

R16

Code No: 137FV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, March - 2021

POWER QUALITY

(Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- 1.a) Define the following terms
i) Interharmonics ii) Notching iii) Voltage fluctuations. [6+9]
b) Define power quality. Discuss the remedies to improve power quality.
- 2.a) Write the limitations on frequency and duration of long interruptions.
b) Explain the various steps in a stochastic prediction of short interruptions by using suitable example. [7+8]
- 3.a) Classify the voltage Sag types and write the factors which affect the voltage sag types.
b) Explain the procedure to calculate the voltages during a fault in meshed systems. [7+8]
4. Explain the behavior of Induction motor on voltage sag during an unbalanced faults. [15]
- 5.a) Discuss the principle of shunt voltage controllers and how it will improve the power quality.
b) Specify the solutions for improving equipment immunity due to voltage sag. [8+7]
- 6.a) Discuss the ways of comparing observations and the results of reliability evaluation to power quality.
b) Distinguish between different kinds of magnitude and phase angle jump based on the analysis of three-phase unbalanced sags. [7+8]
7. Illustrate the phenomena of impulsive transients and oscillatory transients. [15]
- 8.a) What is standardization? Describe the European voltage characteristics standards.
b) Discuss the behavior of power electronics equipment during voltage sags. [7+8]

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