

TED (15) – 5001

Reg. No.

(REVISION — 2015)

Signature

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

INDUSTRIAL MANAGEMENT AND SAFETY

[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 term Nominal partners.
2. Define Real wages.
3. Define Inventory.
4. List the applications of PERT and CPM.
5. Write full form of SIDBI and TBI.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the terms staffing and directing.
2. Explain the advantages of training.
3. List the benefits of ISO 9000 : 2000 Company.
4. Explain EOQ and ABC inventory models.
5. Differentiate between CPM and PERT.
6. Explain the precautions to be observed while working under hazardous environment.
7. Write short notes on unsafe condition and unsafe act.

(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 short notes on financial incentives, Non-financial incentives and semi financial incentives. 7
- (b) Explain Line and staff organisational structure with a chart. 8

OR

- IV (a) Compare the contributions of FW Taylor and Henry Fayol in scientific management. 7
- (b) State the Partnership organization. Give its advantages and disadvantages. 8

UNIT — II

- V (a) Describe the duties and responsibilities of a store keeper. 7
- (b) Define Total Quality Management and List the Ten Manthra's for TQM. 8

OR

- VI (a) Distinguish between centralised store and de-centralised store. 7
- (b) Explain the store purchasing procedure. 8

UNIT — III

- VII (a) A factory producing two components named A and B. It requires machining and assembly processes. The component A and B requires time and profit as follows. Formulate Linear programming solution for maximization of the profit.

Process	Components		Available time
	A	B	
Machining	5	4	160
Assembling	2	5	100
Profit	30	60	6

- (b) A small plant assembles PCs through inter linked activities as follows. Draw an arrow diagram (network), find Critical path and the total assembly duration.

Activities	1-2	1-3	1-4	2-5	3-6	3-7	4-6	5-8	6-9	7-8	8-9
Duration	2	2	1	4	8	5	3	1	5	4	3

OR

- VIII (a) Find out the basic feasible solution by least cost method and Total cost for the given transportation problem.

	D1	D2	D3	D4	Supply
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	9

- (b) Compute saddle point and optimal strategies for player A and player B by using max-min and mini-max principle.

	Player A			
Player B	3	-1	5	10
	-5	4	3	7
	8	7	6	8

6

UNIT — IV

- IX (a) What are the constituents of feasibility study? 7
- (b) Explain the environmental causes of accident. 8
- OR
- X (a) Explain the procedure for registration of a small scale industry. 7
- (b) Discuss about different accident prevention techniques 4E s. 8

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
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EMBEDDED SYSTEM

[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. How many general purpose registers are there in ATmega32 ?
2. Give any two assembler directives in AVR assembly language program.
3. Name two I/O registers associated with timers and give its size in bits.
4. Define an embedded system.
5. State the role of kernel in Embedded OS.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe the various members of AVR family.
2. Describe instruction pipeline.
3. Write an Assembly language program to add two bytes of data from the memory address of 0×300 and 0×301, store the result in 0×302.
4. Describe the logic operators in embedded C.
5. Describe the Arduino development board.
6. Write any six application area of embedded systems.
7. Describe the data memory of ATmega32.

(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 and explain the simplified architecture of ATmega32. 9
 (b) Describe the general purpose registers of ATmega32. 6

OR

- IV (a) Briefly describe the Addressing modes ATmega32 microcontroller. 8
 (b) Describe the status register of ATmega32. 7

UNIT — II

- V (a) Describe data transfer and arithmetic instructions with example. 8
 (b) Write an Assembly Language Program to toggle the bits of PORTB Continuously by writing 0x55 & 0xAA with some delay. 7

OR

- VI (a) Describe rotate and shift instructions with example. 8
 (b) Write an Assembly Language Program to convert the BCD number 0x65 to ASCII code and place the result in R21 and R22. 7

UNIT — III

- VII (a) Describe the data types and time delays in embedded C. 8
 (b) Write an AVR C program to send values 0x00 to 0xFF to PORT B with 500ms delay. 7

OR

- VIII (a) Draw the structure of TIMER0 and write the steps to program the TIMER0 in normal mode ? 9
 (b) Explain the ATmega32 connection to RS232 with diagram. 6

UNIT — IV

- IX (a) Explain Specialties of embedded system. 8
 (b) List the features of embedded system. 7

OR

- X (a) Describe the architecture of embedded operating system. 9
 (b) Define (i) Task (ii) Task scheduling (iii) Context switching. 6

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
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INDUSTRIAL ELECTRONICS AND PLC

[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 holding current of an SCR.
2. Define the term commutation in thyristors.
3. List any two applications of cyclo converter.
4. List any two applications of induction heating.
5. Write any two MATH instructions in PLC.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe two transistor analogy of SCR.
2. Draw and explain the Resistive gate triggering method of SCR.
3. Draw and explain the circuit of single phase half wave converter with RL load.
4. Draw and explain full wave ac voltage controller using SCR.
5. List important applications of dielectric heating.
6. List advantages of induction heating.
7. Implement ladder diagram for the following logical expression.

(a) $Y=(A+B)C$ (b) $Y=AB+CD$ (c) $Y=(A+B)(C+D)$

(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) With basic structure describe the working of an IGBT. 8
 (b) Draw and explain the gate triggering circuit of thyristor using UJT. 7

OR

- IV (a) Draw and explain the circuit of class C commutation (complimentary). 8
 (b) Describe the working of SCR with schematic diagram. 7

UNIT — II

- V (a) Draw the circuit of full wave midpoint converter with R load and explain. 8
 (b) With diagram explain the working of basic series inverter. 7

OR

- VI (a) Explain the working of a step - up cyclo converter with circuit. 8
 (b) Explain the working of basic DC chopper with diagram. 7

UNIT — III

- VII (a) Describe the principle of Induction heating. 8
 (b) Describe the working of the ON-line UPS. 7

OR

- VIII (a) Describe Spot welding and Butt welding. 8
 (b) Explain the speed control of Induction motor using variable voltage variable frequency method. 7

UNIT — IV

- IX (a) Describe Timer and Counter instruction set used in ladder diagram. 8
 (b) Implement basic gates using ladder diagram and illustrate with its truth table. 7

OR

- X (a) Describe the architecture of PLC. 8
 (b) List the applications of PLC (Any seven points). 7
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
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OPTICAL FIBRE COMMUNICATION

[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 Numerical Aperture.
2. Describe absorption.
3. Draw the structure of Surface Emmitting LED.
4. Draw the Block diagram of Optical receiver.
5. Describe dispersion.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain Fiber Bend Losses.
2. Briefly explain the Skew rays and Meridional rays.
3. Briefly explain advantages of Erbium Doped Fiber Amplifier.
4. Explain the structure and working principle of PIN photo diode.
5. Explain optical fiber communication system.
6. Briefly explain Optical Modulators.
7. Explain the theory of Laser action.

(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 various Optical Fiber types. 8
 (b) Briefly explain the advantages of Optical Fiber. 7

OR

- IV (a) Describe total internal reflection and acceptance angle. 9
 (b) Briefly explain the optical fiber configurations and Modes. 6

UNIT — II

- V (a) Explain the Modulation of LED. 7
 (b) Explain the structure and working principle of Avalanche photo diode. 8

OR

- VI (a) Briefly explain different types of LED Structures. 12
 (b) Explain the principle of Photo detection. 3

UNIT — III

- VII (a) Briefly explain the Wave length Division Multiplexing. 9
 (b) Explain the basic concept of optical Amplifiers. 6

OR

- VIII (a) Explain Optical Transmitters and Optical Receivers. 8
 (b) Explain the working principle of Erbium Doped Fiber Amplifier. (EDFA) 7

UNIT — IV

- IX (a) Explain intra and inter mode dispersion losses in optical transmission. 8
 (b) Explain the principle of Optical fiber directional coupler. 7

OR

- X (a) Explain the cut back method of measurement of attenuation losses in optical transmission. 7
 (b) Describe Optical isolators and optical circulators. 8
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