TED (15) – 4042

(REVISION — 2015)

Reg. No. ....

Signature ....

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

LINEAR INTEGRATED CIRCUITS

[*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 two package types of operational amplifier.

2. Define the slew rate of an op-amp.

3. Write the frequency of oscillation of RC phase shift oscillator.

4. Write the expression for time period of astable circuit using 555.

5. Give any two features of IC regulators.   (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 voltage follower.

2. Draw the Schmitt trigger circuit using op-amp and explain its working.

3. Explain the working of differentiator circuit using op-amp.

4. Define capture range, lock-in-range and pull-in-time of PLL.

5. Write the features of 555 timer.

6. Explain the operation of adjustable voltage regulator LM 317.

7. What are the advantages and disadvantages of SMPS ?   (5 × 6 = 30)

[97]

[P.T.O.

PART — C

(Maximum marks : 60)

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

Unit — I

III (a) Derive the expression for output voltage and voltage gain of inverting amplifier. 8

(b) What are characteristics of an ideal operational amplifier ? 7

Or

IV (a) Explain the block diagram of general purpose operational amplifier. 8

(b) Explain the concept of virtual ground. 7

Unit — II

V (a) Describe the working of summing amplifier. 8

(b) Explain the working of current to voltage converters. 7

Or

VI (a) With neat diagram explain the working of wein bridge oscillators. 8

(b) Explain the working of astable multivibrator using op-amp. 7

Unit — III

VII (a) Draw the block diagram of PLL and explain. 7

(b) Explain the working of monostable multivibrator using 555 timer. 8

Or

VIII (a) Describe the application of PLL as frequency multiplier. 7

(b) Explain the functional block diagram of 555 timer. 8

Unit — IV

IX (a) Explain dual power supply using LM 320 and LM 340. 8

(b) With the block diagram explain SMPS. 7

Or

X (a) Write the features of LM 723 voltage regulator. 7

(b) Explain working of optocoupler IC 4N35. 8

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TED (15) – 4041

(REVISION — 2015)

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Signature ....

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

ELECTRONICS INSTRUMENTS AND MEASUREMENTS

[*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 precision of an instrument.

2. Write two specifications of analog multimeter.

3. List the application of CRO.

4. What is spectrum analyser ?

5. List different types of DAS. $(5 \times 2 = 10)$

PART — B

(Maximum marks : 30)

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

1. Explain the conversion of galvanometer into voltmeter and deduce the relation for the resistance.

2. List the specifications of a digital multimeter.

3. Draw the functional block diagram of CRO and explain the working of each block.

4. Explain the working principle of microphone type transducer.

5. Explain the principle of measuring frequency using wien bridge.

6. List the application of logic analyser.

7. Explain the role of telemetry in instrumentation system. $(5 \times 6 = 30)$

[96]

[P.T.O.

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Differentiate moving coil and moving iron instruments. 6

    (b) Explain the working of analog multimeter with neat diagram. 9

OR

IV (a) Draw the block diagram of digital frequency meter and explain the working of each block. 9

    (b) Draw the block diagram of digital multimeter. 6

UNIT — II

V (a) Draw the cross sectional view of CRT used in CRO and explain its working. 8

    (b) Explain the working principle of capacitive transducer. 7

OR

VI (a) Explain the working principle of LVDT with neat figure. 8

    (b) Illustrate the working of DSO with relevant figure. 7

UNIT — III

VII (a) Explain the resistance measurement using Wheatstone's bridge. 8

    (b) List the applications of spectrum analyser. 7

OR

VIII (a) Explain the principle of capacitance measurement using Schering bridge. 8

    (b) Draw the block diagram of function generator and explain each block. 7

UNIT — IV

IX (a) Explain the working of X-Y recorder with relevant figure. 6

    (b) Explain the block diagram of basic instrumentation system. 9

OR

X (a) Differentiate closed loop and open loop control system. 6

    (b) Explain the block diagram of digital DAS. 9

TED (15) – 4043

(REVISION — 2015)

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

MICROCONTROLLER AND INTERFACING

[*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 significance of auxiliary carry flag.

2. Mention the operation of CPL A instruction.

3. How interrupts are enabled and disabled in 8051.

4. Differentiate simplex and duplex transmission.

5. Define the term interfacing. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. List the features of 8051 microcontroller.

2. Explain the following instructions.

   INC @Ri ;   SUBB A,Rn;   DA A ;   SWAP A

3. Explain the interrupts in 8051.

4. Describe. SCON special function register.

5. Describe the procedure to generate time delay using TIMER.

6. Illustrate the interfacing of DC motor with 8051.

7. Describe the interfacing of ADC with 8051. (5×6 = 30)

[P.T.O.

PART — C

(Maximum marks : 60)

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

UNIT — I

III	(a)	Explain the various registers of 8051 microcontroller.	10
	(b)	Draw the block diagram of 8051 microcontroller.	5

OR

IV	(a)	Explain the pin functions of 8051 microcontroller.	10
	(b)	Draw the RAM memory organization of 8051.	5

UNIT — II

V	(a)	Explain the various addressing modes of 8051 with examples.	10
	(b)	Write a program to clear lower 128 bytes of internal RAM.	5

OR

VI	(a)	Explain the steps in executing an interrupt in 8051.	8
	(b)	Draw the format of IE special function register and explain.	7

UNIT — III

VII	(a)	Explain the various modes of operation of Timers of 8051.	8
	(b)	Describe TMOD special function register.	7

OR

VIII	(a)	Explain the way to double the Baud rate in 8051.	8
	(b)	Draw the format of PCON register and explain.	7

UNIT — IV

IX	(a)	Describe the interfacing of LCD with 8051.	8
	(b)	Explain a temperature control system using 8051.	7

OR

X	(a)	Explain how the stepper motor can be controlled by 8051.	8
	(b)	Explain water level indicator system using 8051.	7

TED (15) – 4044

(REVISION — 2015)

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

PROGRAMMING IN C

[*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 two relational operators with example.

2. Define entry controlled loop.

3. Write the syntax to declare a one dimensional array.

4. List any four library functions used for string manipulation.

5. Define function in C.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Write a C program to print average of 3 numbers.

2. Demonstrate input and output functions for a simple application.

3. Illustrate the syntax of do-while and while loop.

4. List the pointer arithmetic operations and illustrate any two with suitable examples.

5. Write a C program to concatenate two strings using string functions.

6. Compare local and global variables in C.

7. Explain Recursion with suitable examples.   (5×6 = 30)

[99]

[P.T.O.

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) List and explain any 6 arithmetic operators in C with example. 6

(b) Write a C program to read the day number (between 1 and 7) and display the corresponding day name (1 -Mon, 2-Tue, ... 7-Sun) using switch statement. 9

OR

IV (a) Explain two way and multi way selection structure in C with neat diagram. 8

(b) Write a C program to find the perimeter and area of a rectangle. 7

UNIT — II

V (a) Write C program to find the sum of first N natural numbers using for loop. 8

(b) Write C program to find transpose of a matrix. 7

OR

VI (a) Explain counter controlled loop with appropriate examples. 6

(b) Write a C program to find the largest element of an array. 9

UNIT — III

VII (a) Define Pointers and state how to use Pointers. 6

(b) Write a C program to compare two strings without using string functions. 9

OR

VIII (a) State the steps in declaration and initialization of strings. 6

(b) Write a C program to exchange values of two variables using pointers. 9

UNIT — IV

IX (a) Write a C program to find the factorial of a number send into a user defined function. 9

(b) Compare call by value and call by reference. 6

OR

X (a) Write a C function to determine whether a year entered by user is a leap year or not. 7

(b) Explain how to pass a one dimensional array to a called function with example. 8