17424

21819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each Section on separate answer sheet.

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

SECTION - I

1. Attempt any NINE of the following: **18**

a) State Ohm's law.

b) How many 60 W lamps may be safely connected to 240 V circuits fitted with 5 A fuse?

c) Define energy and power.

d) State necessity of fuse.

e) What is earthing?

f) Mention types of earthing.

g) Why is earthing necessary in a wiring installation?

Marks

h) Define transformer.

i) Describe the winding of transformer with function and their material used for a transformer.

j) Which type of transformer has no electrical isolations?

k) Define voltage ratio and transformation ratio.

l) Write two safety precautions to be taken while handling an electrical equipments.

2. Attempt any FOUR of the following: **16**

a) Differentiate between two winding transformer and auto transformer on any four points.

b) Define fuse. Also explain the working of HRC fuse in brief.

c) Compare single phase with three phase ac supply.

d) State the function of "no volt coil" and "overload coil" in case of oc shunt motor starter.

e) Draw a neat diagram of resistance split phase induction motor. State any two applications.

f) Compare squirrel cage and slip ring type three phase inductions motor.

3. Attempt any FOUR of the following: **16**

a) What is the importance of improvement in power factors? State any two methods for power factor improvements.

b) List the different parts of DC machine. State function of any two parts.

c) State the necessity of starter for dc motor. Also give two applications of dc series motor and dc shunt motor.

d) With connection diagram, explain working principle of capacitor start capacitor run single phase induction motor.

e) Compare core-type and shell-type transformer by four points.

f) Draw the wiring diagram of stair case wiring and explain its working.

Marks

SECTION - II

4. Attempt any NINE of the following: **18**

a) Define resistor and inductor with their symbols.

b) Define intrinsic and extrinsic semiconductor.

c) List the applications of TRIAC.

d) Draw the VI characteristics of PN junction diode and zener diode.

e) Draw the symbol of NPN and PNP transistor.

f) List the application of transistor.

g) Draw the block diagram of rectifier.

h) What is the need of filter?

i) Draw the symbol of AND and OR gate with their truth table.

j) Why NAND and NOR called as universal gates?

k) List the types of LED and LCD display.

l) What is the concept of power amplifier?

5. Attempt any FOUR of the following: **16**

a) Draw construction and explain working of PN junction diode in forward bias.

b) Draw construction and explain working of light emitting diode.

c) Describe De-Morgan's theorems.

d) Draw circuit diagram of full wave bridge rectifier. Explain working with their input and output wave forms.

e) Explain the working of single stage CE amplifier with the help of neat circuit diagram.

f) Describe the working of TRIAC with the help of a neat sketch. Also state its two applications.

Marks

6. Attempt any FOUR of the following: **16**

a) Describe the working principle of zener diode as a shunt regulator with the help of neat circuit diagram.

b) Draw the V-I characteristics of SCR. Explain different modes of operation of SCR.

c) Describe the working of NPN transistor, with the help of neat sketch.

d) Describe the working of series inductor fitter with the help of neat sketch.

e) Draw and explain zener as a voltage regulator.

f) Draw all basic gates using NOR gate.