

**B.TECH SEM - III (2007 COURSE) MECHANICAL ENGG./
PRODUCTION ENGG. : WINTER - 2017**
SUBJECT : INDUSTRIAL ELECTRONICS & ELECTRICAL TECHNOLOGY

Day : **Wednesday**
Date : **17/01/2018**

W-2017-2381

Time : **10.00 AM TO 01.00 PM**
Max. Marks : 80

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.
- 4) Assume suitable data if necessary.

SECTION - I

- Q.1** a) State e.m.f. equation of a d.c. generator. [05]
b) Sketch torque v/s armature current and speed v/s armature current characteristics of d.c. motor. [05]
c) Write a note on applications of a d.c motor. [04]
- Q.2** a) An 8-pole d.c. generator with 778 wave connected armature conductors runs at 500rpm. It supplies a load of 12.5Ω resistance at a terminal voltage of 50V. The armature resistance is 0.24Ω and field resistance is 250Ω . Find the armature current, the induced emf and the flux per pole. [06]
b) State different methods of starting an induction motor. [07]
- Q.3** a) Explain working and construction of a single phase induction motor and state its application. [06]
b) Write a note on A.C. series motor. [07]
- Q.4** a) Explain synchronous impedance method related to synchronous machine. [07]
b) Explain different methods of starting the synchronous machine as a motor. [06]

SECTION - II

- Q.5** a) Explain working, construction and characteristics of IGBT. [05]
b) Explain triggering circuit using Diac. [05]
c) Write a note on UPS. [04]
- Q.6** a) Explain op-amp as instrumentation amplifier. [06]
b) Explain op-amp as a comparator. [07]
- Q.7** a) Write a note on sequential timer. [06]
b) Explain timing circuits using IC 555. [07]
- Q.8** a) What are the requirements of a heating element? [06]
b) Write a note on laser and its applications. [07]

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