

OLE-3237

B. Tech. 5th Semester (EE) Examination – April, 2021

POWER SYSTEMS - I

Paper : PCC-EE-301-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) Define the term RRRV.
- (b) What is the application of Per Unit system in power system ?
- (c) What is the importance of symmetrical component in fault calculation ?

- (d) Compare AC and DC transmission systems in brief.
- (e) Explain Ferranti effect in details. $5 \times 3 = 15$

UNIT – I

2. What is the difference between one line impedance diagram and reactance diagram ? Explain with a suitable example. 15
3. (a) Express the per unit admittance of a power system in terms of base voltage and base voltampere. 7.5
- (b) Derive the expression for complex power in a single phase load. 7.5

UNIT – II

4. Determine the symmetrical components of three voltages given below : 15
- $V_a = 200 \angle 0^\circ$, $V_b = 200 \angle 245^\circ$ and $V_c = 200 \angle 105^\circ V$
5. Distinguish between symmetrical and unsymmetrical faults. Explain LL-G fault in detail with derivation. 15

UNIT – III

6. What are the different type of circuit breaker when the arc quenching medium is the criterion ? Explain one of them in details. 15
7. Explain differential protection scheme in details. 15

UNIT – IV

8. What are the major components of HVDC transmission system ? Explain them in details. 15
9. (a) Draw and explain I-V and P-Y characteristics of PV panels. 7.5
- (b) Explain wind energy generation systems. 7.5
-