PAPER ID-310638

Subject Code: KEE501

Roll No: | | | | | | | | | | | | | |

B TECH
(SEM-V) THEORY EXAMINATION 2020-21
POWER SYSTEM-I

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

Q.No.	Question	Marks	CO
a.	Write the conventional and non-conventional source of energy	2	CO1
b.	Define load duration curve.	2	CO1
c.	What do you mean by single line diagram of power system?	2	CO2
d.	Write Kelvin`s law of power system	2	CO2
e.	What is a Ferranti effect?	2	CO2
f.	Define the term 'Sag'.	2	CO3
g.	Define string efficiency.	2	CO3
h.	Define transposition.	2	CO4
i.	Explain symmetrical and unsymmetrical spacing of conductors.	2	CO4
j.	Define the grading of cable.	2	CO5

SECTION B

2. Attempt any *three* of the following:

Q.No.	Question	Marks	CO
a.	With neat sketch, describe the Nuclear power plant.	10	CO1
b.	Explain Corona effect and the factors affecting the Corona. write its disadvantages.	10	CO2
c.	Explain the method of calculating the sag for the same level.	10	CO3
d.	Derive the expression of inductance of single-phase line.	10	CO4
e.	Compare the overhead lines and the underground cables.	10	CO5

SECTION C

3. Attempt any *one* part of the following:

Q.No.	Question	Marks	CO
a.	With a neat sketch, explain the functions of main parts of thermal power plant.	10	CO1
b.	A generating station has a connected load of 450 MW and a maximum demand of 250MW; the unit generated being 615×10^6 per annum. calculate the demand factor and load factor.	10	CO1

4. Attempt any *one* part of the following:

Q.No.	Question	Marks	CO
a.	What is the single line diagram of power system from generating station to utilization level? Obtain reactance diagram for any arbitrary chosen power system.	10	CO2
b.	Calculate the distance over which a load of 15 MW at 0.85 p.f. can be delivered by a three-phase transmission line having conductors each of resistance 0.905 ohm per kilometer. The receiving end voltage is 132 KV and the loss is to be 7.5% of the load.	10	CO2

5. Attempt any *one* part of the following:

Q.No.	Question	Marks	CO
a.	Explain the methods of increasing string efficiency.	10	CO3
b.	Derive the expression of voltage distribution in 3 insulator stings.	10	CO3

6. Attempt any *one* part of the following:

Q.No.	Question	Marks	CO
a.	Explain the inductance of a single phase two wire line system. Derive the expression for single phase two wire line.	10	CO4
b.	Find the capacitance of single-phase line 40 KM long consisting of two parallel wires each 5mm in diameter and 1.5 m apart. Determine the capacitance of the same line taking into account the effect of ground. The height of the conductors above the ground is 7 meters.	10	CO4

7. Attempt any *one* part of the following:

Q.No.	Question	Marks	CO
a.	Describe the selection of the cables and the capacitance grading.	10	CO5
b.	Explain the cables for high voltage DC transmission and the operating problems with cables.	10	CO5