

April 2018

Time - Three hours
(Maximum Marks: 75)

*[N.B: (1) Q.No. 8 in PART - A and Q.No. 16 in PART - B are compulsory.
Answer any FOUR questions from the remaining in each PART - A
and PART - B*

(2) Answer division (a) or division (b) of each question in PART - C.

*(3) Each question carries 2 marks in PART - A, 3 marks in Part - B and
10 marks in PART - C.]*

PART - A

1. Define Ohm's Law.
2. Define resistance. What is the unit for resistance?
3. What is the power and power factor of the RLC series circuit?
4. Write the expression for resonant frequency and Q factor of parallel resonant circuit.
5. Write any two applications of a transformer.
6. What are shunts and multipliers?
7. What is meant by load cell? Give any one application of load cell.
8. Define IR range sensor and mention the range of it.

PART - B

9. Find the equivalent resistance when three resistances are connected in parallel.
10. Define impedance, reactance and admittance.
11. What are the various types of DC motor?
12. State any three differences between single phase and three phase supply.
13. What are the types of CRO?
14. What are the types of DVM?
15. What is NTC, PTC and thermocouple?

16. Three resistors of 5Ω , 10Ω and 20Ω are connected in parallel across 25V DC supply. Find the current flowing through each resistor.

PART - C

17. (a) State and explain the Thevenin's theorem.
(Or)
(b) State and explain the maximum power transfer theorem.
18. (a) Derive the expression for the impedance in an RL series circuit.
(Or)
(b) What is parallel resonance? Derive its resonant frequency.
19. (a) Derive an emf equation of a transformer.
(Or)
(b) Explain the principle of operation of a DC motor.
20. (a) Explain the various operating forces required in an indicating instrument.
(Or)
(b) Explain with neat sketch, the construction and working of dual beam CRO.
21. (a) Explain the construction and operation of LVDT.
(Or)
(b) What is ultrasonic range sensor? Explain the working principle of ultrasonic sensor.
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