



**B.E /B.TECH DEGREE EXAMINATIONS: JUNE 2015**

(Regulation 2009)

Third Semester

**EEE251: BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING**

(Common to AERO&TXT)

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Mention the equivalent capacitance when two capacitors  $C_1, C_2$  connected in parallel.
  - a)  $C_{eq} = C_1 + C_2$
  - b)  $C_{eq} = C_1 + C_2 / C_1 C_2$
  - c)  $C_{eq} = C_1 C_2 / C_1 + C_2$
  - d) None of the above
2. Denote the Product of the RMS voltage and complex conjugate of the RMS of phasor current.
  - a) Complex power
  - b) Apparent power
  - c) True power
  - d) Reactive power
3. State the condition for Maximum Torque
  - a)  $R_2 = sX_2^2$
  - b)  $R_2 = X_2$
  - c)  $R_2 = sX_2$
  - d)  $X_2 = R_2$
4. Starting torque of DC-series motor will be
  - a) High
  - b) Low
  - c) Moderate
  - d) None of the above
5. What impurity is added to N type semi-conductor?
  - a) Trivalent
  - b) Pentavalent
  - c) Metallic
  - d) Hexavalent
6. Mention the device that functions in photoconductive mode in the third quadrant of its current-voltage characteristics, including the short-circuit condition acting as a current source.
  - a) Phototransistor
  - b) Opto coupler
  - c) Photodiode
  - d) LED
7. In a non-inverting amplifier, the output voltage changes
  - a) In the opposite direction as the input voltage
  - b) In the same direction as the input voltage
  - c) In the opposite direction as the input current
  - d) In the opposite direction as the output voltage



**(OR)**

b) Classify and brief the single phase induction motor with starting methods.

23. a) (i) Elucidate the operation of PN Junction Diode? (8)  
(ii) Brief the working of Zener diode? (6)

**(OR)**

b) Describe the Characteristic of Common Base (CB) Transistor?

24. a) Describe with neat sketch the working of Half wave and Full wave Rectifier?

**(OR)**

b) Explicate Inverting and Non-Inverting amplifiers with suitable applications

25. a) Design Full adder with Truth table and specify the expression

**(OR)**

b) Describe JK, Master slave, D and T type flip-flops?

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