DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103

Semester Examination – January 2023

Branch: Electrical Engineering **Sem.:- I**

Subject with Subject Code:-Electrical Machine-II (BTEEC501) **Marks: 60**

Date:- **Time:- 3 Hr.**

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Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

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(Marks)

Q.1. a)Compare salient pole & non salient type of alternators. (06)
b)Derive the expression for emf induced in case of a 3 phase alternator. (06)

Q.2. a) Compare - Direct method, emf method, MMF method of Finding regulation of alternator. (06)
b) Define voltage regulation of alternator. Explain why Potier method gives more accurate results than synchronous impedance method (06)

Q.3. **a)** Describe any two methods of making the synchronous motor self start. (06)
b)What do you mean by 'V' curves and Inverted 'V' curves of synchronous motor. (06)

Q.4. a) Explain operation & synchronize motor at 1) Constant load & variable excitation 2) Constant excitation & variable load. (06)
b)Estimate the line value of emf induced and the voltage regulation, when 3-phase, star connected alternator supplied a load of 1000kW at apower factor of 0.8 lagging with a terminal voltage of 11kV. Its armature resistance is 0.4Ω per phase and synchronous reactance is 3Ω per phase. (06)

Q.5. **a)**Illustrate with neat diagrams the working principle of 3 phase induction motor. (06)
b) Compare Squirrel Cage IM & Slip ring IM (06)

Q.6. **a)**With a neat diagram explain construction and working of linear induction motor. State its applications. (06)
b) Explain the working principle and applications of single phase shaded pole motors. (06)
