar range equation.

3. Explain the operation of a PPI display used in radar.

4. Describe the four methods of navigation.

5. With the help of diagrams explain the principle of operation of goniometer.

6. Explain the use of glide slope in Instrument Landing System.

7. Briefly explain the IRNSS navigation system.   (5×6 = 30)

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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 block diagram explain the operation of a basic radar.   9

(b) Describe the frequency ranges used in radar system.   6

Or

IV (a) Explain the significance of the following with reference to a radar system.

(i) Radar cross section of targets   (ii) Minimum detectable signal   8

(b) Define the term 'Pulse Repetition Frequency'. Explain its significance in avoiding confusions in range calculation.   7

Unit — II

V (a) With a neat block diagram explain the working of MTI radar employing power amplifier transmitter.   9

(b) State the use of a tracking radar. Explain various types of tracking radars.   6

Or

VI (a) With the help of a block diagram explain the operation of FM CW radar.   10

(b) Describe the operation of Pulse Doppler Radar.   5

Unit — III

VII (a) With the help of a block diagram explain the operation of Radio Compass ADF.   9

(b) With the help of diagrams explain the principle of operation of loop antenna.   6

Or

VIII (a) With the help of diagrams explain DECCA navigation system.   9

(b) Draw the block diagram of Distance Measuring Equipment. Explain its operation.   6

Unit — IV

IX (a) Explain the operation of Microwave Landing System with the help of diagrams.   9

(b) Explain the Differential GPS system.   6

Or

X (a) Explain the principle of operation of GPS navigation system.   9

(b) Write short notes on the given Satellite Navigation systems.

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

TELEVISION ENGINEERING

[*Time* : 3 hours

(Maximum marks : 100)

Marks

PART — A

(Maximum marks : 10)

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

1. Define equalization in audio recording.

2. State the reasons for not choosing (G-Y) difference signal for TV transmission.

3. Give the reasons for transmitting colour burst signals.

4. Define multicasting in DTV.

5. State the use of set-top box.   (5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. With a neat sketch explain the operation of a dynamic loud speaker.

2. Draw the block diagram of a CD play back system and explain.

3. Sketch the frequency spectrum of a complete TV channel employing VSB.

4. Explain the operation principle of CCD camera.

5. State the merits and demerits of digital TV system.

6. Draw the block diagram of Digital satellite transmitter and explain each block.

7. Explain CCTV system with block diagram.   (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 the block diagram of a high fidelity stereo system and explain the operation. 8

(b) With a neat sketch explain the construction and operation of a ribbon microphone. 7

OR

IV (a) Explain the following characteristics with respect to a microphone. 8

(i) Sensitivity (ii) SNR (iii) Output impedence (iv) Directivity

(b) Explain the requirements of a public address system. 7

UNIT — II

V (a) Draw the waveform of a composite video signal for a single line and explain the functions of each pulse. 8

(b) Describe the principle of additive and subtractive mixing of colours with examples. 7

OR

VI (a) Draw the block diagram of PAL de coder and explain each block. 8

(b) With neat sketch explain the concept of positive and negative modulation. 7

UNIT — III

VII (a) Draw the block diagram of a Digital TV receiver and explain each block. 8

(b) Explain video compression layers in MPEG-l. 7

OR

VIII (a) Explain the construction and operation of a delta gun picture tube. 8

(b) Explain the merits of digital TV system. 7

UNIT — IV

IX (a) Draw the block diagram of a HDTV Transmitter and explain each block. 8

(b) With a neat sketch explain the working principle of Liquid crystal display. 7

OR

X Write short notes on :

(i) Video on demand (VOD) (ii) Direct to home (DTH)

(iii) Set-Top Box (STB). 15