QP Code : 5514

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. **1** is **compulsory**.
    (2) Attempt any **four** questions out of the remaining **six** questions.
    (3) Assume **suitable** data if **necessary**.

1. Solve any **Five**.   20
    (a) Draw characteristics of SCR, Triac, MOSFET and IGBT.
    (b) Draw connection of an LED and a switch to MSP430.
    (c) Explain basic principle of single phase inverter.
    (d) Enlist characteristics of ideal op-amp.
    (e) Give an example of analog circuit, digital circuit, combinational circuit and sequential logic circuit.
    (f) Draw torque-speed characteristics of DC shunt motor and 3-phase induction motor.
    (g) What do you understand by R-L and R-L-E load?

2. (a) Explain in brief functional block diagram of MSP430.   7
    (b) Draw and explain block diagram of closed loop speed control of DC motor. Also state need of inner current loop.   7
    (c) Draw and explain any one application circuit of Triac-Diac.   6

3. (a) Explain 555 monostable multivibrator.   7
    (b) Explain frequency control scheme of 3-phase induction motor with the help of block diagram.   7
    (c) Write a short note on :-Forced turn-off of SCR   6

4. (a) Draw the circuit diagram of differentiator and integrator; write the output equation of each.   7
    (b) Enlist triggering methods of SCR and explain any one gate triggering method of SCR.   7
    (c) What do you understand by a Digital circuit? Elaborate following terms regarding digital circuits :-   6
        (i) logic level   (ii) noise immunity
        (iii) propagation delay   (iv) power dissipation
        (v) fan out.

5. (a) Elaborate:- accuracy, resolution and least significant bit regarding 10-bit ADC.   7
    (b) Write a short note on 'selection of motor and power rating for a pump'.   7
    (c) Explain asymmetrical semi controlled converter with R load and derive equation of output voltage.   6

6. (a) Compare - BLDC motor, DC motor and induction motor.   7
    (b) Compare- Microprocessor and Microcontroller.   7
    (c) Compare- TTL and CMOS technology.   6

MD-Con.-12228 -15

Course: S.E. (SEM-IV) (REV-2012) (CBSGS) (MECH ENGG) C.W. (AUTO ENGG.)

(Prog - T1824 CW T0524)

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Correction:

Plz do the corrections as follows

The

Max marks are 80

In Note Que1compulsory and attempt any three out of remaining questions

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Query Update time: 22/12/2015   02:52 PM

MEC4023   Gulfam

MEC4029   Athar

→ Block no-10   (J. S.)

MEC4057

MEC4075

22-12   Prof. D sshd Bberle —