

Code No: 137FV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, December - 2019

POWER QUALITY

(Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) What are the causes for interruptions? [2]
- b) Write the remedies to improve power quality. [3]
- c) Write the causes of short duration voltage variations. [2]
- d) Explain the ways of comparing the observations and the results of reliability evaluation. [3]
- e) What do meant by phase angle jumps? [2]
- f) What is voltage sag? [3]
- g) What are the P-Q considerations with synchronous motor? [2]
- h) Explain the impact of voltage sag on process control equipment. [3]
- i) What is the European voltage characteristics standard? [2]
- j) What are the key standards of IEC Electromagnetic Compatibility? [3]

PART – B**(50 Marks)**

2. What is the impact of transient on power quality? Classify the transients that occur in power systems. [10]

OR

- 3 Write a short note on:
a) Notching b) Voltage imbalance c) Voltage fluctuations. [10]

- 4 Explain characteristics of power quality events in short and long duration voltage variations. [10]

OR

- 5.a) What are the causes of long interruptions.
b) What are the limits of duration of interruptions? [10]

6. Explain how the sag magnitudes were calculated for meshed systems. [10]

OR

7. How Voltage Sag types are classified? Write the factors that affect the voltage sag types. [10]

8 Explain the behavior of computers and consumer electronics due to voltage sag. [10]

OR

9 Explain the overview of mitigation methods used for AC Drives for P-Q considerations. [10]

10 Explain the method of mitigation for improving equipment immunity. [10]

OR

11 Explain the principle of three phase voltage source converter with neat diagram. [10]

---ooOoo---