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BIEE-011

B. Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

00163 **Term-End Examination**

June, 2018

BIEE-011 : ELECTRICAL MACHINES – II

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Missing data may be suitably assumed. Use of scientific calculator is allowed.*

1. Explain the zero-power factor characteristics of a synchronous generator. Explain the procedure to obtain regulation by zero-power factor method. *5+5=10*

2. What is parallel operation of alternators ? Give the reasons and conditions necessary for parallel operation of alternators. *2+4+4=10*

3. Explain the term coil-span factor and distribution factor is connection with armature winding of an alternator and deduce emf equation considering the effect of these factors. *3+3+4=10*

4. Why are starters necessary for starting induction motors ? Describe various starting methods for 3-phase induction motors. *2+8=10*

5. Develop the equivalent circuit for a 3-phase induction motor and explain how the mechanical power developed is taken care of in the equivalent circuit. *5+5=10*

6. Draw and explain the complete torque-speed characteristics of a 3-phase induction machine for all ranges of speed. *10*

7. Explain why a universal motor can operate from dc as well as ac supplies. What are the main differences in construction between ac/dc series motor and dc series motor ? *5+5=10*

8. What are the differences in the behaviour of variable-reluctance and permanent-magnet type stepper motor ? List the advantages and the disadvantages of stepper motor. *5+5=10*

9. Write short notes on any ***two*** of the following : *5+5=10*

   (a) Brushless DC Motors

   (b) Slip Test

   (c) Power Angle Characteristics

   (d) Circle Diagram