Question Paper Code : 50653

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Second Semester

Mechanical Engineering

GE 6252 – BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering (Sandwich), Aeronautical Engineering,
Agriculture Engineering, Automobile Engineering, Civil Engineering,
Environmental Engineering, Geoinformatics Engineering, Industrial Engineering,
Industrial Engineering and Management, Manufacturing Engineering, Marine
Engineering, Materials Science and Engineering, Mechanical and Automation
Engineering, Mechatronics Engineering, Petrochemical Engineering, Production
Engineering, Robotics and Automation Engineering, Chemical Engineering,
Chemical and Electrochemical Engineering, Fashion Technology, Food Technology,
Handloom and Textile Technology, Petrochemical Technology, Petroleum
Engineering, Plastic Technology, Polymer Technology, Textile Chemisty, Textile
Technology, Textile Technology (Fashion Technology))

(Regulations 2013)

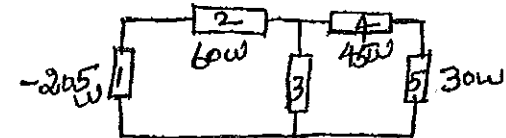Time : Three Hours — Maximum : 100 Marks

Answer ALL questions.

PART – A — (10×2=20 Marks)

1. State the advantages of sinusoidal alternating quantity.

2. Find the value of P_3 in the below circuit.

3. Draw the open Circuit Characteristics Curve (OCC) of DC generator.

4. Write the output voltage equation of single phase transformer.

5. Give difference between the half wave and full wave rectifiers.

6. List out the use of h-Parameters.

7. Prove the cumulative and associative Boolean algebra.

8. Draw the Full Adder circuit.

9. List the types of signals.

10. Mention the few advantages of satellite communication.

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PART – B   **(5×16=80 Marks)**

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11. a) Determine the branch currents in the network when the value of each branch resistance is $1\,\Omega$.   **(16)**
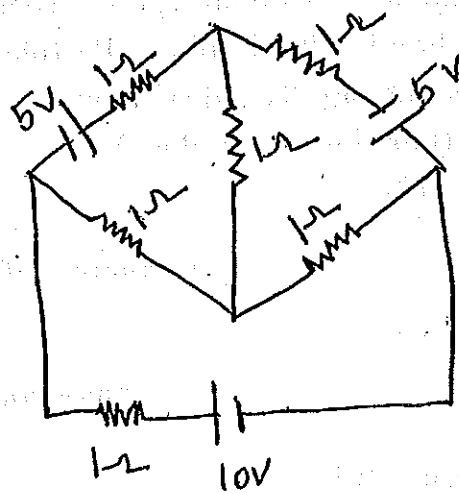
<div align="center">(OR)</div>

b) Explain the operating principle of moving coil and moving iron instruments. **(16)**

12. a) Explain the construction and working principle of DC generators with neat diagrams.   **(16)**

<div align="center">(OR)</div>

b) Describe the different starting methods for single phase induction motor.   **(16)**

13. a) Explain with neat diagram, How current flows in a PN Junction diode and also discuss the limitations in the operating conditions of PN Junction with V-I characteristics.   **(16)**

<div align="center">(OR)</div>

b) Discuss the static characteristics (input and output) of Common Emitter (CE) Configuration of BJT.   **(16)**

14. a) Design and explain the working of a synchronous mod-6 counter.   **(16)**

<div align="center">(OR)</div>

b) Explain the analog to digital converter using the successive approximation technique with neat diagram.   **(16)**

15. a) Explain the need for modulation and also compare AM with FM.   **(16)**

<div align="center">(OR)</div>

b) i) Discuss the merits and demerits of FAX machines.   **(8)**

ii) Explain the working principle of microwave communication.   **(8)**

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