

Q.P. Code :25130

[Time: Three Hours]

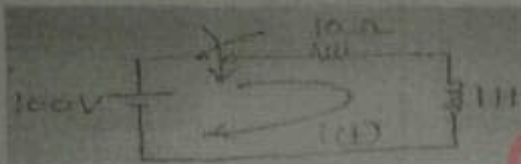
[Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
 2. Attempt any three questions from the remaining.
 3. Assume suitable data if required. Justify your assumptions.

- Q.1
- | | |
|---|----|
| a) Differentiate between JFET and MOSFET. | 05 |
| b) Derive torque Equation of DC Motor. | 05 |
| c) State applications of BLDC motor. | 05 |
| d) Forced and natural response of RLC network | 05 |

- Q.2 a) In the network, switch is closed. Assuming all initial conditions as zero. Find $i(t)$, $di(t)/dt$, $d^2i(t)/dt^2$ at $t=0^+$



- b) Explain working of BJT CE amplifier with neat circuit diagram and necessary equations. 10

- Q.3 a) Using the pole-zero plot, find magnitude and phase of the function. 10
- $$F(s) = \frac{(s+1)(s+3)}{s(s+2)} \text{ at } s = j4.$$

- b) Explain characteristics for DC shunt and Series motor. 10

- Q.4 a) Determine the current $i(t)$ in the network, when the switch is closed at $t=0$ 10



- b) Explain different methods of speed control for three phases Induction Motor. 10

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- Q.5 a) A 250 V, 4 Pole, DC shunt motor has armature resistance of 0.12Ω and field resistance of 125Ω . It has 960 lap connected conductors and flux of 20mWb per pole. If the input current is 30A , estimate speed and torque developed. 10
- b) Explain construction and working of squirrel cage induction motor. 10
- Q.6 Write short notes on any three 20
- Equivalent circuit for induction motor
 - Capacitor start capacitor run IM
 - 3-point starter
 - Working of BJT as a Switch.
