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Question Paper Code : 91484

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Third Semester

Electronics and Communication Engineering

EE 6352 – ELECTRICAL ENGINEERING AND INSTRUMENTATION

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Draw the open circuit characteristics of DC generator.
2. Mention the applications of DC series and Shunt motor.
3. Distinguish between core and shell type transformer.
4. What is an ideal transformer and how does it differ from a practical transformer ?
5. Why a single phase induction motor is not self-starting ?
6. Define the term voltage regulation of alternator.
7. Distinguish between static and dynamic characteristics.
8. State piezoelectric effect.
9. Compare the important features of analog and digital instruments.
10. Define the Q factor.

PART – B

(5×13=65 Marks)

11. a) Explain the construction and working principle of a DC generator with neat diagrams. (13)
(OR)
b) Explain the various speed control and testing methods of DC motors with circuit diagram. (13)

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12. a) Explain open circuit and short circuit test on a single phase transformer. Deduce its equivalent circuit. (13)
- (OR)
- b) Explain the operation of the transformer on load condition and draw the phasor diagram for lagging power factor. (13)
13. a) i) Give the constructional details of rotor of both salient pole and cylindrical rotor synchronous machines. (6)
- ii) Explain the working principle of synchronous motor and also explain any two methods of starting of synchronous motor. (7)
- (OR)
- b) i) Explain double field revolving theory of single phase induction motor. (5)
- ii) Explain the working of split phase capacitor start motor. (4)
- iii) A 3 phase induction motor runs at 1140 rpm at full load when supplied with power from a 60 Hz, 3 phase line calculate the number of poles and full load speed, frequency of rotor voltage. (4)
14. a) Explain the working principle and operation of
- i) Strain Gauge. (7)
- ii) RTD. (6)
- (OR)
- b) Mention the static and dynamic characteristics of a measurement system and explain any eight static characteristics. (13)
15. a) i) Explain how an inductance value can be found using a Maxwell's inductance bridge. (7)
- ii) Explain the working of a Q meter with neat circuit. (6)
- (OR)
- b) i) Explain the working principle of a digital Oscilloscope. (7)
- ii) Explain the construction and working of Digital voltmeter with neat block diagram. (6)

PART - C

(1×15=15 Marks)

16. a) Explain the working of a storage oscilloscope.

(OR)

- b) Derive the equation for unknown resistance using wheatstone bridge.
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