

Code No: 54012

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.Tech II Year II Semester Examinations, July/August - 2021****ELECTRICAL MACHINES – II****(Electrical and Electronics Engineering)****Time: 3 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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1. A single phase 50 Hz transformer has 440 turns on the primary and 110 turns on the secondary winding takes a no-load current of 5 A at 0.2 power factor lagging. If the secondary supplies a current of 120 A at a power factor of 0.8 lagging. Estimate the current taken by the primary. Take secondary voltage as reference. [15]
2. Draw the Exact and approximate equivalent circuits of 1- Φ transformer and explain. [15]
3. Discuss the necessity of parallel operation of single phase transformers. List the conditions to be fulfilled for parallel operation. [15]
4. Explain star/delta and delta/delta connections of a transformer. Give the relevant mathematical expressions. [15]
5. Describe the principle of operation of three phase induction motor. What are the operational similarities and differences between transformers and induction motors? [15]
- 6.a) Explain the phenomenon of crawling and cogging.
b) Show that in an 3- ϕ induction motor the rotor input: power developed: rotor copper losses :: 1: (1-s):s, where s is the fractional slip. [8+7]
7. Why a starter is necessary to start an induction motor? Explain Auto-transformer starter in detail. [15]
8. Explain the Cascading method of Speed control of Induction motors. [15]

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