Code: 15O-3306 **EEE**

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

(Autonomous) **Reg. No.**

October/November 2018 Examinations

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

Generation, Transmission and Switchgear

Year/Sem: III / V (ODD-III) Max. Marks : 75 Time : 3 hrs.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 Define co-generation.
2 Define Demand factor and Diversity factor.
3 What are the factors affecting corona?
4 State any two elements of transmission line.
5 What are the causes of failure of line insulator?
6 Define Recovery voltage.
7 List the effects of ungrounded Neutral.
8 Classify the U.G. cables based on voltage rating.

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 What are the functions of Load Dispatching center?
10 Draw the typical layout of AC power supply scheme.
11 Explain briefly Ferranti effect.
12 Mention any three properties of insulators.
13 Write the desirable characteristics of fuse.
14 Explain the arcing phenomenon in a circuit breaker.
15 Mention the different types of protection scheme in protective relaying.
16 List the advantages of interconnected grid system.

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.
(ii) All divisions carry equal marks.

17 A Draw and explain schematic arrangement of thermal power plant.

(OR)

B Explain Grid connected Solar PV system with neat diagram.

18 A State and explain Kelvin's law.

(OR)

B Draw and explain the schematic diagram of different types of links used in HVDC transmission.

19 A Explain the methods of improving the string efficiency of the suspension insulators.

(OR)

B Explain the capacitance grading and Intersheath grading of UG cable.

20 A Explain the construction and working Sulphur Hexa Fluoride circuit breaker and state its advantages.

(OR)

B Explain the construction and working of Gapless arrester.

21 A Explain with diagram, the construction and working of induction type impedance (distance) relay.

(OR)

B Explain the construction and working principle of grounding transformer.

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THIAGARAJAR POLYTECHNIC COLLEGE, SALEM
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October/November 2018 Examinations
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
Microcontroller and Applications

Year/Sem: III / V (ODD-III) Max. Marks : 75 Time : 3 hr.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 What is the Memory Capacity of RAM and ROM of 8051 Microcontroller?
2 What is register addressing ?. Give an example.
3 Draw the format for TMOD register.
4 Name the methods of Serial Communication.
5 Give the applications of ADC interfacing with Microcontroller.
6 Define Assembler Directives.
7 Name the Interrupts of 8051.
8 What is a Program Counter ?

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 What is Stack & Stack pointer?
10 Write a program for multiplying two numbers using 8051 Instruction Set
11 What are the functions of Timers and Counters of 8051?
12 Draw the pin details of RS232 connector.
13 Name the modes of operation of 8255 Parallel Peripheral Interface
14 What is a Time Delay Routine?
15 What are the baud rates used in Serial Communication of 8051?
16 Compare Microprocessor and Microcontroller.

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.
(ii) All divisions carry equal marks.

17 A Draw the architecture of 8051 microcontroller with a neat block diagram and list its main features. 10

OR

B Name the Special Function Registers of 8051 and write their functions. 10

18 A Explain the different addressing modes used in 8051 with an example. 10

OR

B Write a program using 8051 instructions to convert a Hexadecimal number to decimal number. 10

19 A What are the bit addresses of RAM & I/O ports of 8051. 10
Give examples for bit addressable instructions used for RAM & I/O Ports.

(OR)

B Explain the modes of operation of the Timers of 8051. With an example explain the programming of Timer of 8051 in mode 1. 10

20 A List the interrupts of 8051 with their priority and Vector location and explain the programming of External interrupts. 10

OR

B Write the program and explain the steps involved in programming the 8051 to transmit data serially. 10

21 A Draw the Block Diagram of 8255 Parallel Peripheral Interface and explain the three modes of operations. 10

OR

B Draw the interfacing diagram of a Stepper motor with the Microcontroller and write the program to control its operation. 10

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THIAGARAJAR POLYTECHNIC COLLEGE, SALEM
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October/November 2018 Examinations
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
ELECTRICAL ESTIMATION AND ENERGY AUDITING

Year/Sem: III / V (ODD - III) Max. Marks : 75 Time : 3 hr.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 Draw the symbols for following (a)Push button (b)Earth
2 Write the difference between the Neutral wire and Earth wire.
3 Convert 10 HP into Watts.
4 What are the types of Energy Audit?
5 Write the Advantages of Power Factor improvement.
6 State the Losses in Induction Motors.
7 What is an Automatic Power factor controller?
8 What is an Electronic Ballast?

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 What are the types of Internal wiring?
10 What are the materials used for Cable tray?
11 Define Sub-Circuit.
12 State the need for Energy Audit
13 Explain about the Electricity billing.
14 Write few words about the choice of lighting.
15 Explain Soft starter.
16 What is occupancy sensor?

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.
(ii) All divisions carry equal marks.

17 A (i) What is service connection? Explain any one type of service connections. 10
(ii) Explain the protection of Electrical Installation against over load and short circuit fault.

(OR)

B Explain with neat sketch pipe earthing and plate earthing. 10

18 A What are the various Steps to be followed in preparing an electrical estimate. 10

(OR)

B In a street there are 12 tubular lamp posts of height 7m with a span of 30m. Each post has one 4 feet tube with outdoor type fittings. Estimate the materials required for the entire installation by assuming suitable data. Underground cable may be used 10

19 A Explain in detail about various instruments used for energy Audit. 10

(OR)

B Describe the Selection and location of capacitors in power factor improvement 10

20 A Discuss the factors affecting the motor performance. 10

(OR)

B Explain briefly about the energy conservation avenues available in lighting systems. 10

21 A Explain how maximum demand controller works? 10

(OR)

B Discuss in detail about energy efficient motors. 10

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October/November 2018 Examinations

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

CONTROL OF ELECTRICAL MACHINES

Year/Sem: III / V (ODD-III) Max. Marks : 75 Time : 3 hr.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 Define single phasing.
2 Name two types of electrical interlock.
3 Write short notes on motor current at start and during acceleration.
4 How to reverse the direction of rotation of induction motor?
5 What type of motor is used in lift control?
6 Define PLC Scan.
7 Draw the symbol of ON delay timer.
8 State the different types of programming language.

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 Draw the diagram of simple ON-OFF motor control circuit.
10 Define float switch and state its applications.
11 Compare semi-automatic and automatic star delta starter.
12 Draw the circuit diagram of overhead crane control.
13 Explain the control of Electric oven.
14 Compare hardwire and PLC control system.
15 Draw the ladder logic diagram of DOL starter.
16 Draw the block diagram of PLC.

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.
(ii) All divisions carry equal marks.

17	A	(i)	Explain with a neat sketch the principle of operation of single phasing preventer.	5
		(ii)	Explain with neat sketch the principle of Electronic Timers.	5
			(OR)	
	B		Explain the constructional details of solenoid type contactor with a neat sketch.	10
18	A		Explain the working principle of auto transformer (closed circuit transition) with the help of diagrams.	10
			(OR)	
	B		Draw and explain the control circuit of secondary frequency acceleration starter for three phase slip ring induction motor.	10
19	A	(i)	Draw the logic control circuit of a planner machine.	5
		(ii)	Write short notes on planner machine.	5
			(OR)	
	B		Explain with the neat sketch the operation of control of air compressor.	10
20	A		Explain the components of PLC with a neat sketch.	10
			(OR)	
	B		Explain the PLC scan with neat sketches.	10
21	A		Explain the working of fully automatic star delta starter using PLC ladder diagram.	10
			(OR)	
	B		Explain ON delay and OFF delay timer instructions in PLC.	10

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