

6/12/14 AN

Reg. No. :

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Question Paper Code : 91518

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Second Semester

Civil Engineering

GE 2151/EE 26/EE 1153/080280011/10133 EE 206 — BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Aeronautical, Automobile, Marine, Mechanical, Production, Chemical, Petroleum Engineering, Biotechnology, Polymer, Textile, Textile (Fashion), Plastic Technology, Environmental Engineering, Geoinformatics Engineering, Industrial Engineering, Industrial Engineering and Management, Manufacturing Engineering, Material Science and Engineering, Mechanical and Automation Engineering, Mechatronics Engineering, Petrochemical Engineering, Chemical and Electrochemical Engineering, Petrochemical Technology, Pharmaceutical Technology and Textile Chemistry)

(Regulation 2008/2010)

(Common to 10133 EE 206 – Basic Electrical and Electronics Engineering for B.E. (Part-Time) First Semester – Mechanical Engineering – Regulation 2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. When a resistor is placed across a 415 V supply, the current is 36 A. What is the value of the resistor that must be placed in parallel to increase the load to 40A?
2. State KVL.
3. Write any four applications of D.C. motor.
4. State why single-phase induction motor is not self-starting?
5. Explain cut-off region and saturation region?
6. Define operating point.

7. Define Flip — Flop.
8. What are the different sources of errors in DAC?
9. Sketch the block diagram of FM Receiver.
10. Define Modulation Index.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the working of Single-Phase Energy Meter with necessary diagram. (8)
- (ii) Calculate the
 - (1) Form Factor and
 - (2) Peak Factor of a full wave rectified sine wave. (8)

Or

- (b) (i) Explain the operation of attraction type of M.I instrument. (8)
 - (ii) Explain the working of Dynamometer type wattmeter with necessary diagram. (8)
12. (a) (i) Draw the construction of a D.C machine and describe the working of the same with necessary diagram. (8)
 - (ii) The armature of a D.C Machine has a resistance of 10Ω and is connected to a 230 V supply. Calculate the back e.m.f when it is running
 - (1) as a generator giving 100A
 - (2) as a motor taking 100A. (8)

Or

- (b) (i) An 8-pole D.C. shunt generator with 778 wave-connected armature conductors and running at 500 r.p.m. supplies a load of 12.5 ohm resistance at terminal voltage of 50 V. The armature resistance is 0.24 ohm and the field resistance is 250 ohms. Find the armature current, the induced e.m.f. and the flux per pole. (8)
- (ii) Explain with a neat diagram, the construction and working of a single-phase transformer. (8)

13. (a) (i) Explain with neat diagram the construction and operation of a PNP transistor. (8)
- (ii) Explain with a neat diagram, the construction and working principle of PN Junction diode. (8)

Or

- (b) What you mean by Zener diode? Explain with neat sketch the VI characteristics and application of Zener diode. (16)
14. (a) Explain with neat diagram the JK and D Flip-Flops. (16)

Or

- (b) Write Short notes on:
- (i) Registers and Counters (8)
- (ii) A/D Conversion. (8)
15. (a) Explain in detail with necessary diagram the types of analog modulation. (16)

Or

- (b) Explain in detail with necessary block diagram the microwave and satellite communication systems. (16)