Reg. No. ☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : **57413**

## B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

### Second Semester

### Civil Engineering

### GE 6252 – BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to all Branches except Electronics and Communication Engineering, Medical Electronics Engineering, Biomedical Engineering, Computer Science and Engineering, Information Technology, Computer and Communication Engineering, Electrical and Electronics Engineering, Electronics and Instrumentation Engineering, Instrumentation and Control Engineering and Pharmaceutical Technology)

(Regulations 2013)

Time : Three Hours                                                        Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. A 50 ohm resistor is in parallel with a 100 ohm resistor. The current in 50 ohm resistor is 7.2 A. What is the value of third resistance to be added in parallel to make the total line current as 12.1 A ?

2. List the operating forces present in indicating instruments.

3. Sketch the OCC of DC shunt generator.

4. Write down the EMF equation of a transformer.

5. Draw the circuit diagram of half wave rectifier.

6. List various hybrid parameters of transistor.

7. State De Morgan's theorem.

8. What is register in digital systems ?

9. Draw the block diagram of communication system and explain its operation.

10. What is ISDN ?

## PART – B (5 × 16 = 80 Marks)

11. (a) (i) A series circuit has R = 5ohms, L = 13mH, and C = 140 μF and is supplied with 230V, 50Hz single phase. Find (i) Impedance (ii) current (iii) power (iv) power factor of the circuit. **(8)**

    (ii) Two impedances $(8 + j10)$ ohm and $(7 + j9)$ ohm are connected in parallel. Find magnitude and phase angle of total impedance. Another impedance $(5 – j2)$ ohm is connected in series with above combination. Find overall impedance. **(8)**

**OR**

    (b) Explain the construction and principle of operation of single phase energy meter. **(16)**

12. (a) (i) Describe various types self excited of DC generators with their circuit layout. **(8)**

    (ii) Explain the characteristics of DC shunt motor. **(8)**

**OR**

    (b) Explain the tests on single phase transformer and develop an equivalent circuit from the above tests. **(16)**

13. (a) (i) Explain V-I characteristics of zener diode and applications with necessary diagrams. **(8)**

    (ii) Explain the operation of full wave rectifier with necessary diagrams. **(8)**

**OR**

    (b) Explain how you will obtain the static characteristics of common emitter configuration. **(16)**

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14. (a) (i) List various types of logic gates with its logic symbols and truth table. List also universal gates. **(8)**

(ii) Realize the logic expression $Y = (A + B)(A' + C)(B + D)$ using basic gates. **(8)**

### OR

(b) Explain the full adder circuit with its expressions and truth table. **(16)**

15. (a) What is meant by modulation ? Explain different types of analog and digital modulation techniques with neat diagrams. **(16)**

### OR

(b) (i) Draw the block diagram of B/W TV receiver and explain it. **(8)**

(ii) Draw the block diagram of optical fibre communication system and explain it. **(8)**

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