Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5057]-216

S.E. (Mechanical, Mechanical Sandwich, Automobile)

(Second Semester) EXAMINATION, 2016

ELECTRONICS AND ELECTRICAL ENGINEERING

(2012 PATTERN)

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

N.B. :— (*i*) Attempt *All* questions with internal choice.

(*ii*) Marks are indicated against each question.

1. (*a*) Explain below mentioned registers in detail : [6]

(*i*) Register A and Register B

(*ii*) Program status word

(*iii*) Stack pointer.

(*b*) Explain SCON register and also explain mode 1 and mode 2 operation of serial communication. [7]

Or

2. (*a*) Explain instructions given below with suitable example : [6]

(*i*) MOV Rn, #data

(*ii*) MUL AB

(*iii*) SWAP A

(*b*) Explain TMOD register and mode 0 operation detail. [7]

P.T.O.

3. (*a*) Compare DC series and DC shunt motor. [6]

(*b*) A 3-phase 50 Hz induction motor has a starting torque which is 1.25 times full load torque and maximum torque of 2.5 times of full load. Neglecting stator resistance and rotational losses and assuming constant rotor resistance, find :

(*i*) The slip at full load

(*ii*) Slip at maximum

(*iii*) Rotor current at start. [6]

Or

4. (*a*) A 200 V series motor runs at 500 r.p.m. drawing 25 A. The resistance of the armature is 0.5 ohms and that of field is 0.3 ohms. If the current remains constant, calculate the resistance necessary to reduce the speed to 250 r.p.m. [6]

(*b*) Explain power flow in an induction motor with the help of neat sketch. [6]

5. (*a*) Compare Analogue and digital voltmeters. [6]

(*b*) Explain measurement of current, frequency and phase using CRO. [6]

Or

6. (*a*) Explain the working of digital voltmeter with the help of neat block diagram. [6]

(*b*) Explain RC phase shift oscillator with the help of neat diagram. [6]

7. (*a*) Explain reactive power measurement with the help of one wattmeter method. [6]

(*b*) Two wattmeters are connected to measure power in a load of $(4 + j3)$ ohm per phase in star connected load connected across 400 V, 50 Hz power supply. Determine :

(1) Load power factor

(2) Reading of each wattmeter

(3) Total power delivered to the load. [7]

Or

8. (*a*) Explain in detail capacitance divider method for measuring high voltage. [6]

(*b*) Explain Maxwell's inductance bridge. [7]