

Code No: RT42023A

R13

Set No. 1

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

ELECTRIC POWER QUALITY
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Distinguish power quality and voltage quality. [3]
- b) What are the causes for swells and interruptions? [3]
- c) Explain about flicker. [4]
- d) Define THD and TDD of harmonic spectrum. [4]
- e) Write different types of DG technologies. [4]
- f) Write standards of power quality monitoring. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain different types of transients. [8]
- b) Explain about transient over voltages. [8]
3. a) Explain principle of over voltage protection and explain different devices used for over voltage protection. [8]
- b) Write about sources of transient over voltages. [8]
4. a) Explain voltage regulation with capacitors. [8]
- b) Explain Static VAR compensation for power factor improvement. [8]
5. a) Discuss the impact of harmonics on capacitors and transformers. [8]
- b) Explain about passive filters and active filters. [8]
6. a) Write different prospective of DG benefits. [8]
- b) Briefly describe different types of power quality issues with DG. [8]
7. a) Draw block diagram of advanced power quality monitoring systems and explain. [8]
- b) List various types of power quality measuring equipment and explain any one type power quality measuring system. [8]



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Set No. 2

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

ELECTRIC POWER QUALITY
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Explain power quality and voltage quality. [3]
- b) Write different types of non-linear loads. [3]
- c) Describe capacitor for voltage regulation. [4]
- d) Define THD and TDD of harmonic spectrum. [4]
- e) Write different conflicts on impact of DG. [4]
- f) Write about application of intelligent systems for power quality. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain about long duration and short duration voltage variations. [8]
- b) Explain different modes of wave form distortion. [8]
3. a) Explain different sources of voltage sags and interruptions. [8]
- b) Explain about different devices for over voltage protection. [8]
4. a) Explain different devices for voltage regulation. [8]
- b) Explain flicker and write about power factor penalty. [8]
5. a) Write about different sources of harmonics. [8]
- b) Explain procedure for evaluating harmonic indices. [8]
6. Briefly explain different types of DG technologies. [16]
7. a) Explain different power quality monitoring considerations along with choosing power quality monitoring locations. [8]
- b) Explain prospective of power quality measuring instruments. [8]



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Set No. 3

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

ELECTRIC POWER QUALITY
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Briefly write steps in power quality evaluation procedure. [3]
- b) Differentiate voltage sag and voltage swells. [3]
- c) Write short notes on principles of regulating the voltage. [4]
- d) Explain point of common coupling. [4]
- e) Define fuel cells and solar plants. [4]
- f) Write about power quality bench marking. [4]

PART-B (3x16 = 48 Marks)

2. a) What are major power quality issues and explain them? [8]
- b) Explain different modes of wave form distortion and causes for it. [8]
3. a) Explain about various solutions for over voltage protection. [8]
- b) Discuss voltage imperfections in power systems due to non-linear loads. [8]
4. a) What are fundamental principles of over voltage protection of load equipment? Explain them in brief? [8]
- b) Explain Static VAR compensation for power factor improvement. [8]
5. a) Explain different harmonic sources from commercial loads. [8]
- b) Explain impact of harmonics on motors and meters. [8]
6. a) Explain impact of DG on low voltage distribution networks. [8]
- b) Briefly describe different types of power quality issues and conflicts with DG. [8]
7. a) Write different points to be noted for selection of meter for measurement of power quality. [8]
- b) Explain various power quality monitoring standards. [8]



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Set No. 4

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

ELECTRIC POWER QUALITY
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Differentiate power quality and voltage quality. [3]
- b) Describe interruption. [3]
- c) Write short notes on voltage regulation and distortion factor. [4]
- d) Explain passive filters. [4]
- e) Define DG and write impact of DG on power quality. [4]
- f) Define power quality bench marking. [4]

PART-B (3x16 = 48 Marks)

2. a) Briefly describe about
(i) impulsive transients
(ii) Oscillatory transients [8]
- b) Explain briefly about long duration and short duration voltage variations. [8]
3. a) Explain about various causes for voltage sag. [8]
- b) Explain about capacitor switching transients. [8]
4. a) Explain different devices for voltage regulation. [8]
- b) Explain about load compensation. [8]
5. a) Describe briefly Voltage distortion and Current distortion. [8]
- b) Write different sources of harmonics. [8]
6. Briefly explain different types of DG technologies. [16]
7. a) List the various types of power quality measuring equipment and explain any one type power quality measuring system. [8]
- b) Write different points to be noted for selection of meter for measurement of power quality. [8]

