KADISARVA VISHWAVIDHYALAYA

BE Semester IV May 2014

Subject code: - EE 406 Subject Name:-Electrical Power-I

Date: - 17 /05 /2014 Time: -3 hrs Total Marks:- 70

Instructions:

1. Answer each question in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **compulsory.**
4. Indicate **clearly,** the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work.**

Section – I

Q -1 **(A)** Discuss factors for site selection of Steam power station **[5]**

(B) Why overall efficiency of a steam power station is very low? Explain. **[5]**

(C) Explain need for Neutral earthing and explain any one method of neutral earthing. **[5]**

OR

(C) Explain (i) Skin effect and (ii) Proximity effect. **[5]**

Q-2 **(A)** List different types of turbine used in hydro power station and explain any one type of turbine. **[5]**

(B) Discuss advantages and disadvantages of nuclear power station. **[5]**

OR

(A) Explain with diagram elements of hydro-electric power plant **[5]**

(B) Draw and explain combined cycle power plant. **[5]**

Q-3 **(A)** Explain (i) Condenser ,(ii) Electrostatic precipitator ,(iii) Penstock **[5]**

(B) Give comparison between Steam, Hydro and Nuclear power station. **[5]**

OR

(A) List types of Nuclear reactor and Explain any one Nuclear reactor. **[5]**

(B) State advantages of combined cycle power plant. **[5]**

Section – II

Q-4 **(A)** Derive the expression for capacitance for 3-phase transmission line when conductors are symmetrically placed. **[5]**

(B) Explain commonly used conductor materials for overhead transmission line. **[5]**

(C) Give brief note on transposition of conductor **[5]**

OR

(C) Explain self GMD and mutual GMD. **[5]**

Q-5 **(A)** Explain with diagram (i) Pin type and (ii) Suspension type of insulators. **[5]**

(B) Give reason for unequal potential distribution over string of Suspension Insulators. Define string efficiency. **[5]**

OR

(A) Explain general construction of cable with neat diagram. **[5]**

(B) Compare overhead and underground distribution system. **[5]**

Q-6 **(A)** Explain function of various equipments used in substation. **[5]**

(B) A single phase line has two parallel conductors 2 metres apart. The diameter of each conductor is 1.2 cm. Calculate the loop inductance per km. **[5]**

OR

(A) List the methods of power factor improvement and explain any one method. **[5]**

(B) A 3-phase, 50 Hz, 66 kV overhead line conductors are placed in a horizontal plane are 2 meter apart. The conductor diameter is 1·25 cm. assuming complete transposition of the line .If the line length is 100 km, calculate line to neutral capacitance per phase. **[5]**

---------- **All the Best** ----------

Kadi Sarva Vishwavidyalaya

BE SEMESTER IV

Subject Code: EE406 Subject: ELECTRICAL POWER-I

Date: 10/11/2014 Time: 10:30 am to 1:30 pm Max. Marks: 70

Instruction: (1) Attempt all questions.
(2) Figures to the right indicate full marks.
(3) Answer each section in separate answer sheet.
(4)Use the scientific calculator is permitted.

Section – I

Q.1 [A] Explain the working of hydro power station with diagram. [5]

[B] Explain site selection of hydro power plant and disadvantage of that. [5]

[C] Draw schematic arrangement of TPS and advantage of TPS. [5]

OR

[C] Discuss the factor to be considered for selection of site of TPS. [5]

Q.2 [A] Write short note on:- Skin Effect [5]

[B] Compare overhead and underground distribution system. [5]

OR

Q.2 [A] Write short note on: 3- Wire DC distribution system. [5]

[B] Give the relative comparison of hydro, thermal & nuclear power plants. [5]

Q.3 [A] Explain gas power plant and combined plant. Gives advantage of that. [5]

[B] Discuss the various types of conductors used in all transmission line. [5]

OR

Q.3 [A] Classified types of distribution system respect to their construction and explain it. [5]

[B] Give details of major generating station in Gujarat state & also give their capacity. [5]

Section – II

Q.4 [A] Write short note on:- Ferranti effect. [5]

[B] Why overall efficiency of a steam power station is very low? Explain. [5]

[C] Write short note on:- string efficiency. [5]

OR

[C] What is the importance power factor in the supply system? [5]

Q.5 [A] Gives comparison between indoor and outdoor substation. [5]

[B] Explain bus bar in substation according to their arrangement. [5]

OR

Q.5 [A] A overhead transmission line comprising of two parallel conductors having 1.5cm diameter of each. Conductor spacing is 1m. calculate the loop inductive of line at 50Hz frequency. [5]

[B] Explain nominal 'T' method for medium transmission line. [5]

Q.6 [A] Discuss the disadvantages of a low power factor. [5]

[B] What are the causes of low p.f and give the different methods for its Improvement. [5]

OR

Q.6 [A] Write short note on:- static capacitor. [5]

[B] Write short note on:- solid or effective earthing. [5]

KADI SARVA VISHWAVIDYALAYA

BE SEMESTER 4TH EXAMINATION (MAY/2015)

SUBJECT CODE: EE406 **SUBJECT NAME: Electrical Power-I**
DATE: 09/05/2015 **TIME: 10:30am To 1:30pm** **TOTAL MARKS: 70**

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate **clearly**, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

Section-1

Q.1	(A)	Give comparison between thermal power plant and hydro power plant.	05
	(B)	Explain functions of various equipments used in thermal power station.	05
	(C)	Explain advantages and disadvantages of hydro electric power station.	05
		OR	
	(C)	Explain with diagram elements of hydro-electric power plant.	05
Q.2	(A)	Explain with diagram basic elements of Nuclear reactor.	05
	(B)	Draw the layout and explain briefly how electrical power is generated in a Combined Cycle Power Plant?	05
		OR	
Q.2	(A)	Explain in brief: (i) Economizer (ii) Super Heater.	05
	(B)	Explain function of main components of Gas turbine power plant.	05
Q.3	(A)	Compare overhead transmission system with underground transmission system.	05
	(B)	Explain with diagram general construction of underground cable.	05
		OR	
Q.3	(A)	Derive expression for capacitance of single phase transmission line taking into account the effect of earth.	05
	(B)	Discuss the various conductor materials used for overhead lines. What are their relative advantages and disadvantages?	05

Section-2

Q.4	(A)	Explain pin type and suspension type insulators used in overhead transmission line.	05
	(B)	What is string efficiency? Explain various methods of improving string efficiency.	05
	(C)	What are disadvantages of low power factor? Explain methods of improving power factor.	05
		OR	
	(C)	Find line to line capacitance of single phase line 40Km long consisting of 2 parallel wires each of 5mm in diameter and 1.5m apart. Determine the capacitance of the same line taking into account the effect of ground. The height of conductor above ground is 7m.	05
Q.5	(A)	Explain (i) Skin effect and (ii) Proximity effect.	05
	(B)	Explain classification of substation.	05
		OR	
Q.5	(A)	Derive the equation for inductance of three phase transmission line with unsymmetrical spacing. Assume transposition.	05
	(B)	Explain function of various equipments used in substation.	05
Q.6	(A)	Explain the methods of earthing with neat diagram.	05
	(B)	Explain the Ferranti effect with neat diagram.	05
		OR	
Q.6	(A)	Sketch a typical 3 – core cable and label the important parts.	05
	(B)	Derive an expression for most economical power factor.	05

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Kadi Sarva Vishwavidyalaya

BE SEMESTER IV EXAMINATION (NOV/2015)

Subject Code: EE406 **Subject: ELECTRICAL POWER-I**

Date: 30/10/2015 **Time: 10:30 amTo 1:30 pm** **Max. Marks: 70**

Instruction: (1) Attempt all questions.

(2) Figures to the right indicate full marks.

(3) Answer each section in separate answer sheet.

(4)Use the scientific calculator is permitted.

Section – I

Q.1 [A] Write short note on: 3- Wire DC distribution system. [5]

[B] Gives classification of different types of cable and explain any two. [5]

[C] Explain the working of following: [5]

(i) Surge Tank

(ii) Condenser

(iii) Heat Exchanger

(iv) Cooling Tower

(v) Superheater

OR

[C] Discuss the disadvantages of a low power factor. [5]

Q.2 [A] Write short note on:- Skin Effect [5]

[B] Draw schematic arrangement of TPS and advantage of TPS. [5]

OR

Q.2 [A] Compare overhead and underground distribution system. [5]

[B] Give the relative comparison of hydro, diesel, thermal & nuclear power plants. [5]

Q.3 [A] Derive the equation for inductance of single phase two-wire line. [5]

[B] Explain factors affecting corona and theory of corona formation. [5]

OR

Q.3 [A] Explain site selection of hydro power plant and disadvantage of that. [5]

[B] Discuss the various types of conductors used in all transmission line. [5]

Section – II

Q.4 [A] Gives comparison between indoor and outdoor substation. [5]
[B] Explain nominal 'T' method for medium transmission line. [5]
[C] Write short note on:- Ferranti effect. [5]

OR

[C] Which are the properties of insulator and explain pin insulator. [5]

Q.5 [A] A overhead transmission line comprising of two parallel conductors having 2.1cm diameter of each. Conductor spacing is 1.2m. calculate the loop inductive of line at 50Hz frequency. [5]
[B] Classify different types of substation according to service requirement and constructional features. [5]

OR

Q.5 [A] Explain the working of nuclear power station. [5]
[B] Explain bus bar in substation according to their arrangement. [5]

Q.6 [A] Write short note on:- static capacitor. [5]
[B] Write short note on:- solid or effective earthing. [5]

OR

Q.6 [A] Explain different transmission line conductor material. [5]
[B] Why overall efficiency of a steam power station is very low? Explain. [5]