TED (15) – 4041

(REVISION — 2015)

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

ELECTRONIC 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 instrument precision.

2. Name the type of Galvanometer which can be used for both AC and DC measurements.

3. Define Transducer.

4. List the wave forms that a function generator can produce.

5. Define Telemetry in instrumentation system.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Illustrate the methods for measuring voltage by using a moving coil galvanometer.

2. Differentiate 3½ and 4 ½ digit displays in terms of accuracy of a digital multimeter.

3. Explain Electrostatic focusing system used in CRO.

4. List the features and application of Photovoltaic Cell.

5. Explain the function of logic analyzer with block diagram.

6. List the main types of AC and DC bridges used for measurements and state the measurement of each bridge.

7. Draw the basic block diagram of instrumentation system and explain.   (5×6 = 30)

[76]

[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 working of a galvanometer with neat sketch.   8

   (b) List the specifications of analog multimeter.   7

OR

IV (a) Explain the working of digital multimeter with block diagram.   8

   (b) List the differences between moving coil and moving iron instruments.   7

UNIT — II

V (a) Explain the function of CRO with block diagram.   8

   (b) List the applications of Digital Storage Oscilloscope.   7

OR

VI (a) Explain the method of displacement measurement by using LVDT.   8

   (b) Identify the probes used in CRO and explain about any two.   7

UNIT — III

VII (a) Explain the working of Spectrum Analyzer with block diagram.   8

    (b) Explain the method of inductance measurement using Maxwell's Bridge.   7

OR

VIII (a) Explain the method for measuring an unknown resistance by using Wheatstone Bridge.   8

     (b) Explain the method for measuring the electrical properties of the coils and capacitors by using suitable meter.   7

UNIT — IV

IX (a) Illustrate the working of X-Y recorder.   8

   (b) Explain the working of open loop control system with its advantages.   7

OR

X (a) Illustrate the working of Strip Chart Recorder.   8

   (b) Explain the analog Data Acquisition System with block diagram.   7

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Reg. No. ....

Signature ....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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.   Define input offset voltage.

2.   Draw a unity gain circuit using op-amp.

3.   List any four features of LM723 voltage regulator IC.

4.   Define lock range.

5.   Draw the frequency response curve of first order high pass butter worth filter.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1.   Sketch the pin configuration of op-amp and describe the function of each pin.

2.   Explain the working of Schmitt trigger circuit with necessary waveforms.

3.   Describe the working of RC phase shift oscillator using op-amp.

4.   Draw the functional block diagram of LM723.

5.   Illustrate the working of astable multivibrator using 555.

6.   Explain how PLL can be used as FM demodulator.

7.   Explain how LM320 and LM340 can be used to make a dual power supply.

(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) Derive the expression for voltage gain of non-inverting amplifier with circuit diagram.　　8

(b) Explain the block diagram of general purpose op-amp.　　7

Or

IV (a) Describe the working basic circuit of differential amplifier.　　8

(b) List the characteristics of an ideal opamp.　　7

Unit — II

V (a) With neat diagram explain instrumentation amplifier.　　7

(b) Draw & explain 1st order active low - pass Butterworth filter using opamp.　　8

Or

VI (a) Describe the working of astable multivibrator using opamp.　　8

(b) Explain voltage to current converter using opamp.　　7

Unit — III

VII (a) Explain LM380 audio power amplifier circuit.　　7

(b) With the help of circuit and wave form explain the operation of monostable multivibrator using 555IC.　　8

Or

VIII (a) Draw and explain the functional block diagram of 555 timer.　　8

(b) Explain how PLL can be used as frequency multiplier.　　7

Unit — IV

IX (a) Explain the operation of adjustable voltage regulator LM317.　　7

(b) Draw the block diagram and explain the working of SMPS.　　8

Or

X (a) Explain low voltage regulator using LM723.　　8

(b) Explain the working principle of opto couples and list its applications.　　7

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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.   Write the function of B register.

2.   Define DPTR of 8051.

3.   Mention two assembler directives.

4.   State the function of GATE bits in TMOD register.

5.   List any two advantages of stepper motor.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1.   Give the alternate functions of Port0, Port2 and Port3.

2.   State the functions of Stack pointer and Program counter.

3.   Briefly explain different unconditional jump instructions of 8051.

4.   Distinguish between Level and Edge triggered Interrupts.

5.   Creating a square wave of 50% duty cycle on the P1.4 bit. Timer 0 is used to generate the time delay.

6.   Describe the function of SBUF register in 8051 with example.

7.   Write short notes on LCD display.

(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 the general architecture of 8051 and explain.   8

     (b) Explain the PSW in 8051 microcontroller.   7

OR

IV (a) Draw the architecture of PORT0. Explain how this port act as input/output.   8

     (b) Explain briefly the organization of internal RAM of 8051 with diagram.   7

UNIT — II

V (a) Draw the format of IE special function register of 8051 and write the steps in enabling an Interrupt.   8

    (b) Write an ALP to multiply two 8 - bit numbers using 8051.   7

OR

VI (a) Explain any four instruction groups in 8051 with example.   8

     (b) Draw the format of IP special function register and explain.   7

UNIT — III

VII (a) Draw the format of PCON register of 8051 and explain.   8

     (b) Distinguish between timer and counter functions in 8051.   7

OR

VIII (a) Explain Serial data transmission and reception of 8051.   8

     (b) Program the 8051 to receive bytes of data serially, and put them in P1. Set the baud rate at 4800, with 8-bit data, and 1 stop bit.   7

UNIT — IV

IX (a) Explain the steps for interfacing of ADC with 8051 using figure.   8

     (b) Draw and explain interfacing of Stepper motor with 8051.   7

OR

X (a) Explain the interfacing of water level indicator system with 8051.   8

    (b) Illustrate how a 4×4 key board is interfaced with 8051.   7

TED (15) – 4044

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Reg. No...

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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. Differentiate the postfix and prefix increment operator.

2. Write a C statement to read elements of a mxn matrix.

3. Write the syntax to concatenate two strings.

4. How two dimensional array is declared ?

5. Give the general syntax of function call. And which is the keyword used to transfer

   control from a function back to the calling function ?   (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 multiplication table of an entered number.

2. With syntax and example explain input and output functions.

3. Explain the syntax of switch-case statement.

4. Explain the working of for loop.

5. Write a program to check string palindrome using string library function.

6. What is a pointer and how a pointer can be declared ?

7. Explain how arguments are passed to function.   (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) Write a C program to check whether the entered year is leap year or not. 5

(b) Explain different operators in C. 10

OR

IV (a) Write a C program to check whether the integer is even or odd. 5

(b) With syntax and example explain (i) two way selection (ii) multi-way selection. 10

UNIT — II

V (a) Write a program to print the reverse of a given number n. 5

(b) Compare entry controlled and exit controlled loop. 10

OR

VI (a) Write a program to print the transverse of a 3×3 matrix. 5

(b) Explain how a one dimensional array can be created. Illustrate with an example. 10

UNIT — III

VII (a) Write a C program using pointers to compute the sum of all elements stored in an array. 8

(b) Explain how string is declared and initialized. 7

OR

VIII (a) With an example explain : (i) strcpy( )   (ii) strlen( ) 8

(b) What is a pointer variable ? How is it declared for a single variable and for a one dimensional array ? 7

UNIT — IV

IX (a) What are actual and formal parameters ? Explain with an example. 8

(b) Explain a recursive function with syntax. 7

OR

X (a) Categorize function based on arguments and return value. 8

(b) Write a C program to find out sum of two numbers using function. 7