

Hall Ticket Number :

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R-11

Code : 1GA61

III B.Tech. II Semester Supplementary Examinations December 2015

Managerial Economics and Financial Analysis

(Common to EEE & CSE)

Max. Marks: 70

Time: 03 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

1. Explain five important basic principles of Economics. 14M
2. Define Demand and explain its determinants. Describe the various types of Demand. 14M
3. Write short notes on Iso-Quant, Iso-Cost curves, MRTS and Least Cost Combination of Inputs with graphical representations. 14M
4. Explain how the price is determined in case of monopoly in long run and short run. Illustrate with examples. 14M
5. Differentiate the Public and Private enterprises. 14M
6. A Company has two proposals X & Y which would require an initial investment of Rs. 23,742 & Rs. 20,136 respectively. The cash flows of the two proposals are:

Year	1	2	3	4
Proposal X (Rs.)	20,000	4,000	2,000	2,000
Proposal Y(Rs.)	2,000	4,000	4,000	20,000

Which of these two proposals should be selected by using the NPV method? Assume the cost of capital @ 8% 14M
7. What do you understand by Double entry book keeping? Show the adjustments for closing stock, depreciation, bad debts and outstanding expenses by assuming values. 14M
8. From the following information of ABC Ltd. You are required to calculate the following ratios. i) Gross Profit Percent ii) Net Profit Percent iii) Quick Asset Ratio iv) Debtors Collection Period v) Stock Turnover Ratio vi) Current Ratio

Particulars	Rs.	Particulars	Rs.
Sales for the year	3,100	Retained earnings	240
Gross Profit	1,725	12% Debentures	700
Expenses	805	Creditors	620
Depreciation	250	Proposed Dividends	45
Share Capital	450	Fixed assets net after depreciation	875
Depreciation Stocks	310	Debtors	770
Bank Balance	100	Prepaid Expenses	500

14M

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Code : 1G468

III B.Tech. II Semester Supplementary Examinations December 2015

Computer System Architecture
(*Electrical & Electronics Engineering*)

Max. Marks: 70

Time: 03 Hours

Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Explain about error detection code using odd parity bit. 6M
b) Define computer. specify the different types of computers and their characteristics Explain various Fixed point and Floating point representations 8M
2. a) Discuss in detail about various types of shift micro operations. 6M
b) Explain about the design of arithmetic logic shift unit. 8M
3. a) Explain about the functioning of a control unit. 7M
b) Explain how $X = (A+B)/(A-B)$ is evaluated in a stack based computer. 7M
4. a) Explain the difference between hard-wired and microprogrammed control 7M
b) Explain address sequencing in microprogrammed control unit 7M
5. a) Explain addition and subtraction of fixed point binary numbers with signed magnitude representation. 7M
b) Explain Booth's multiplication algorithm with an example 7M
6. a) Explain the need for memory hierarchy. 6M
b) By giving what is hit and miss ratio, explain Cache memory in detail. 8M
7. What is asynchronous data transfer? Explain the operation of handshaking with neat diagrams 14M
8. a) Write short notes on inter process communication and synchronization 7M
b) What is parallel processing? Explain different parallel processing systems. 7M

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R-11

Code : 1G366

III B.Tech. II Semester Supplementary Examinations December 2015

Microprocessors and Microcontrollers
(*Electrical & Electronics Engineering*)

Max. Marks: 70

Time: 03 Hours

Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Explain the minimum mode and maximum mode operation of 8086 microprocessor. 6M
b) With neat pin diagram explain 8086 microprocessor. 8M

2. a) Write an ALP to sort first 10 natural numbers in ascending and descending order using IF-ELSE statement. 8M
b) Write an ALP to add two ASCII numbers. 6M

3. a) Explain how an ADC can be interfaced with 8086 microprocessor. 7M
b) Explain how the stepper motor can be interfaced with 8255 microcontroller. 7M

4. a) What is cycle stealing? Explain with relevant diagrams how memory transfer can be achieved with DMA. 7M
b) Explain different types of memories in detail. 7M

5. a) Explain interrupt structure of 8086 microprocessor. 7M
b) Explain the architecture of 8253 Programmable Interval Timer. 7M

6. a) Differentiate Asynchronous and Synchronous data transfer schemes. 7M
b) Explain about UART with neat diagram. 7M

7. a) Explain the memory organization of 8051 microcontroller. 7M
b) Explain about instruction set of 8051 microcontroller. 7M

8. Write short notes on
 (i) Versions of ARM microcontroller
 (ii) Instruction set of ARM microcontroller
 (iii) Memory organization of MCS – 96 Microcontroller. 14M

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III B.Tech. II Semester Supplementary Examinations December 2015

Power System Analysis
(*Electrical & Electronics Engineering*)

Max. Marks: 70

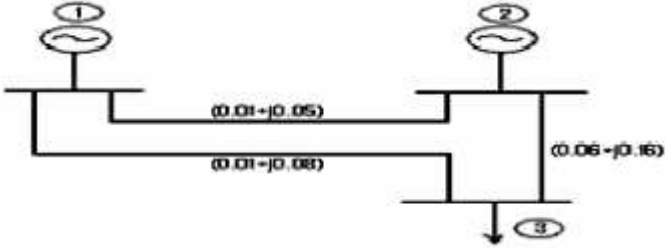
Time: 03 Hours

Answer any five questions
All Questions carry equal marks (14 Marks each)

1. a) Explain the following with an example
 - a) Cut set matrix
 - b) Bus incidence matrix
 - c) Branch path incidence matrix
 - d) basic loop incidence matrix7M
- b) What is primitive network matrix and represent its forms? Prove $Y_{bus} = A^t [Y] A$ using singular transformation. 7M
2. a) Derive an Expression for a partial network adding a branch to form Z_{bus} 7M
- b) Build a Z_{bus} for the 4-bus system connection given as:

Element	Bus code	Impedance
1	1-2	j0.1
2	1-3	j0.25
3	2-4	j0.1
4	3-4	j0.1

3. a) Explain the algorithm and flowchart for Gauss-Seidel method for load flow solution 7M
- b) Explain the classification of various buses in load flow analysis and describe the need for Reference bus. 7M
4. a) Draw the flow chart for N – R method when PV buses are present in the system. 7M
- b) Perform one iteration of FDLF method for the system shown in the figure



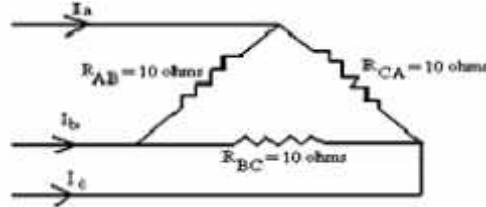
Slack bus-1: $V=1.05+j0.0$
 P-V bus-2: $V_2 = 1.03$ pu ; $P_2 = 0.5$ pu; $0.1 < Q_2 < 0.3$
 Load bus-3: $P_3 = 0.6$ pu ; $Q_3 = 0.25$ pu

5. a) Explain briefly the representation of loads in load flow studies 7M
- b) Draw the pu impedance diagram for the power system shown in fig neglect resistance, and use a base of 100 MVA , 220KV in 50 ohm line. The ratings of the generator, motor and transformers are
 Generator 40 MVA 25KV $X''=20\%$
 Motor 50MVA 11KV $X''=30\%$
 Y-Y Transformer 40MVA 33Y-220Y KV $X=15\%$
 Y- Transformer 30 MVA 11 -220Y KV $X=15\%$

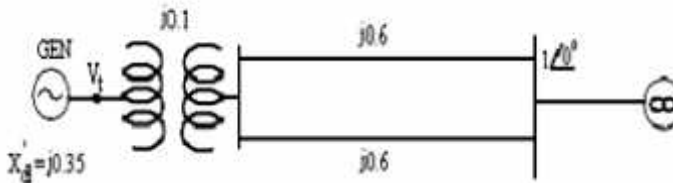


7M

6. a) What is Positive, Negative and Zero sequence components and explain its significance 7M
- b) A balanced 200V, 3 phase supply feeds balanced resistive load as shown in figure if the resistance R_{BC} is disconnected .determine I_a , I_b and I_c and symmetrical components of I_a , I_b and I_c .



7. a) A salient pole synchronous generator is connected to an infinite bus via a line derive an expression for electrical power output of the generator and draw p-curve. 7M
- b) 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



8. a) Explain Point by Point method of determining swing curve. 7M
- b) what is equal area criterion derive the condition for stability 7M

Code : 1G263

III B.Tech. II Semester Supplementary Examinations December 2015

Power System Operation and Control*(Electrical & Electronics Engineering)***Max. Marks: 70****Time: 03 Hours**Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Explain the significance of the heat rate curve and cost curve of thermal power plants with neat diagrams. 8M
- b) The fuel cost in Rs/ hr of two units in a plant are given by
 $C_1 = C_1 (P_1) = 1.0 + 25 P_1 + 0.25 P_1^2$
 $C_2 = C_2 (P_2) = 1.5 + 45 P_2 + 0.2 P_2^2$
 If the total demand on the generators is 250MW, calculate the economic load scheduling of the two units. 6M
2. a) Derive the expressions for loss coefficients. 6M
- b) The cost characteristics of two power plants connected together by a transmission line and load at plant 2 are given below. When 100 MW are transmitted from plant-1, the transmission loss is 12MW.
 $C_1 = 0.05 P_1^2 + 15 P_1$ Rs/hr
 $C_2 = 0.06 P_2^2 + 18 P_2$ Rs/hr
 Find the optimum generation when $P_1 = 22$ 8M
3. a) What are the advantages of operation of hydro thermal combinations? 6M
- b) What is short term hydro thermal scheduling? Explain the difficulties present in the short term hydro thermal scheduling. 8M
4. a) Explain the block diagram representation of an isolated power system with diagram. 7M
- b) Derive the generator load model and represent it by a block diagram. 7M
5. a) Discuss in detail the importance of load frequency control. 7M
- b) Draw and explain the block diagram of the load frequency control for a single area system. 7M
6. a) Explain the significance of tie-line bias control in multi-area Load Frequency Control system. 6M
- b) Two control areas having the following characteristics
Area-1
 $R_1 = 0.01$ p.u
 $B_1 = 0.8$ p.u
 Base MVA = 1000
Area-2
 $R_2 = 0.015$ p.u
 $B_2 = 0.9$ p.u
 Base MVA = 1000
 A load change of 150 MW occurs in area -2. Find the tie line power deviation 8M
7. a) Discuss the merits and demerits associated with series compensators.
- b) What is load compensation? Describe briefly different compensation methods in power system.
8. a) What is deregulation of electric power system and explain its advantage over normal power systems? 8M
- b) What are the key issues in deregulation of power system? 6M
