R16

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]

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