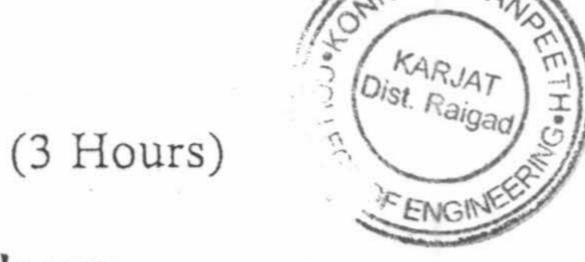**QP Code : 5514**

(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)

QP Code: 5514

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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