Sem-IV / Electrical Technology / INST / 04-12-15
Instruments.

**QP Code : 5404**

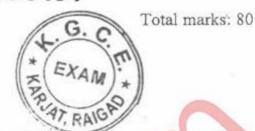Duration: 03 Hours.                                             Total marks: 80
Instructions to the candidates if any:-

N. B. (1) Question No. **1** is **compulsory**.
      (2) Answer any **Three** out of remaining questions.
      (3) Assumptions made should be **clearly** stated.

| Q. No. | Marks |
|---|---|

**Q. 1 Solve any Four**                                                           20

   a) What is Back emf? Explain significance of back emf?

   b) Explain power flow diagram for an Induction Motor

   c) Differentiate between D C Motor and Single phase induction motor.

   d) What are the sources of error in case of wheatstone bridge?

   e) What is power factor? Explain basic Voltmeter and Ammeter

Q. 2) a) A 400 volts shunt motor develops an output of 18.5 kw when taking 22.5 kw    10
         Field resistance is 200 Ω and armature resistance is 0.4 Ω. What is the efficiency
         and power input when output is 9 kw.

      b) Explain speed control methods of DC motor                                  10

Q. 3) a) Explain losses those takes place in Induction motor                        10

      b) Explain torque slip characteristics of 3 phase induction motor             10

Q.4)  a) What is Q factor? Explain its measurement in detail                        10

      b) Explain the construction and working of PMMC instrument?                   10

Q. 5) a) Explain the operation of shunt and series type ohm meters                  10

      b) Explain Capacitance Comparison Bridge and derive its bridge balance equation  10

Q.6)  a) Explain difficulties in measurement of high resistance? Explain use of guard circuits  10

      b) Draw and explain block diagram of DMM                                      10

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MD-Con. 9926-15.