

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

II B.Tech II Semester Supplementary Examinations, July-2016

**MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
(COMMON TO CIVIL AND MECHANICAL ENGINEERING)**

Time: 3 Hours**Max Marks: 70**

PART-A

Answer all questions**[1 x 10 = 10 M]**

1. a) Define Micro Economics.
b) Angle of Incidence
c) Collective Opinion
d) Elasticity
e) Net Present Value
f) Marginal Cost
g) Penetration Pricing
h) Nominal Account
i) Quick Ratio
j) What is Economic Indicator?

PART-B

Answer one question from each unit**[5x12=60M]**

UNIT-I

2. a) Discuss the concept of equilibrium between demand and supply. [6M]

b) .Explain how Managerial Economics has its roots in Economics and Management. Does it have any links with other subjects? [6M]
- (OR)
3. a) Define price elasticity of demand. What are the factors that determine it? Explain [6M]
b) Evaluate survey based demand forecasting methods with suitable examples. [6M]

UNIT-II

4. a) Explain how cost – output relationship helps the entrepreneurs in expansion decisions? [4M]
b) Explain the Law of Returns with appropriate examples. [8M]
- (OR)
5. a) What are Isoquants? Why does an Isoquant slope downward? Explain the Least Cost Combination of Inputs? [8M]
b) Define BEP. How do you determine it? Show graphical presentation of Break Even Analysis? [4M]

UNIT-III

6. a) What is monopoly? Explain three conditions necessary for the existence of monopoly. [8M]
 b) Explain the conditions of Long-run equilibrium of a firm operating under conditions of perfect competition. [4M]

(OR)

7. a) What is Monopolistic Competition? Explain the important features of Monopolistic competition. [8M]
 b) Distinguish between Joint Stock Company and Public Enterprise. [4M]

UNIT-IV

8. Following are the details of a project
 Initial Investment Rs 80,000 [12M]

Year	Cash flows before depreciation & Tax in Rs	PV F @ 10%	PV F @ 12%
1 st Year	35,000	0.909	0.893
2 nd Year	35,000	0.826	0.797
3 rd Year	30,000	0.751	0.712
4th Year	30,000	0.683	0.636
Salvage value	20,000		

The project is depreciable on straight-line basis. If the required rate of return is 10%, and tax rate is 50% whether the project is accepted or not under the IRR criteria.

(OR)

9. The expected Net Cash Flows of a project are as follows [12M]

Year	Net Cash In Flows	PV Factor 12%
0	1,00,000	-
1	30,000	0.893
2	20,000	0.797
3	40,000	0.712
4	30,000	0.636
5	50,000	0.567

The Cost of Capital is 12 percent. Calculate Net Present Value.

UNIT-V

10. From the following trail balance of Bikram, prepare trading and Profit & Loss Account for the year ending 31st March 2013 and the Balance Sheet as on that date. [12M]

Particulars	Dr	Rs	Particulars	Cr	Rs
Electricity		14,000	Interest		16,000
Land		1,40,000	Discounts		6,000
Wages		50,000	Sales		8,00,000
Opening Stock		20,000	Returns		10,000
Rent		24,000	Creditors		60,000
Office expenses		30,000	Capital		3,02,000
Building		4,00,000	Bills payable		15,000
Salaries		90,000			
Power, Gas and Water		30,000			
Returns		20,000			
Furniture		15,000			
Debtors		60,000			
Total		12,09,000	Total		12,09,000

Additional information:

- Closing stock was valued at Rs.50,000.
- Provide depreciation @ 5% on buildings and 10% on furniture.
- Write off bad debts Rs.2,500.
- Create a reserve for doubtful debts @ 2% on debtors.

(OR)

11. The following data has been taken from the balance sheet of three companies. [12M]

Particulars	Company A	Company B	Company C
Cash	20,000	40,000	1,00,000
Stock in Hand	1,6000	1,60,000	4,00,000
Total Current Assets	3,00,000	4,00,000	11,00,000
Total Current Liabilities	1,00,000	1,50,000	8,00,000
Working Capital	2,00,000	2,50,000	3,00,000

Comment on their comparative liquidity or short term financial health.

Code: 13EE2011**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, July-2016****ELECTRICAL MACHINES – II
(ELECTRICAL AND ELECTRONICS ENGINEERING)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1 X 10 = 10 M]**

1.
 - a) Give some transformer applications in electronics and control circuit.
 - b) Why low voltage winding is placed near the core in transformer?
 - c) What is iron loss in transformer and how does it depends on frequency?
 - d) Define all day efficiency and state the condition for maximum efficiency.
 - e) How does open-delta connection differ from delta-delta connection in three phase transformer?
 - f) Define synchronous speed and slip frequency in three phase induction motor.
 - g) How does induction motor differs from transformer in phasor diagram?
 - h) Mention the starting methods which can be employed for squirrel cage induction motors.
 - i) What is the condition for obtaining maximum torque at starting of an induction motor?
 - j) Mention two applications of induction motor and generator each.

PART-B**Answer one question from each unit****[5 X 12=60M]****UNIT-I**

2. Draw the approximate equivalent circuit of transformer. Develop the phasor diagram of a single-phase transformer under leading p.f. load condition. [12M]

(OR)

3.
 - a) Define voltage regulation, state the condition for maximum voltage regulation. [5M]
 - b) Show that the per unit voltage regulation of the transformer is given by [7M]

$$\frac{V_{sc}}{E_2} \cos(\theta_{sc} - \theta_2)$$

Where V_{sc} is the voltage required to circulate rated current on short circuit, θ_{sc} is the p.f. angle on short circuit and θ_2 is load power factor angle and E_2 is secondary terminal voltage at no load.

AR13

SET-2

Code: 13EE2011

UNIT-II

4. a) Explain the procedure for conducting open circuit and short circuit test on single phase transformer. [7M]
- b) A 5 kVA, 400/100 Volts single phase, two winding transformer is to be used as an auto transformer to supply 400V from a 500V voltage source. When tested as a two winding transformer at rated load and 0.8 p.f. lagging, its efficiency was found to be 0.95. [5M]
- i. determine the kVA rating as an auto-transformer. Also estimate the transformed kVA and conducted kVA
- ii. find the efficiency as an auto-transformer at rated load and 0.8 p.f. lagging.

(OR)

5. a) Explain in detail the following configuration of 3 phase transformer [6M]
- i. Y - Δ
- ii. Δ - Δ .
- b) A 100 kVA transformer having 1% resistance and 4 % leakage resistance is operated in parallel with 200 kVA transformer having 1% resistance and 6 % leakage resistance. If the total load delivered is 300 kVA at unity p.f., calculate the kVA load on each transformer as well as the operating p.f. of each transformer. [6M]

UNIT-III

6. a) Show that the voltage generated in the rotor circuit at any slip s is equals to s times the voltage generated at stand still. [6M]
- b) A 20 kW, 6 pole, 400 V, 50 Hz, 3 phase induction motor has a full load slip of 0.02. If the torque lost in mechanical (friction and windage) losses is 20 Nm, find the rotor ohmic loss, motor input and efficiency. Stator losses total 900 watts. [6M]

(OR)

7. a) Draw the phasor diagram for a three phase induction motor. [6M]
- b) A 3-phase, delta connected, 4 pole, 50 Hz induction motor has a stator resistance of 0.4 ohm per phase at the operating temperature. For a line current of 20A, the total stator input is 4000 watts. For negligible stator core losses, find out the internal torque. [6M]

AR13

SET-2

Code: 13EE2011

UNIT-IV

8. A 3-phase squirrel cage induction motor with an applied voltage of 50 percent gives a block rotor current of 200 percent and internal starting torque of 30 percent of their corresponding rated value. If an auto-transformer limits the starting line current to 150 percent of the motor full load current. Compute the percentage of starting torque. [12M]

(OR)

9. Draw the circle diagram for 3-phase, 2.4 kW, 50HZ, 400V, delta connected slip ring induction motor has starter resistance of 0.36 ohm per phase, rotor resistance 0.06 ohm per phase and per phase stator to rotor turns ratio of 2. The following data are taken during some load test [12M]

No-load test: 400V, 3.2A, p.f. = 0.174

Blocked rotor test: 210V, 16A, p.f. = 0.35

From the circle diagram at full load compute:

(i) line current (ii) power factor and efficiency (iii) the torque and slip

UNIT-V

10. a) Explain in detail speed control of induction motor by pole changing method. [6M]
- b) A 60 cycle six pole induction motor is connected in cascade with an eight pole motor. Calculate the synchronous speed, if the two shafts are coupled by reduction gear having 2:1 ratio. [6M]

(OR)

11. a) Explain the cascade method of speed control for induction motor. [7M]
- b) Explain the working principle of three phase induction generator [5M]

AR13

CODE: 13EC2011

SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

II B.Tech II Semester Supplementary Examinations, July-2016

**ELECTROMAGNETIC WAVES AND TRANSMISSION LINES
(ELECTRONICS AND COMMUNICATION ENGINEERING)**

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What is Stokes theorem?
b) State Biot savart's law
c) Write Poission's and Laplace's equations
d) Define Relaxation time.
e) What is stub matching
f) Define Total internal reflection
g) Define Magnetization
h) Define VSWR
i) List the Characteristics of free space
j) Write down the unit of Scalar magnetic potential

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. Discuss the applications of Gauss law in detail.
(OR)
3. a) Derive the expression for energy stored in a capacitor.
b) Derive the expression for electric field at any point due to infinite line charge.

UNIT-II

4. a) Explain Boundary conditions in magnetic field with neat sketches.
b) Obtain the expression for Force between two current elements
(OR)
5. a) Explain Magnetic scalar and vector potentials.
b) Discuss the concept of Magnetization in materials.

UNIT-III

6. a) Write down and explain Maxwell's equations in point form and integral form.
b) Explain the concept of retarded potentials.
(OR)
7. a) In free space the magnetic fields of EM wave is given by $H=0.4\omega\epsilon_0 \cos(\omega t-50x)a_z$ A/m. find the electric field E and Displacement current density D.
b) What is inconsistency of Ampere's law and explain

UNIT-IV

8. a) Obtain propagation characteristics of plane wave in free space.
b) Explain total internal reflection and Brewster angle
(OR)
9. a) Obtain reflection and transmission coefficients at oblique incidence of plane wave with parallel polarization.
b) Determine the amplitude of reflected and transmitted E and H at the interface between two regions. The characteristics of region 1 are $(\epsilon_r) = 8, \mu_{r1} = 1$ and $\sigma_1 = 0$. Region 2 is free space. The incident wave in region 1 has $E_i = 1.5$ V/m. assume normal incidence, find average power in two regions.

UNIT-V

10. a) Define characteristic impedance and propagation constants of transmission line and obtain for lossless condition
b) What is input impedance of transmission line and explain nature of different lengths of lines when short circuited and open circuited.
(OR)
11. a) A transmission line of length 0.3λ has a characteristic impedance of 100Ω and is terminated in a load of impedance of $200 + j180\Omega$. Find reflection coefficient, VSWR and input impedance
b) Explain different features and applications of smith chart.

Code: 13CS2010**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, July-2016****PRINCIPLES OF PROGRAMMING LANGUAGES
(COMMON TO CSE & IT)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1 X 10 = 10M]**

1. a) What is Firmware?
b) Define Regular Expression.
c) What is Dangling pointer?
d) What is attribute grammar?
e) What is recursion?
f) Explain about type checking.
g) Explain about Co-routines?
h) What is race condition?
i) What is a virtual Function?
j) Define about Binding.

PART-B**Answer one question from each unit****[5 X 12= 60M]****UNIT-I**

2. a) Explain the two approaches to bridge the gap between High level languages and machine level languages? Compare. [6M]
b) Explain the process of compilation [6M]
(OR)
3. a) What are important factors that influence the basic design of programming language? [6M]
b) Discuss about Context-free grammar and regular expression? Give the parse tree of a following statement: $A = (B+C) * (D / E)$ [6M]

UNIT-II

4. a) Explain in detail about the notion of Binding Time. [6M]
b) Explain in detail about an object lifetime and storage management [6M]
(OR)
5. a) Define macro? How to implement the macro. [6M]
b) Explain about S-attributed and L-attributed grammar in detail. [6M]

UNIT-III

6. a) Explain in detail about structured and unstructured control flows. [6M]
b) Explain in detail various design issues of character string types. [6M]
(OR)
7. a) Explain in detail the following data types: Lists [6M]
b) Records & Sets [6M]

UNIT-IV

8. a) Explain in detail about parameter passing. [6M]
b) Explain exception propagation with an example. [6M]

(OR)

9. a) Explain in details about Concurrent programming fundamentals [6M]
b) Explain in details about Language level-Mechanisms. [6M]

UNIT-V

10. a) Explain in detail about the following concepts in Object Oriented Programming: Encapsulation [4M]
b) Multiple inheritances [4M]
c) Dynamic Method Binding [4M]

(OR)

11. a) Explain logic programming concepts in details? [6M]
b) What is meant by control in Prolog? Briefly explain. [6M]