NOVEMBER/DECEMBER 2019

BEL11 — FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the following questions.

1. Define electric field.
2. Define electric Intensity.
3. Define capacity.
4. What are the uses of capacitors?
5. What is meant by specific resistance?
6. What is Biot-Savart's law?
7. What are filters?
8. What are clippers?
9. What are amplifiers?
10. Define h-parameters.

SECTION B — (5 × 5 = 25 marks)

Answer ALL the following questions.

11. (a) Explain the relation between electric potential and intensity.

Or

(b) Derive the expression for electric intensity and potential due to a uniform charged conducting sphere at a point outside the conductor.

12. (a) Derive an expression for the force of attraction between plates of charged parallel plate Capacitor.

Or

(b) Explain the general characteristics of Kelvin's attracted disc electrometer.

13. (a) Derive an expression for force on a conductor carrying current placed in a magnetic field.

Or

(b) Explain the determination of specific resistance by potentiometer.

14. (a) Explain the action of bridge rectifier.

Or

(b) Explain the action of differentiator using resistor and capacitor.

15. (a) Explain the Thevenin's theorem.

Or

(b) Explain the relative merits in CE configuration.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE of the following questions.

16. State and prove of Gauss law and give application of Gauss law to uniformly charged solid sphere.

17. Explain the working of Mica capacitor, Electrolytic capacitors and Variable air capacitor.

18. Explain the Calibration of low and high range voltmeters.

19. Explain the construction half wave rectifier and derive expression for efficiency and ripple factor.

20. Explain the action of RC coupled single stage amplifier.