

- Sem-IV / Industrial Electronics / MECH / 22-12-15

QP Code : 5514

Mechanical/Automobile

(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. muADDA.com 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. 7
 Also state need of inner current loop.
 (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. muADDA.com 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

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Max marks are 80

In Note Que1 compulsory and attempt any three out of remaining questions

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