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]

Code No: **RT42023A** **R13** **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]

Code No: **RT42023A** **R13** **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]

Code No: **RT42023A** **R13** **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]