Hall Ticket Number:

Code No.: 22004 S

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. II Year (Civil Engg.) II-Semester (Supplementary) Examinations, December-2016

Electrical Technology

Time: **1½** hours Max. Marks: **35**

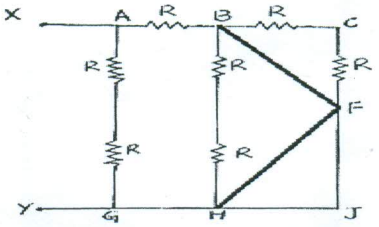
*Note: Answer **ALL** questions in **Part-A** and any **THREE from Part-B***

Part-A (11 Marks)

1. The maximum value of an A.C. sinusoidal quantity is 70.7 units. The Form Factor is _____. [1]
2. A supply of 100V is given to the primary of a 230/115 V transformer. Determine the secondary voltage. [1]
3. Define slip. [1]
4. The power factor of a pure resistive circuit is unity. Justify [1]
5. State Lambert's Cosine Law. [1]
6. Draw the impedance triangle for a series RL circuit. [2]
7. Write the EMF equation of a transformer explaining each term. [2]
8. Is the starting torque of squirrel cage and slip ring induction motors same? Comment. [2]

Part-B (3 X 8 = 24 Marks)
(All bits carry equal marks)

9. a) Discuss the steady state analysis of a pure inductor connected to an AC source and hence show that current lags voltage by 90^o.
   b) Derive the relationship between line quantities and phase quantities in a star connected 3 phase system
10. a) With the help of neat figure, explain the principle and working of a single phase transformer.
    b) Calculate the voltage regulation for a 200 / 400V, 4 kVA transformer at full load and 0.8 lagging pf with the following test data:
    OC test: 200V, 0.8 A, 70W (LV side)
    SC test: 20 V, 10 A, 60 W (HV side)
11. a) Explain the types and constructional features of an induction motor.
    b) Explain the methods of starting of 3 phase induction motors.
12. Answer any **two** of the following:
    a) Find R_{XY} if R = 78.64 ohms.



    b) Theory of ideal transformer.
    c) Preliminary design aspects of street lighting.

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