Total No. of Questions—**8**] [Total No. of Printed Pages—**2**

Seat No.	

[5352]-120

S.E. (Mechanical, Mechanical Sandwich, Automobile) (II Sem.) EXAMINATION, 2018
ELECTRONICS AND ELECTRICAL ENGINEERING
(2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. :— (*i*) Answer Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6**, Q. No. **7** *or* Q. No. **8**.
(*ii*) Figures to the right indicate full marks.
(*iii*) Assume data if necessary and state the same clearly.
(*iv*) Neat diagrams must be drawn whenever necessary.
(*v*) Use of electronic pocket calculator is allowed.

Q.1. (a). What is Program Status Word (PSW)? State the function of each flag in it. [6]

(b) Explain use of following registers associated with 8051 microcontroller. [6]

i) DPTR ii) Program counter iii) Accumulator

OR

Q. 2. (a). Differentiate between asynchronous and synchronous data transfer. [6]

(b) Explain different addressing mode supported by 8051 microcontroller. [6]

Q. 3. (a). Explain speed control methods for DC shunt motor. [6]

(b). A 4 pole, 250 V DC series motor has wave wound connected armature winding with 1254 conductors. The flux/pole is 22 mWb, when the motor is taking 50 A. The armature and series field coil resistance are 0.3Ω and 0.2Ω respectively. Calculate the speed and torque of the motor and also power developed in Watts. [7]

OR

Q. 4 (a) Distinguish between Squirrel cage and slip ring induction motor. [6]

(b) The output of three phase, 415 V induction motor running at 2% slip is 36.775 KW.

Determine i) Rotor speed and slip speed.
ii) Rotor output and rotor copper loss.

P.T.O.

iii) Efficiency of motor at given loading condition.

Assume motor is wound for 4 pole and supply frequency to be 50 Hz. Given: friction and windage losses are 1500W, while stator losses are 3 KW. [7]

Q. 5. (a). Explain working of Digital multimeter with the help of block diagram [6]

(b). Explain working of digital frequency counter with the help of block diagram. [6]

OR

Q. 6. (a). Explain working of conventional standard signal generator with the help of neat diagram. [6]

(b). Compare Analog voltmeter and Digital voltmeter. [6]

Q. 7 (a). Explain two wattmeters method used for measuring three phase power in a star connected balanced load, supplied by symmetrical AC with the help of neat connection diagram and phasor diagram. [6]

(b). Draw the Maxwell's Induction-capacitance bridge and derive the bridge balance equation. Also give its advantages and disadvantages. [7]

OR

Q.8. (a). A three phase, 50 Hz, 500 V a.c. motor working at certain load has 0.4 lag power factor. Two wattmeters connected to measure input power of the motor. Two wattmeter show total input power 30 KW. Find the reading on each wattmeter and total three phase reactive power of the motor load. [6]

(b). Explain 'resistance potential divider method' for measurement of high voltage with the help of neat diagram. [7]