(DEE 411)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS AND ELECTRONICS Engineering

Paper - I : Industrial Management

Time : 3 Hours **Maximum Marks : 75**

Answer question No.1 is compulsory and Four from remaining

All questions carry equal marks

1) Write short notes on :

a) Personnel management.

b) Joint stock company.

c) Uniform gradient series

d) Control charts.

e) Inventory control.

2) Differentiate private limited and public limited companies.

3) Explain staff selection of the personnel department.

4) Explain the concept of interest, simple interest and compound interest.

5) Explain the common methods of depreciation.

6) Explain in detail about control charts.

7) Discuss the OC curve, single and double sampling.

8) Explain about procurement methods.

9) Explain the concept of break-even chart and pricing.

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(DEE 412)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS & ELECTRONICS ENGINEERING

Paper - II : Power Systems operation and Control

Time : 3 Hours **Maximum Marks : 75**

Answer question No.1 compulsory ***(15)***

Answer ONE question from each unit ***(4 × 15 = 60)***

1) a) Define Heat Rate Curve.

b) Define incremental efficiency.

c) Define constraints.

d) Write condition for optimality.

e) Draw Fuel Cost Curve.

f) Write the expression for the total transmission losses in terms of real power generation when n = 2.

g) Define penalty factor.

h) Define dynamic response.

i) Define control area.

j) Define Reactive Power.

k) Write purpose of shunt capacitor.

l) Write purpose of STATCOM.

m) Write importance of energy control centre.

n) Write about power system control center dispatcher activity.

o) Write about dispatch training simulator.

UNIT - I

2) a) Describe the need of economic dispatch.

b) A constant load of 400 MW is supplied by two 210 - MW generators 1 and 2 for which the fuel cost characteristics are given as below :

$$C_1 = 0.05\,P_{G1}^2 + 20\,P_{G1} + 30.0 \text{ Rs/hr}$$

$$C_2 = 0.06\,P_{G2}^2 + 15\,P_{G2} + 40.0 \text{ Rs/hr}$$

The real power generations of units P_{G1} and P_{G2} are in MW. Determine the most economical load sharing between the generators.

OR

3) a) What are B-coefficients? Derive them?

b) Obtain the condition for optimum operation of a power system with n plants when losses are considered.

UNIT - II

4) a) Develop LFC block diagram of an isolated power system.

b) Write importance of keeping voltage and frequency constant in a power system.

OR

5) a) Develop block diagram of Speed Governing System and explain its components.

b) A 125 MVA turbo-alternator operator on full load operates at 50Hz. A load of 50 MW is suddenly reduced on the machine. The steam valves to the turbine commence to close after 0.5s due to the time lag in the governor system. Assuming the inertia to be constant H-6kW-S per KVA of generator capacity. Calculate the change in frequency that occurs in this time.

UNIT - III

6) a) Explain role of excitation system?

b) Draw the block diagram of AVR and explain its components.

OR

7) a) Explain series compensation?

b) Write short notes.

i) STATCOM

ii) Thyristor switched capacitors

UNIT - IV

8) a) Explain Evolution of power system control technology.

b) Write system engineering aspects of power system operation?

OR

9) a) Explain about typical energy control center functions.

b) Write difference between energy control centre and power system control centre.

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(DEE 413)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Fourth Year)

ELECTRICALS AND ELECTRONICS

Paper - III : Industrial Drives

Time : 3 Hours **Maximum Marks : 75**

Answer Question No.1 Compulsory ***(15)***

Answer ONE question from each unit ***(4 × 15 = 60)***

1) a) What are the advantages of electric drives?

b) What are the types of electric drives?

c) What is the torque expression for dc series motor?

d) Explain the classification of load torques.

e) What are the advantages of closed-loop control of drives?

f) What are the various methods of speed control of dc motors?

g) What is the rms output voltage equation of a single phase half controlled converter?

h) What is torque? Write the expression for torque in 3 phase induction motor.

i) Give the number and names of the quadrants in which type A chopper works.

j) Define slip and slip speed. Also write the expressions for the same.

k) What is the relation between voltage and frequency in constant power region?

l) What is meant by self control of synchronous motor?

m) What are the advantages of synchronous motor over an induction motor when operated with variable frequency?

n) In static Kramer drive, motor turns ratio is 0.5, the firing angle is 90 degrees. Calculate the motor slip.

o) Define and explain dynamic torque.

UNIT - I

2) Explain in detail about modes of operation of electric drives.

OR

3) Explain in detail about characteristics of different types of loads.

UNIT - II

4) Two independent single-phase semi-converters are supplying the armature and field circuits of the separately excited dc motor for controlling its speed. The firing angle of the converter supplying the field, adjusted such that maximum field current flows.
The machine parameters are : armature resistance of 0.25 Ω, field circuit resistance of 147Ω, motor voltage constant K_v = 0.7032 V/A-rad/s. The load torque is T = 45 N-m at 1000 rpm. The converter is fed from a 208 V, 50 Hz AC supply. The friction and windage losses are neglected. Find

a) the field current of the field and armature circuits are sufficient enough to make the armature and field currents continuous and ripple free.
b) the delay angle of the armature converter,
c) the input power of the armature circuit converter.

OR

5) a) Explain the principle of closed loop control of dc drive using suitable block diagram.

b) Distinguish between class-A and class-B choppers with suitable examples of speed control of motors.

UNIT - III

6) a) Explain why stator voltage control is suitable for speed control of induction motors in fan and pump drives. Draw a neat circuit diagram for speed control scheme of 3 phase induction motor using AC Voltage controller.

OR

7) Explain various speed control methods of induction motor applicable for both squirrel cage and slip ring induction motors.

UNIT - IV

8) Describe the open-loop and closed loop methods of speed control of a synchronous motor using VSI.

OR

9) Describe separate controlled mode and self-controlled mode of operation of a synchronous motor drive in detail and compare them.

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(DEE 414)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS AND ELECTRONICS ENGINEERING

Paper - IV : Power System Analysis & Stability

Time : 3 Hours **Maximum Marks : 75**

Answer question No.1 compulsory ***(15)***

Answer ONE question from each unit ***(4 × 15 = 60)***

1) a) What is structure of power system?

b) Define Transient Reactance.

c) What is one-line diagram?

d) Define Per Unit.

e) Classify Transmission lines.

f) What is diagonal element of Y bus matrix?

g) Define load flow study.

h) Draw steady state model of synchronous generator.

i) What is short circuit current?

j) Define positive sequence component.

k) Draw line to line fault.

l) Write names of Shunt type faults.

m) Define Stability.

n) Define Voltage stability.

o) Define critical clearing time.

UNIT - I

2) Explain briefly the representation of loads in load flow studies?

OR

3) a) What are the advantages of pu system?

b) A 30 MVA, 11 KV generators has a reactance of 0.2 pu referred to its ratings as bases. Determine the pu reactance when referred to base KVA of 50,000 KVA and base KV = 22 KV.

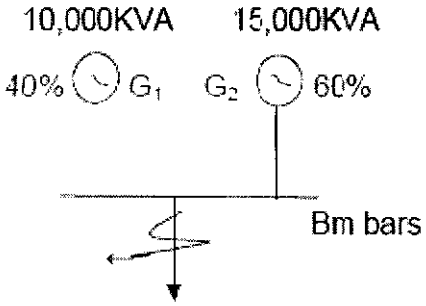
UNIT - II

4) Derive the basic equations for load flow studies and also write the assumptions and approximations to get the simple equations.

OR

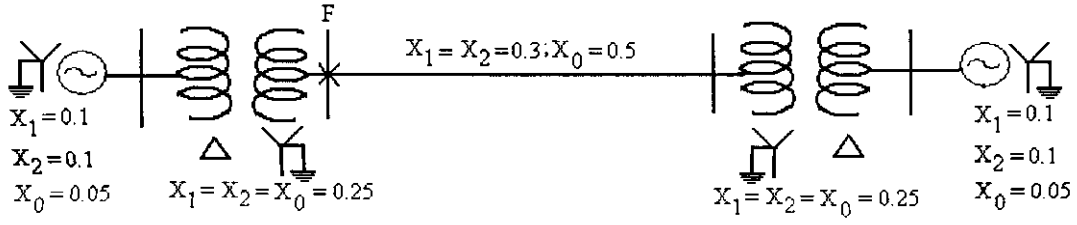
5) a) What do you understand by short circuit KVA? Explain.

b) Consider a system shown in figure. The percentage reactance of each alternator is expressed on its own capacity. Determine the short circuit current that will how into a dead three phone short circuit at F.



UNIT - III

6) For the system shown in the figure A LLG fault occurs at point F. Find the fault current.



OR

7) If V_a, V_b and V_c are the original phasors and V_{a1}, V_{a2} and V_{a0} are the positive, negative and zero sequence symmetrical components respectively then using symmetrical component transformation write the equations for actual phasors in terms of symmetrical components and vice versa.

UNIT - IV

8) What do you understand by steady state stability? Discuss in detail about the synchronizing power coefficients.

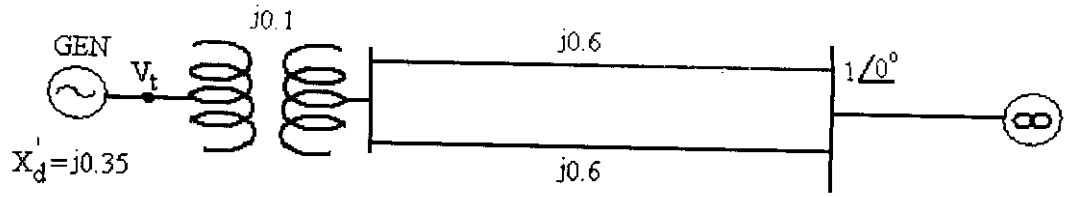
OR

9) The generator of the following fig is delivering 1.0 pu power to the infinite bus ($|V| = 1.0$pu), with the generator terminal voltage of $|V_t| = 1.0$ pu. Calculate the generator emf behind transient reactance. Find the maximum power that can be transferred under the following conditions.

a) System healthy.

b) One line shorted (3-Phase) in the middle.

c) One line open.



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(DEE 415)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Fourth Year)

ELECTRICALS AND ELECTRONICS ENGINEERING

Paper – V : Electrical Machine Design

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15)***

Answer any ONE question from each unit ***(4 x 15 = 60)***

1) a) Explain about electromechanical energy conversion system.

b) Explain about cylindrical rotating machines.

c) Explain about classification in DC machines.

d) Give the classification of transformers.

e) Explain the use of CRGO material in a transformer.

f) Explain about types of windings using in armature of DC machines.

g) Explain about coil span and winding pitch in DC machines.

h) Explain the difference between core type and shell type transformers.

i) Explain about the purpose of using stators in DC shunt motors.

j) Explain about the field test for DC series machines.

k) Explain about the retardation test n DC machines.

l) Explain about the braking in DC motors.

m) Explain about back EMF in DC motor.

n) What are the application of shunt & series DC motors?

o) Explain about armature reaction in DC motors.

Unit - I

2) a) Show how torque can be determined in the multiply excited non-linear system.

b) In a rectangular electromagnetic relay the exciting coil has 800 turns. Cross sectional area of the core is A = 5 cm^2. Neglect reluctance of the magnetic circuit and fringing effects. Calculate maximum force on armature if saturation flux on density in the iron part is 1.8T.

OR

3) a) Explain the following terms as applied to a DC armature winding.

i) Front pitch
ii) Back pitch
iii) Pole pitch
iv) Commutator pitch

b) An eight pole wave connected armature has 300 conductors and runs at 800 rpm determine the use full flux/pole if the electromotive force generated on open circuit is 500V.

Unit – II

4) a) What is meant by predetermination? What parameters are predetermined by conducting O.C & S.C tests on single-phase transformer? Explain with neat circuit diagrams.

b) Explain the working principle of operation of single-phase transformer with phasor diagrams, under leading load conditions.

OR

5) a) Derive the expression for efficiency and voltage regulation of a transformer.

b) Enumerate the various losses in a transformer. How these losses can be minimized.

Unit – III

6) a) Explain the principle of operation of induction motor.

b) Define slip. Explain the slip-torque characteristics of induction motors.

OR

7) a) Define the of an alternator and explain how will you find the regulation by synchronous impedance method.

b) Why three phase induction motors are self starting? Explain in detail with operation.

Unit – IV

8) A 400V, 10kVA, 3 phase alternator with star connected stator winding has an effective armature resistance per phase of 1.0 ohm. The alternator generates an open circuit voltage per phase of 90V with a field current of 1.0A. During the short circuit test, with 1.0A of field current the short circuit current owing in the armature is 15A. Calculate.

a) The synchronous impedance

b) Synchronous reactance.

OR

9) a) Define the of an alternator and explain how will you find the regulation by synchronous impedance method.

b) Derive the out put equation of an alternator?

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(DEE 416 B)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS AND ELECTRONICS ENGINEERING

Paper - VI : HVDC Transmission

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15 x 1 = 15)***

Answer any ONE question from each unit ***(4 x 15 = 60)***

1) a) Write in brief about economics of dc transmission.

b) Write in brief about types of links available in dc transmission.

c) Explain about voltage control in dc transmission line.

d) Explain about selection of voltage in dc transmission.

e) Different kinds of arrangements in converter station.

f) Explain about how the rectifier acts as an inverter and vice versa.

g) Explain in brief different types of faults in converter.

h) How over currents will be minimized in converter.

i) How the converter is protected from over voltages.

j) Write down necessity of dc link control.

k) Explain about constant extinction angle control.

l) Write dc power flow algorithm.

m) Write about effects of harmonics on converter performance.

n) Draw the impedance loci diagram.

o) Write about TIF, THFF, and IT product.

UNIT - I

2) What is the need for Interconnection of systems? Explain the merit of connecting HVDC system by HVDC tie lines.

OR

3) Explain modern Trends in DC Transmission.

UNIT – II

4) Derive the expression for averge DC voltage of a six pulse bridge converter considering gate control and the source reactance.

OR

5) a) With the help of circuit diagram and relevant wave forms. Explain principle of operation of a 3-phase, 6 pulse uncontrolled bridge rectifier feeding DC motor load.

b) For the above circuit, derive the expressions for average dc voltage, total VA rating of valves and transformer.

UNIT – III

6) Explain the basic principle of DC link control in HVDC system.

OR

7) Explain firing angle control schemes with their relative merits and demerits.

UNIT – IV

8) Draw the flow chart for AC/DC load flow.

OR

9) Compare simultaneous and sequential methods of power flow analysis.

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(DEE 416 D)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS & ELECTRONICS ENGINEERING

Paper - VI : Fuzzy Logic and Applications

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15)***

Answer ONE question from each unit ***(4 x 15 = 60)***

1) a) What is DSW algorithm?

b) What are non interacting fuzzy sets?

c) Mentions the application areas of Fuzzy logic.

d) Write the difference between classical logic and fuzzy logic.

e) Explain cluster validity.

Unit - I

2) a) What are properties and operations of Crisp sets.

b) How fuzzy sets are different from Crisp sets?

OR

3) a) What are properties and operations of Fuzzy Sets?

b) Explain fuzzy Relations with examples.

Unit – II

4) a) What is fuzzification and defuzzification? Explain.

b) What are features of Fuzzy membership functions?

OR

5) a) What is membership function? Explain in detail.

b) Explain different defuzzification methods.

Unit – III

6) a) Explain Fuzzy rule based system with an example.

b) Explain Lambda Cuts for fuzzy sets and Fuzzy relations.

OR

7) a) What is meant by predicate logic? Explain.

b) Write a short note fuzzy tautology.

Unit – IV

8) a) Explain different fuzzy decision making methods in brief.

b) Write a short note on Fuzzy synthetic evaluation.

OR

9) a) Explain about fuzzy classifications in brief.

b) Explain about Multi objective decision making.

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(DEE 421)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS AND ELECTRONICS ENGINEERING

Paper - I : Electrical Power Distribution System Engineering

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15)***

Answer any ONE question from each unit ***(4 x 15 = 60)***

1) a) What is the future role of computers in distribution system planning?

b) Define tariff.

c) What is meant by load growth?

d) What are the types of distribution transformers?

e) What is meant by regulation and efficiency?

f) What are the applications of network flow techniques?

g) Write about description and comparison schemes?

h) What are the types of feeders?

i) How to improve existing system?

j) What is meant by distribution protection system?

k) What is meant by automatic line sectionalizers?

l) What is meant by voltage drop?

m) What is meant by over current protection?

n) What is meant by line drop compensation?

o) How to control the voltage?

Unit - I

2) a) Explain about present and future role of computers in distribution system planning.

b) What are the objectives of distribution system planning?

OR

3) a) Explain about the planning and forecast techniques.

b) Explain about the load growth, tariffs and diversified demand method.

Unit - II

4) Briefly explain about design of sub transmission lines and distribution substations.

OR

5) a) Explain about the use of monograms for obtaining efficiency in distribution transformers.

b) Explain about applications of network flow techniques in rural distribution networks.

Unit - III

6) a) Explain about feeders with uniformly distributed load and non-uniformly distributed loads.

b) Explain about automatic circuit reclosuers and fuse to fuse co-ordination.

OR

7) a) Explain about secondary banking and radial type feeders.

b) Explain about the objectives of distribution system protection and reclosuers to circuit breaker co-ordination.

Unit - IV

8) a) Explain about voltage drop and power loss calculations.

b) Explain about the effect of series and shunt capacitors.

OR

9) a) Explain about the loss reduction and voltage improvement in rural distribution networks.

b) Explain about the distribution system voltage regulation.

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(DEE 422)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICAL & ELECTRONICS ENGINEERING

Paper – II : High Voltage Engineering

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15 x 1 = 15)***

Answer ONE question from each unit ***(4 x 15 = 60)***

1) a) Causes of Transient over voltages.

b) Define the front time of impulse wave.

c) Define Regulation (or) voltage drop on load.

d) Write equation of lightning over voltage wave?

e) Write range of charging Resistors in Multistage Impulse generator?

f) Write purpose of voltage Dividers?

g) Write purpose of capacitance voltage Transformers?

h) Causes for Impulse voltages.

i) Write factors influencing the spark over voltages of sphere gap?

j) Write effect of irradiation?

k) Define Impulse voltages.

l) Define withstand voltage.

m) Define creepage distance?

n) Write about flash over voltage?

o) Write purpose of Impulse Flash over Test.

Unit - I

2) a) Explain with diagrams, different types of rectifier circuits for producing high d.c voltages.

b) A clock croft Walton type voltage multiplies has eight stages with capacitances, all equal to 0.05μF. The supply Transformer secondary voltage is 125 kv at a frequency of 150 Hz. If the load current to be supplied in 5MA,

Find i) The percentage ripple
ii) The regulation
iii) The optimum number of stages for minimum regulation (or) voltage drop.

OR

3) a) What is the principle of operation of resonant transformer?

b) How is resonant transformer advantageous over the cascade connected transformers?

Unit – II

4) a) What is capacitance voltage transformer? Explain with phasor diagrams how a tuned capacitance voltage transformer can be used for voltage measurements in power systems?

b) What is a mixed potential Divider.

OR

5) a) Give the schematic arrangement of an impulse potential divider with an oscilloscope. Connected for measuring impulse voltages. Explain the arrangement used to minimize errors?

b) What are merits and demerits for high voltage a.c measurements?

Unit – III

6) a) Explain the method of impulse testing of high voltage transformers. What is the procedure adopted for locating the failure?

b) What is significance of impulse test?

OR

7) a) Mention the different electrical tests done on isolators and circuit Breakers?

b) What is the significance of partial discharge tests of Bushings?

Unit – IV

8) a) Explain charge simulation method for electrical field computation?

b) Explain finite difference method for electrical field computation?

OR

9) a) Explain charges Bondary element method for electrical field computation?

b) Explain finite element method for electrical field computation?

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(DEE 423)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS & ELECTRONICS ENGINEERING

Paper - III : Computer Aided Power System Analysis

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15)***

Answer ONE question from each unit ***(4 x 15 = 60)***

1) a) Define sub graph.

b) What is a loop?

c) Differentiate tree and co-tree.

d) What is Loop Incidence matrix?

e) What is the rank of a bus incidence matrix if 'n' number of nodes are there?

f) What is the size of the impedance matrix if a link is added to the existing network?

g) What are the two types of sequence quantities?

h) What is transposition of lines?

i) Write any two properties of component 'a'.

j) Write the fault admittance matrix for a line to ground fault.

k) What is the significance of load flow studies?

l) What are the parameters specified at generator bus?

m) What is the purpose of acceleration factors in load flow studies?

n) Define transient stability.

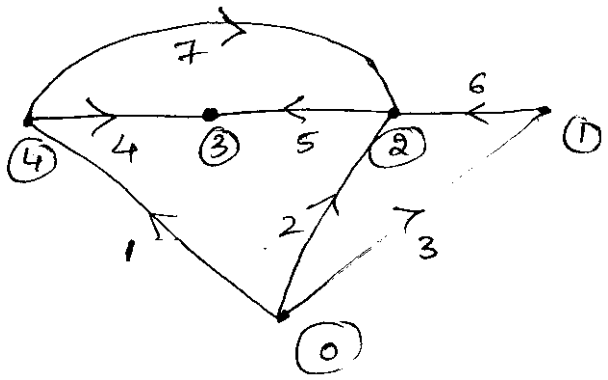
o) Write swing equation.

UNIT - I

2) Derive the expressions for bus admittance and impedance matrices by singular transformation.

OR

3) a) For the oriented connected graph, obtain the Bus incidence matrix A, Branch path incidence matrix k and basic cutset matrix B.



b) For the above graph, prove $A_b k^t = U$.

UNIT – II

4) Three bus system having reference node '4' comprises the line impedance in pu as follows. z_{14} = j 1.0, z_{12} = j 0.2, z_{24} = j 1.25, z_{23} = j 0.05. Find z_{bus} for the system by the z_{bus} building algorithm.

OR

5) a) Obtain the symmetrical components of a set of unbalanced currents $I_a = 1.6 \angle 250^o$, $I_b = 1.0 \angle 180^o$ and $I_c = 0.9 \angle 132^o$. Also find the neutral current.

b) Bring out the relationship between symmetrical components and unbalanced phasors.

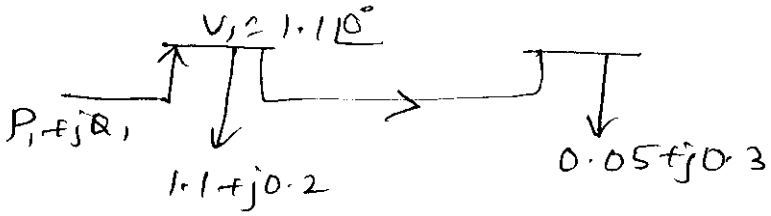
UNIT – III

6) Derive the expression for diagonal and off-diagonal elements of the Jacobian matrix of N-R (Polar form) method.

OR

7) A 2-bus system has been shown in figure. Determine voltage at bus 2 by G.S method after 2 iterations.

$y_{11} = y_{22} = 1.6 \angle -80^o$ pu; $y_{21} = y_{12} = 1.9 \angle 100^o$ pu, $v_1 = 1.1 \angle 0^o$.

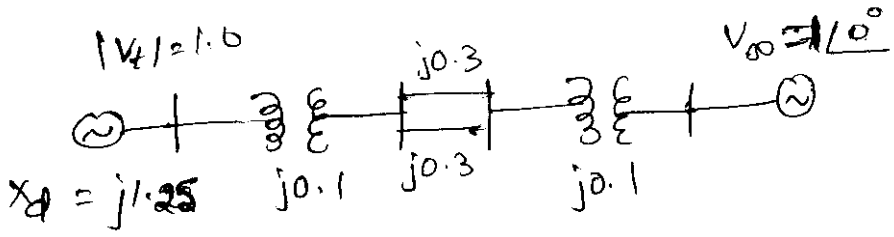


UNIT – IV

8) A generator supplies 1.0 pu power to an infinite bus as shown in figure. The terminal voltage and infinite bus voltage are 1.0pu. All the reactances are 1.0pu. All the reactances are on a common base. Determine steady state stability limit.

a) When both lines are in

b) When one line is switched off.



OR

9) a) What are the factors that affect transient stability.

b) Discuss the various techniques adopted to improve transient stability limit.

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(DEE 424 A)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS & ELECTRONICS ENGINEERING

Paper - IV : Embedded Systems & VLSI

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15)***

Answer ONE question from each unit ***(4 x 15 = 60)***

1) a) Compare and contrast micro controller and Microprocessor.

b) What is scaling?

c) What is meant by logic synthesis?

d) What are limitations of scaling?

e) What is sheet resistance?

f) Compare PLAs and CPLDs.

g) What is embedded system?

h) Write applications of FPGA.

i) What is switch logic?

Unit - I

2) a) What is an integrated circuit (IC)? Explain the different types of integrations for IC.

b) Explain the applications of embedded system in details.

OR

3) a) Write short note set processors ASITPS.

b) Explain the different types of embedded systems.

Unit – II

4) a) Derive an expression drain current of NMOS in saturation region.

b) Write short notes on MOS layers.

OR

5) a) Derive scaling factor for Gate capacitance, current density, drain current.

b) Explain importance of delay unit.

Unit – III

6) a) Compare switch and gate logic with relevant examples.

b) Explain function SRAM.

OR

7) a) Draw and explain the architecture of CPLDs.

b) Explain structural design approach with suitable example.

Unit – IV

8) a) What is behavioral synthesis? Explain with an example.

b) What is the goal of VHDL synthesis step in design flow? Explain.

OR

9) a) Explain about hardware co simulation.

b) Write about RTL synthesis.

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(DEE 424 B)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRICALS & ELECTRONICS ENGINEERING

Paper - IV : Artificial Neural Networks

Time : 3 Hours **Maximum Marks : 75**

Answer question No. 1 compulsory ***(15)***

Answer ONE question from each unit ***(4 x 15 = 60)***

1) a) What is memory based learning?

b) Write any three differences between Biological & artificial neural networks.

c) Write short notes on Associative memories.

d) What are radial basis networks?

e) What are the properties of feature map.

Unit - I

2) a) What are artificial neural networks? What are their characteristics?

b) Explain the historical development of Artificial neural networks.

OR

a) What are different types of Hebbian learning? Explain basic Hebbian learning?

b) Distinguish between supervised and unsupervised training.

Unit – II

3) Write short notes on the following :

a) Hessian matrix

b) Cross validation

c) Feature detection

OR

State and explain the XOR problem? Also explain how to overcome it.

Unit – III

4) Compare radial basis network with multilayer perceptron. Give suitable example.

OR

a) Write about generalized radial basis networks.

b) Write approximation properties of radial basis function network.

Unit – IV

5) What is the difference between pattern recognition & classification? How artificial neural network is applied on both?

OR

a) Explain the SOM algorithm.

b) Explain about learning vector Quantization.

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