

Reg. No. :

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Question Paper Code: 52952

M.E. DEGREE EXAMINATION, DECEMBER 2015

Elective

Power Electronics and Drives

15PPE508 - ELECTRIC POWER QUALITY

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

(5 x 20 = 100 Marks)

1. (a) With a waveform sketch, explain the terms
 - (i) Voltage imbalance (4)
 - (ii) Voltage fluctuation (4)
 - (iii) DC offset (4)
 - (iv) Notching in load voltage (4)
 - (v) Waveform distortion. (4)

Or

- (b) (i) Draw and explain the characteristics of power quality with its standards. (10)
 - (ii) Draw the CBEMA and ITI curve for transient over voltage and explain it in detail. (10)
2. (a) Explain in detail about three phase three wire system and compare it with three phase four wire system. (20)

Or

- (b) Describe in detail how the single phase rotation AC/DC converter create the power quality problem. (20)
3. (a) Briefly explain about load balancing and explain in detail about open loop and closed loop balancing. (20)

Or

- (b) Explain the analysis of unbalance using instantaneous real and reactive power. (20)
4. (a) Briefly explain about PQ theory and derive the expression for generating reference currents when the source is unbalanced. (20)

Or

- (b) Write short note on STATCOM and draw the DSTATCOM schematic representation and explain in voltage control mode. (20)
5. (a) Explain the DVR structure in detail and give the representation for rectifier supported and capacitor supported. (20)

Or

- (b) Write in detail about UPQC. Explain the procedure of simultaneous current compensation and voltage compensation that is taken in place in a right shunt UPQC. (20)
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