RETEST EXAMINATION & STANDON

NOVEMBER-2019

Semester: 3rd (Old)

Subject Code : El-304

ELEMENTS OF ELECTRICAL ENGINEERING

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks for the questions.

Instructions:

- 1. Questions on PART-A are compulsory.
- 2. Answer any five questions from PART-B.

PART - A

Marks - 25

1. Fill in the blanks:

1×10=10

- (a) A semiconductor material in its pure form is called _____ semiconductor.
- (b) The efficiency of a cell is measured in

Turn over

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The
unit
of
reactance
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- (d) The resistance of wire varies inversely as
- (e) Electrical conductivity is measured in ——
- (f) Magnetic field in a DC generator is produced by ——.
- (g) The ratio of rms value to average value is called the —— factor.
- (h) The fuse wire is made of ——.
- (i) The generator operates on the principle of
- (j) The core of transformer is made of —
- 2. Write true or false:

1×10=10

- (a) Electric potential = work done/charge.
- (b) The unit of electrical energy is kWH.
- (c) The material for commutator brushes is generally mica.
- (d) Kirchhoff's current law is applicable only to junction in a network.
- (e) DC voltage has single polarity.
- 21/El-304/EoEE(O) (2)

- (f) The emf induced in a DC motor opposes the applied voltage.
- (g) The standard supply frequency in India is 60 Hz.
- (h) The average power absorbed by pure resistive circuit is zero.
- (i) DC generator converts mechanical power into electrical power.
- (j) Transformer is a rotating device.

Choose the correct answer:

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1×5=5

(a) When a fourth resistor is connected in series with three, the total resistance

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(i) increases

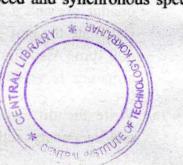
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- (ii) increases by one-fourth
- (iii) decreases
- (iv) remains same
- (b) In lap winding, the number of brushes is always
- (i) double the number of poles
- (ii) half the number of poles
- (iii) same as the number of poles
- (iv) two

- 8. (a) Define—time period, frequency, amplitude of an alternating quantities 3
 - (b) Find the relation between alternating voltage and current when the circuit consists only pure inductance.
- 9. (a) What is a Transformer?
 - (b) Discuss its purpose, construction and working principles. 2+2+3=7
- 10. Describe the principle of an induction motor.

A six pole, 50 cycles/sec induction motor is running at 950 rpm.

Find the slip, slip speed and synchronous speed.



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(6

350(W)