

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2022**

FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING

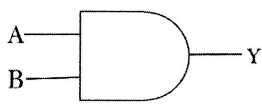
[Maximum Marks: 75]

[Time: 3 Hours]

(PART-A)

I. (Answer *all* the following questions in one word or one sentence)

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	If the length of a material is doubled then the value of resistance will be A) Doubled C) Remains the same B) Halved D) None of these	M1.01	U
2.	Define the term frequency related to AC wave form.	M1.04	R
3.	Write the expansion for MCB.	M2.01	R
4.	Name the commercial unit for electrical energy.	M2.03	R
5.	Write the equation for single phase active power.	M2.02	R
6.	Define the term turns ratio of transformers.	M3.04	U
7.	Write the units for inductance and capacitance.	M3.03	R
8.	Draw the symbol of a PNP transistor.	M4.03	R
9.	 Find the output Y, if A=1 and B=0	M4.04	U

(PART-B)

II. (Answer any *eight* questions from the following)

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	Explain laws of resistance.	M1.01	U
2.	Define the following terms (i) Active power (ii) Reactive power (iii) Apparent power	M2.02	U
3.	Classify conduit type wiring and write short note on each type.	M2.01	U
4.	List out any three safety precautions to be followed while handling electricity.	M2.04	R
5.	Describe the operation of ELCB.	M2.01	U

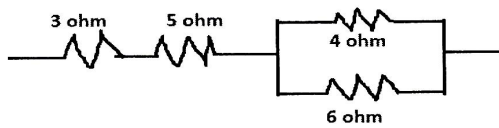
6.	Write the value of resistance with following colour combination. (i) Red, Yellow, Orange, Gold (ii) Brown, Black, Red, Gold	M3.01	U
7.	Draw the reverse characteristics of zener diode and explain its working.	M4.02	U
8.	Explain the operation of two input NAND gate with symbol and truth table.	M4.04	R
9.	Draw the input and output wave forms of a half wave rectifier.	M4.01	U
10.	List out any six applications of diode.	M4.01	R

(PART-C)

III.(Answer all questions. Each question carries seven marks)

(6 x 7 = 42 Marks)

Module Outcome Cognitive level

1.	State Faraday's laws of electromagnetic induction and mention the difference between statically induced emf and dynamically induced emf.	M1.03	U
OR			
2.	Derive the expression for equivalent resistance of a circuit with resistors R_1 , R_2 , and R_3 are in series.	M1.02	U
3.	Find equivalent resistance of the given circuit. 	M1.02	A
OR			
4.	A 100W, 250V lamp connected in series with 100W, 200V lamp across 250V supply. Calculate circuit current.	M1.02	A
5.	A residential building uses following devices in a day A) 4 tube lights 40Watts working for 5 hours a day. B) 2 filament lamps of 60 Watts working for 8 hours a day. C) Water pump of 0.5 kilo watts working for 3 hours a day. Calculate energy consumption per day.	M2.03	A
OR			
6.	A 700W, 5A single phase induction motor is connected to a 230V supply. Find the following parameters. (i) Active power (iii) Apparent power (ii) Reactive power (iv) Power factor	M2.02	A

7.	Explain self inductance and mutual inductance of a coil. OR	M3.03	U
8.	Compare wire wound resistors and carbon composition resistors. (Write any four points)	M3.01	U
9.	Describe the constructional details and advantages and disadvantages of an electrolytic capacitor. OR	M3.03	U
10.	Derive the expression for equivalent capacitance if two capacitors C_1 and C_2 are connected in series.	M3.02	U
11.	Explain the operation of a bridge rectifier with the circuit diagram and wave forms. OR	M4.01	U
12.	Explain the operation of a transistor as an amplifier.	M4.03	U
