

B.Tech II Year I Semester (R09) Supplementary Examinations June 2017

ELECTRICAL & MECHANICAL TECHNOLOGY

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

(Minimum of two questions from each part should be chosen for answering FIVE questions)

All questions carry equal marks

PART – A

(Electrical Technology)

- 1 (a) State the factors on which electromagnetic torque developed in a DC machine depends. Deduce the expression for torque developed in a DC motor.
(b) State with reasons applications of various types of DC motors.
- 2 (a) Explain the principle of working of a transformer.
(b) Derive the EMF equation of a transformer.
- 3 Define voltage regulation of an alternator. Explain synchronous impedance method of determining regulation of an alternator in detail.
- 4 (a) Explain the basic principle of indicating instruments.
(b) Write the applications of permanent magnet moving coil and moving iron instruments.

PART – B

(Mechanical Technology)

- 5 With the help of a neat sketch, explain in detail the process of submerged arc welding.
- 6 Explain with the help of neat sketch, single-stage impulse turbine. Also explain the pressure and velocity variations along the axial direction.
- 7 (a) Explain with a neat sketch, actual p-V diagram for a single-stage air compressor.
(b) What do you mean by multi-stage compression? State its advantages.
- 8 Explain with neat diagram, the working of central system of air-conditioning.
