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7E7041

Roll No. _____

Total No of Pages: 4**7E7041****B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018****Electrical & Electronics Engineering****7EX1A Power System Planning****Common with EX, EE****Time: 3 Hours****Maximum Marks: 80****Min. Passing Marks: 26***Instructions to Candidates:*

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL2. NIL**UNIT- I**

Q.1 (a) What is Power System planning? Explain the difference between the national and regional planning. [8]

(b) Describe in brief the electricity regulation and electrical forecasting schemes. Discuss in brief various types of planning tools. [8]

OR

Q.1 (a) Explain the structure of a power system with the help of a neat diagram and write the disadvantages of long term forecasting. [8]

- (b) What are the different types of challenges faced by a power system planning engineer? Explain the process of power system planning. [8]

UNIT- II

- Q.2 (a) Explain the concept of rational tariff. Describe various components of rural electrification planning. [8]
- (b) Explain the term generation planning. Explain the different methods of cogeneration. [8]

OR

- Q.2 (a) In context to India, explain power pooling and power trading. Explain the concept behind financial planning. [8]
- (b) Write short notes on -
- (i) Transmission and distribution planning. [4]
 - (ii) Integrated power generation. [4]

UNIT- III

- Q.3 (a) Explain power system simulator with the help of neat diagram. Explain power supply reliability and its planning in brief. [8]

- (b) Explain the term state estimation and the function of state estimation with the help of a neat diagram. [8]

OR

- Q.3 (a) Discuss about load management and load prediction in a power system. [8]
- (b) Write short notes on on-line power flow studies and computerized management use in power system. [8]

UNIT- IV

- Q.4 (a) Explain the term computer aided planning. How it is useful in power system? [8]
- (b) Write short note on -
- (i) Reactive power compensation [4]
- (ii) Insulation coordination and its principles [4]

OR

- Q.4 (a) What is Greenhouse effect? Discuss its technological impacts. [8]
- (b) What is Wheeling? Explain the concepts of wheeling and wheeling charges in power system. [8]

UNIT- V

- Q.5 (a) Describe the formulation of least cost optimization problem incorporating the capital for a thermal power plant. [8]
- (b) Describe about minimum assured reliability constraints by using optimization methods by programming. [8]

OR

- Q.5 (a) Explain about the operating and maintenance cost of various types of power plants. [8]
- (b) Write a short note on optimal power system expansion planning. [8]
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7E7042

Roll No. _____

Total No of Pages: 4

7E7042

B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018
Electrical & Electronics Engineering
7EX2A Power System Analysis
Common with EE, EX

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 26

Instructions to Candidates:

Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

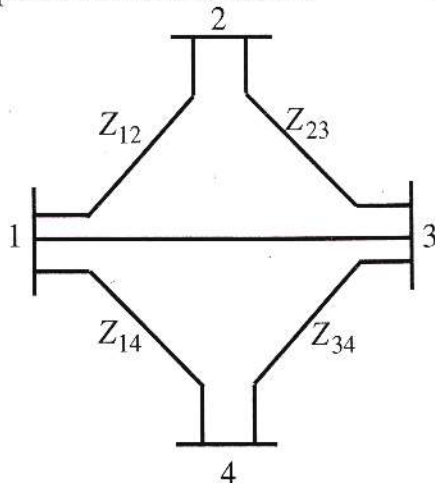
Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
 (Mentioned in form No. 205)

1. NIL2. NIL**UNIT- I**

Q.1 (a) What do you mean by per unit and percentage quantities? What is the need for per unit system? Give the expression for base impedance and per unit impedance referred to new base. Also list the advantages of per unit system. [8]

(b) For the following figure (given below) determine $[Y_{bus}]$. The series line impedances are as shown – [8]

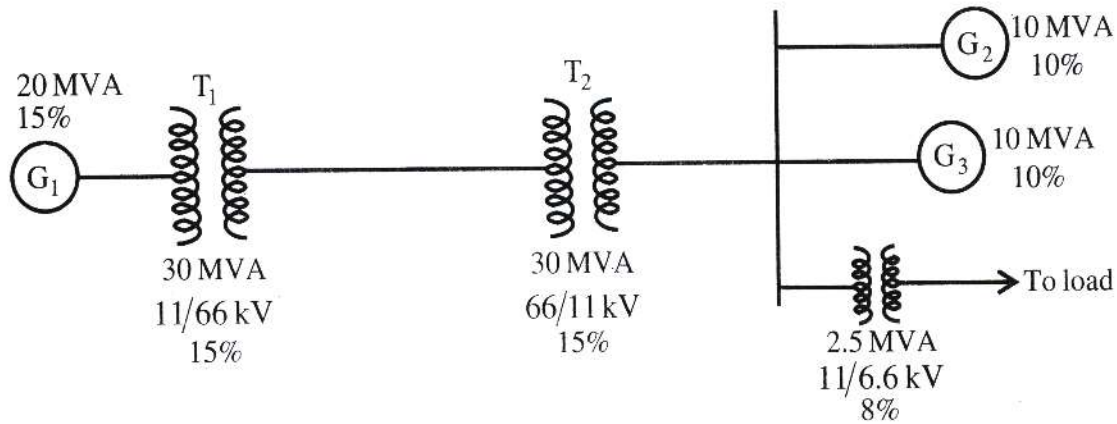


Line (Bus to Bus)	Impedance (per unit)
1 – 2	$0.25 + j 1.0$
1 – 3	$0.20 + j 0.8$
1 – 4	$0.30 + j 1.2$
2 – 3	$0.20 + j 0.8$
3 – 4	$0.15 + j 0.6$

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OR

Q.1 (a) For the figure given below, draw the per unit impedance diagram – [8]



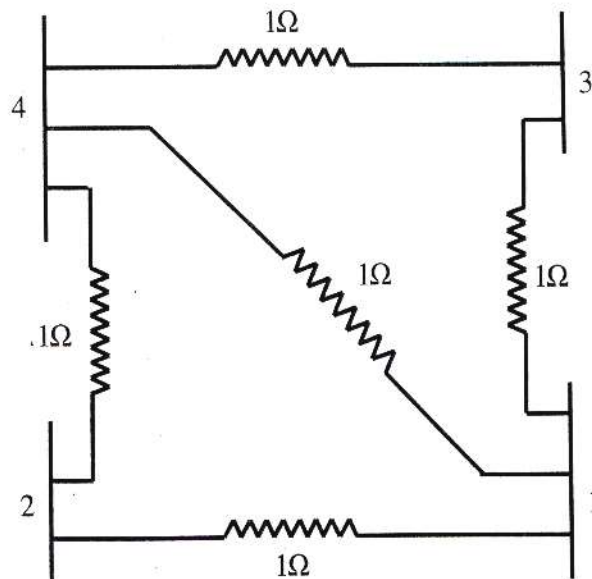
(b) What is the branch admittance and node admittance? What are the advantages of using $[Y_{bus}]$ over $[Z_{bus}]$. Discuss the modification of $[Y_{bus}]$ matrix. [8]

UNIT- II

Q.2 (a) Draw and explain the equivalent circuits of a synchronous machine under the following conditions – [8]

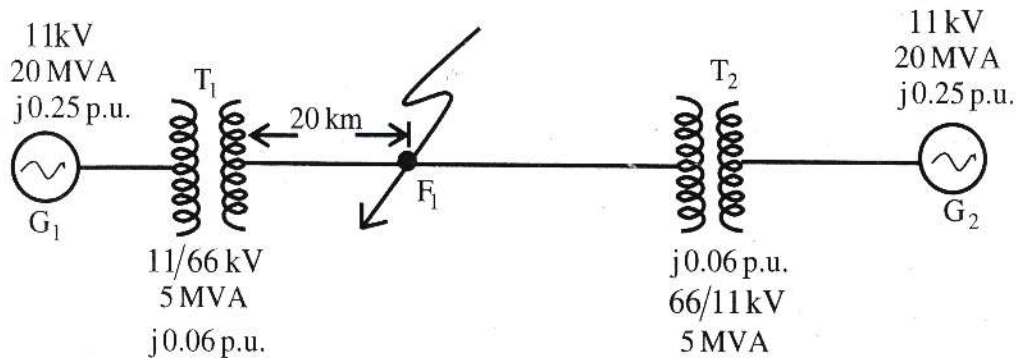
- (i) Sub transient condition
- (ii) Transient condition
- (iii) Steady state condition

(b) Fig. given below shows a four bus system, treating bus 4 as the reference bus, obtain $[Z_{bus}]$: [8]



OR

- Q.2 (a) Give a systematic procedure for formulating Z_{bus} deriving all necessary equations? [8]
- (b) Generator G_1 and G_2 are identical and rated 11 kV, 20 MVA and have a transient reactance of 0.25 p.u. at own MVA base. The transformer T_1 and T_2 are also identical and are rated 11/66 kV, 5 MVA and have a reactance of 0.06 p.u. to their own base MVA. The tie line is 50 km long, each conductor has a reactance of 0.848 ohm per kilometer. The 3 - ϕ fault is assumed at $F_1 = 20$ km from generator G_1 as shown. Find the short circuit current: [8]

**UNIT- III**

- Q.3 (a) What are the symmetrical components? Explain clearly with the help of vector diagram the positive, negative and zero sequence quantities. [8]
- (b) Find the sequence, impedance of transmission lines of a power system carrying unbalanced current. [8]

OR

- Q.3 (a) Discuss the sequence impedances of transformers. Also draw the transformer connection and their equivalent sequence network. [8]
- (b) A 30 MVA, 11 kV generator has $Z_1 = Z_2 = j 0.2$ p.u., $Z_0 = j 0.05$ p.u. A line to ground fault occurs on the generator terminals. Find the fault current and line to line voltages during fault conditions. Assume that the generator neutral is solidly grounded and that the generator is operating at no load and at rated voltage at the occurrence of faults. [8]

UNIT- IV

- Q.4 (a) Explain double line to ground fault with the inter connection of sequence network. [8]
- (b) A 50 MVA, 11 kV, 3 – phase alternator was subjected to the different types of faults. The fault current were : 3 – phase fault 1870 amp., line to line fault 2590 amp., single line to ground fault 4130 amp. The alternator neutral is solidly grounded. Find the per unit value of three sequence reactance of the alternator. [8]

OR

- Q.4 (a) Discuss the analysis of unsymmetrical shunt fault using bus impedance matrix method? [8]
- (b) A double line to ground (L – L – G) fault occurs at the terminals of generator. The generator is of 30 MVA, 11 kV and has $Z = Z_2 = j 0.2$ p.u., $Z_0 = j 0.05$ p.u. Determine the line currents, fault current and line to neutral voltages under fault conditions. [8]

UNIT- V

- Q.5 (a) Discuss classification of buses in a power system in brief. [8]
- (b) Explain the fast decoupled method for load flow analysis. [8]

OR

- Q.5 (a) Discuss the Newton Raphson method for load flow study in power system in detail. Derive the equations of various element of Jacobian Matrix. [8]
- (b) Derive the static load flow equations and define clearly the conditions and assumptions made in obtaining these equations. [8]

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7E4171

Roll No. _____

Total No of Pages: **3****7E4171****B. Tech. VII Sem. (Back) Exam., Nov. – Dec. - 2018****Electrical & Electronics Engineering****7EX1 (O) Database Management Systems****Common with EX, EE****Time: 3 Hours****Maximum Marks: 80****Min. Passing Marks: 26***Instructions to Candidates:*

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL2. NIL**UNIT- I**

Q.1 (a) What is DBMS? How data base approach is better than traditional file approach? [8]

(b) Explain E-R Modelling with the help of database for a Hospital Management System. [8]

OR

Q.1 (a) Discuss concept of Relational data model with the help of suitable example. [8]

(b) Write short notes on the following -

(i) Primary key and Unique key [4]

(ii) Multi valued and Derived attributes [4]

UNIT- II

- Q.2 (a) What are the difference between Relational algebra and Relational Calculus? [8]
- (b) What are the different level of Data abstraction? How those are linked with data independence? [8]

OR

- Q.2 (a) Explain the Concept of Normalization with the help of suitable example. [8]
- (b) Define the following term -
- (i) BCNF [4]
- (ii) Data Independence [4]

UNIT- III

- Q.3 (a) Explain Embedded SQL and Dynamic SQL. [8]
- (b) Describe the concept of constraints in detail. [8]

OR

- Q.3 (a) What do you mean by GL's form management and report writer? [8]
- (b) Write short notes on the following -
- (i) Trigger [4]
- (ii) Host Language Interface [4]

UNIT- IV

- Q.4 What are the various methods used to organize file in Database? Explain in detail. [16]

OR

- Q.4 (a) What is Hashing? Summarize the advantages and disadvantages of this approach. [8]
- (b) What do you understand by Multi key organization? [8]

UNIT- V

- Q.5 What do you mean by concurrency operation? List two disadvantages of it. Discuss the solution for the problem that occur due to concurrency. [16]

OR

- Q.5 (a) What do you mean by Serializability in Transaction Processing? [8]
- (b) Write short notes on the following -
- (i) ACID properties [4]
 - (ii) Lock Based protocol [4]

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7E4174

Roll No. _____

Total No of Pages: 3

7E4174

B. Tech. VII Sem. (Back) Exam., Nov. – Dec. - 2018

Electrical & Electronics Engineering

7EX4 (O) Utilization of Electrical Power

Common with EE, EX

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 26

Instructions to Candidates:

Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL2. NIL**UNIT-I**

Q.1 (a) What is welding? What are the various types of electrical welding? Which type of electric supply is suitable for electric welding? Explain. [10]

(b) Explain the basic difference electric arc welding and resistance welding. [6]

OR

Q.1 (a) Describe the principle of induction heating at high frequency and discuss the applications of eddy current heating. [8]

(b) Explain the construction and operation of arc furnace? Discuss the applications of arc furnace. [8]

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UNIT- II

- Q.2 (a) With the help of neat diagram, explain the working of high pressure mercury vapour lamp with applications. [8]
- (b) What are the laws of illuminations? What do you understand by polar curve? [8]

OR

- Q.2 (a) Explain the working of a fluorescent lamp with the help of circuit, giving the function of various parts. [10]
- (b) Explain the Watt per square meter method and Lumen method used for lighting calculations. [6]

UNIT- III

- Q.3 (a) Explain the basic principle of electrolysis and write the applications of electrolysis. [8]
- (b) Explain the following terms in detail:
- (i) Electro – decomposition [4]
 - (ii) Electropolishing [4]

OR

- Q.3 (a) State and explain the Faraday's laws of electrode composition. What are the different applications of electrolysis? [8]
- (b) Explain the following terms in detail:
- (i) Electro-extraction [4]
 - (ii) Electrorefining [4]

UNIT- IV

- Q.4 (a) Explain the different types of composite system of track electrification. [8]
- (b) Write short notes on –
- (i) Pantograph [4]
- (ii) Conductor rail [4]

OR

- Q.4 (a) Write a short note on electric traction system describing DC and AC systems. [8]
- (b) Explain the types of track electrification generally employed for the tramways service and main line service. [8]

UNIT- V

- Q.5 (a) Explain the mechanics of train movement and define the coefficient of adhesion. What are the values of coefficient of adhesion for different values of speed (km/hr). [10]
- (b) Define the following terms:
- (i) Adhesive weight [3]
- (ii) Effective weight [3]

OR

- Q.5 (a) Draw the speed-time curve of main-line service and define its various parts. [8]
- (b) Explain the series and parallel starting of electric traction motors. [8]

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Total No of Pages: 2

7E7044

7E7044

B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018

Electrical & Electronics Engineering

7EX4A Non-Conventional Energy Sources

Common with EE, EX

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 26

Instructions to Candidates:

Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL2. NIL**UNIT- I**

Q.1 Differentiate Conventional and Non - conventional energy sources. [16]

OR

Q.1 (a) What is Double basin arrangement? [8]

(b) Write advantages and limitations of Tidal Power Generation. [8]

UNIT- II

Q.2 (a) Explain types of Solar collectors and differentiate Paraboloidal and Heliostat. [8]

(b) Explain Solar radiation on tilted surface. [8]

OR

Q.2 Explain briefly Solar cell and Solar cell array. [16]

UNIT- III

Q.3 Differentiate horizontal axis and vertical axis wind turbine with neat and clear diagram. [16]

OR

Q.3 (a) Explain geothermal energy and geothermal preheat hybrid power plant. [8]

(b) Write application of geothermal energy. [8]

UNIT- IV

Q.4 (a) Differentiate Nuclear fission and Nuclear fusion. [8]

(b) Explain Plasma confinement and Magnetic confinement. [8]

OR

Q.4 Write advantages of Laser fusion reactor and Hybrid and Cold fusion. [16]

UNIT- V

Q.5 Explain Biomass conversion technologies. [16]

OR

Q.5 Explain Pyrolysis scheme and Ethanol production. [16]

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7E7045

Roll No. _____

Total No of Pages: 4**7E7045****B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018****Electrical & Electronics Engineering****7EX5A Power System Engineering****Common with EE, EX****Time: 3 Hours****Maximum Marks: 80****Min. Passing Marks: 26***Instructions to Candidates:*

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL2. NIL**UNIT- I**

Q.1 (a) Determine the transmission loss formula for a system having two generators. [8]

(b) Derive and discuss the condition for economic loading of a generating plant considering losses of transmission line. [8]

OR

Q.1 (a) Discuss all types of system constraints in detail. [8]

(b) For a power system having two generating stations, the B-Coefficients are- [8]

$$B_{11} = 0.001 \text{ MW}^{-1}, B_{12} = -0.0005 \text{ MW}^{-1}, B_{22} = 0.0024 \text{ MW}^{-1}$$

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The incremental costs of two stations are-

$$\frac{dc}{dP_1} = 0.08 P_1 + 16 \text{ Rs/MW-hr.}$$

$$\frac{dc}{dP_2} = 0.08 P_2 + 12 \text{ Rs/MW-hr.}$$

Calculate economic outputs of the generating stations P_1 and P_2 for $\lambda=20$. Also calculate the transmission losses and load demand for this value of λ .

UNIT- II

Q.2 (a) Derive the formula of synchronizing power coefficients. [8]

(b) A 50 Hz, 4 pole, 100 MVA generator has an inertia constant of 8MJ/MVA.

Calculate the rotor acceleration, if the mechanical input to the generator is suddenly increased to 80MW for an electrical load of 50MW. If the acceleration is maintained for 10 cycles, calculate change in rotor angle and rotor speed in rpm at the end of this period. [8]

OR

Q.2 (a) Differentiate between steady state and dynamic stability limits. [6]

(b) A 200 MVA, 4 pole, 50Hz generator has a moment of inertia(J) $4 \times 10^3 \text{ kg-m}^2$.

Calculate the energy stored in the rotor at rated speed. Also calculate the inertia constant (H) and angular momentum of the rotor at rated speed. [10]

UNIT- III

- Q.3 (a) Explain all the factors affecting steady state and transient stability limits. Also discuss various methods to improve steady state and transient stability limits separately. [8]
- (b) Define critical clearing angle and critical clearing time. Derive formula for critical clearing angle. [8]

OR

- Q.3 (a) Derive the formula of critical clearing time. [8]
- (b) Explain the equal area criterion. Also illustrate the application of equal area criterion to study transient for sudden increase in input of generator. [8]

UNIT- IV

- Q.4 (a) Describe in detail the working of DC-excitation system. [8]
- (b) Write short notes on-
- (i) Reserve capacity of power stations [2]
 - (ii) Cold reserve [2]
 - (iii) Hot reserve [2]
 - (iv) Spinning reserve [2]

OR

- Q.4 (a) Write advantages and problems of inter-connected power stations. [8]
- (b) Describe in detail the working of AC type rotating thyristor excitation system. [8]

UNIT- V

- Q.5 (a) Explain the phase angle control and phase shifting transformer with their applications. [8]
- (b) Explain the use of series compensated transmission lines. Write the advantages and problems related to series compensation. [8]

OR

- Q.5 (a) Discuss about the perfect location of series capacitor on transmission line. Which equipment is used for the protection of capacitor? [8]
- (b) Write short notes on-
- (i) Power system security [4]
 - (ii) Voltage stability [4]
-

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7E7047

Roll No. _____

Total No of Pages: 4

7E7047

B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018
Electrical & Electronics Engineering
7EX6.2A Computer Aided Design of Electrical Machines
Common with EE, EX

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
 (Mentioned in form No. 205)*

1. NIL

2. NIL

UNIT-I

Q.1 (a) List and explain briefly the limitations being imposed on the design of electrical machines. [8]

(b) Calculate the apparent flux density at a particular sector of a tooth from the following data - [8]

Tooth width = 12 mm,

Slot width = 10 mm,

Gross core length = 0.32 m,

No. of ventilating ducts = 4

Each of 10 mm wide,

Flux density = 2.2 Wb/m^2 ,

Permeability of teeth corresponding to real flux density is $3.14 \times 10^6 \text{ H/m}$ and staking factor is 0.9.

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OR

- Q.1 (a) What are the desirable characteristics and properties of conducting materials used in electrical machines? [8]
- (b) A 350 kW, 500 V, 450 r.p.m., 6 pole D.C. generator is built with an armature diameter of 0.87 meter and a core length of 0.32 meter. The lap wound armature has 660 conductors. Calculate the values of specific magnetic loadings and specific electric loadings. [8]

UNIT- II

- Q.2 (a) Derive the equation for temperature rise of an electrical machine during its heating. Draw temperature rise – time curve and define heating time constant. [8]
- (b) Derive and explain quantity of cooling medium in electrical machines. [8]

OR

- Q.2 (a) Write short note on - [10]
- (i) Heat flow equations
- (ii) Newton's Law of cooling
- (b) Define cooling time constant of an electrical machine and draw its cooling time curve. [6]

UNIT- III

- Q.3 (a) Describe the difference between single layer and two layer winding. [8]
- (b) A 200 kVA, 6600/440 Volts, 3 – phase, Δ - Y connected 50 Hz core type transformer has following particulars - [8]
- Maximum flux density = 1.3 Wb/m^2 ,
- Current density = 2.5 amps/mm^2 ,
- Window factor = 0.3,
- Overall height = Overall width,
- Window area = 1.25 times core area,
- Calculate overall dimensions. Assume 3 – stepped core.

OR

- Q.3 (a) What are the types of windings commonly used in transformer and on what basis are they selected? [8]
- (b) Determine the main dimension of the core, the number of turns and the area of conductors for a 5 kVA, 50 Hz, 11000/400V, single phase, core type distribution transformer. The net conductor area in the window is 60% of the net cross section (square) of the iron core. Assume a flux density of 1 Wb/m^2 , a current density of 1.4 A/mm^2 and a window space factor of 0.2. The window height is 3 – times it's width. [8]

UNIT- IV

- Q.4 (a) Define short circuit ratio, discuss it's effects on the performance of synchronous machines. [8]
- (b) Develop an expression for the output equation of an alternator. [8]

OR

- Q.4 (a) Differentiate between turbo and hydro alternator on the basis of design aspects. [8]
- (b) Write short note on choice of specific magnetic and electric loading. [4]
- (c) Discuss the effect of air gap length on the design of synchronous machines. [4]

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UNIT- V

- Q.5 (a) Determine the main dimensions, number of turns per phase of a 3.7 kW, 400V, three phase, 4 – pole, 50 Hz squirrel cage induction motor for cheap design.

Assume - [8]

Average flux density in the gap = 0.45 Wb/m^2 ,

Ampere conduction per meter = 23000,

Efficiency = 0.85,

Power factor = 0.84,

Taking winding factor = 0.955.

- (b) What do you understand by the phenomenon of cogging and crawling in an induction motor? What steps will you suggest at the design stage to avoid the occurrence of these phenomena? [8]

OR

- Q.5 (a) Draw the flow chart for the design of induction motor. [8]

- (b) Explain the design of stator core and winding of induction machines in brief. [8]

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Total No of Pages: 4

7E7132

B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018

Electrical Engineering

7EE6.3A Economic Operation of Power Systems

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks: 26*Instructions to Candidates:**Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.**Units of quantities used/calculated must be stated clearly.**Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*1. NIL2. NIL**UNIT- I**

- Q.1 (a) Explain the fixed percentage method to calculate the depreciation charge. [8]
- (b) Discuss about the economics in plant selection and explain the economics of different types of generating plants. [8]

OR

- Q.1 (a) What are the different factors affecting economic generations and distributions of generating plants? [8]
- (b) A power plant has an initial cost of ₹ 2×10^8 . Assuming a salvage value of 15% and useful life of 25 years. [8]
- (i) Find rate of depreciation by fixed percentage method.
- (ii) Also find accumulated depreciation at the end of 10th year.

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UNIT- II

Q.2 (a) Explain the following of thermal power plant.

(i) Effects of transmission losses [4]

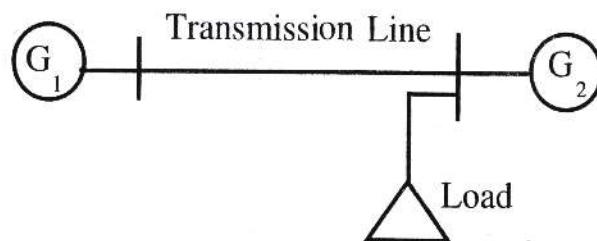
(ii) Sequence of adding units [4]

(b) Explain the different methods of loading turbo generators in power plants. [8]

OR

Q.2 (a) What do you mean by penalty factors? Derive an expression of penalty factors? Explain its utility for power plant? [8]

(b) A system consists of two plants connected by a transmission line as shown in figure below. The load is at plant 2. The transmission line loss calculations reveal that a transfer of 100 MW from plant 1 to plant 2 means a loss of 15 MW. Find the required generation at each plant for $\lambda = 60$. Assume that the incremental costs of the two plant are given by: [8]



$$\frac{dc_1}{dP_1} = 0.2 P_1 + 22 \text{ ₹/MWh}$$

$$\frac{dc_2}{dP_2} = 0.15 P_2 + 30 \text{ ₹/MWh}$$

UNIT- III

- Q.3 (a) What do you mean by short term hydro thermal coordination? Explain with suitable example. [8]
- (b) Discuss the advantages of combined operation (hydro-thermal coordination). [8]

OR

- Q.3 (a) Explain combined working of run-off river and steam plant. [8]
- (b) Explain the reservoirs of hydro and thermal plants. [8]

UNIT- IV

- Q.4 (a) Explain load sharing and sharing of load currents when two alternators are running in parallel. [8]
- (b) Write short note on infinite bus bar. [4]
- (c) Discuss the conditions necessary for parallel operation of alternator. [4]

OR

- Q.4 (a) Explain synchronizing current and power for two alternators in parallel. [8]
- (b) Discuss the operating limits of alternators. [8]

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UNIT- V

- Q.5 (a) Explain the concept of break even cost analysis in brief. [8]
- (b) Describe supply and demand economics. Also explain the equilibrium of the economy. [8]

OR

- Q.5 (a) Describe financial efficiencies of electrical goods and services in brief. [8]
- (b) How does the change in demand occurs? Explain with required curves. [8]
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7E7043

Roll No. _____

Total No of Pages: **2**

7E7043

B. Tech. VII Sem. (Main / Back) Exam., Nov. – Dec. - 2018

Electrical & Electronics Engineering

7EX3A Artificial Intelligence Techniques

Common with EE, EX

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five** questions, selecting **one** question from each unit. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL

2. NIL

UNIT- I

Q.1 What is the difference between natural intelligence and artificial intelligence? Explain how AI technique can be represented? [16]

OR

Q.1 What are knowledge based Expert systems? Also elaborate its importance in engineering in detail. [16]

UNIT- II

Q.2 (a) Differentiate between knowledge representation and knowledge acquisition. [8]

(b) Write short note on Representation of knowledge using logic rules, frames. [8]

OR

Q.2 Explain forward versus backward chaining Control Strategies with the help of appropriate examples. [16]

UNIT- III

Q.3 What is Artificial Neural Networks? Explain types of activation functions in detail. [16]

OR

Q.3 Explain Single layer and multilayer perceptions along with perception learning algorithms in detail. [16]

UNIT- IV

Q.4 (a) Explain the limitations of propagation learning, also explain how to overcome these limitations. [8]

(b) Explain the two different phases of back propagation algorithm. [8]

OR

Q.4 Define the concept of supervised learning and unsupervised learning. Also explain Kohonen's top field network & Algorithm. [16]

UNIT- V

Q.5 (a) Define the concept of Fuzzy logic. Also Explain the Fuzzy relation and membership functions. [8]

(b) Write short note on Defuzzification. [8]

OR

Q.5 (a) Design a flowchart of genetic algorithm in game playing. [8]

(b) Write short note on Crossover and Mutation. [8]
