AR13

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Regular & Supplementary Examinations, April-2017

MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
(Common to Civil Engineering & Mechanical Engineering)

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

PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1. Explain the following briefly
   a) Definition of Economics.
   b) Microeconomics.
   c) Iso-costs
   d) Break Even Point
   e) Monopoly
   f) Market Skimming
   g) Capital Budgeting
   h) Accounting Rate of Return (ARR)
   i) Limitations of Financial Statements
   j) Capital Structure Ratios

PART-B

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

2. a) Explain the principles of Managerial Economics and how managerial economics is useful to Engineers   **6 M**
   b) Explain the Law of Demand and discuss various types of demand with exceptions   **6 M**

   (OR)
3. a) What is the difference between Law of Demand and Elasticity of Demand? How elasticity of demand is measured? State its uses   **8 M**
   b) Briefly discuss factors affecting Price Elasticity of Demand   **4 M**

UNIT-II

4. a) What is meant by Break Even Analysis? Explain its Managerial significance and limitations of BEA   **8 M**
   b) State the importance of opportunity cost concept in business decision making process   **4 M**

   (OR)
5. a) Explain the features Law of variable proportions in the production.   **6 M**
   b) Discuss the managerial importance and limitations of BEP.   **6 M**

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UNIT-III

6.	a)	What is Perfect Competition? Explain how price is determined under Perfect Competition	**6 M**
	b)	State the differences between Perfect Competition and Monopoly	**6 M**

(OR)

7.	a)	What are the different methods of Pricing? Explain any two of them in detail.	**6 M**
	b)	Compare the features of "Sole Proprietorship" and "Partnership" types of business organization	**6 M**

UNIT-IV

8.	a)	What are the principles of capital budgeting?	**6 M**
	b)	Compare with examples the IRR and NPV as a techniques of capital budgeting.	**6 M**

(OR)

9.	a)	What are the basic considerations while estimating the project cash flows	**10 M**
	b)	What is meant by "Time value of money"?	**2 M**

UNIT-V

10.	a)	What is Trial Balance? Describe the errors that are disclosed by Trial Balance	**6 M**
	b)	Explain Trading Account and Profit and Loss Account	**6 M**

(OR)

11.	Prepare a Trading account, Profit and Loss account and Balance Sheet for the year ended 31st December, 2011 from the following Trial Balance of Mr. Mohanlal:	**12 M**

Debit balances	`	Credit balances	`
Buildings	71,340	Bills payable	7,584
Furniture	48,468	Loan	36,000
Debtors	11,655	Capital	1,08,000
Opening Stock	29,835	Creditors	26,160
Purchases	1,86,276	Sales	2,34,546
Wages	12,900		
Insurance	1,251		
Postage expenses	819		
Salaries	12,000		
Interest	3,885		
Machinery	30,000		
Bad debts	861		
Discount	3,000		

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Regular & Supplementary Examinations, April-2017

COMPLEX VARIABLES AND STATISTICAL METHODS
(Electrical and Electronics Engineering)

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

PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1. a) Determine analytical function whose real part is $\log\sqrt{x^2+y^2}$
    b) Find regular function whose imaginary part is - SinxSinhy
    c) What is simple pole
    d) Define removable singularity
    e) Defined confirmed mapping
    f) Find the invariant points of the transformation w= (z-1)/ (z+1)
    g) Define discrete probability distribution
    h) What are the properties of Normal distribution
    i) Define Chi-Square distribution with figure
    j) What are simple sampling attributes

PART-B

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

2. Determine which of the following functions are analytical   **12 M**
    (i) $2xy+i(x^2-y^2)$ (ii) $(x-iy) / (x^2+y^2)$ (iii) Coshz

(OR)

3. Evaluate (i)$\int_C \frac{Sin^2 z}{(z-\frac{\pi}{6})^3} dz$ Where c is the circle and $|Z|=1$ **12M**

    ii) $\int_C \frac{e^{2z} dz}{(z+1)^4}$ Where c is the circle and $|Z|=2$

    iii)$\int_C \frac{e^z}{(z^2+\pi^2)^2} dz$ Where c is the circle and $|Z|=4$

UNIT-II

4. i) Evaluate $\int_c \frac{e^{2z}}{(z+1)^3} dz$ using Residue theorem where $c: |z| = 2$.   **12M**
    ii) Find the poles of the function $\frac{z+1}{z^2(z-2)}$ and the residues at these poles.

(OR)

5.   Apply the calculus of residue to prove that   **12 M**

i. $\int_0^{2\pi} \frac{d\theta}{(5-3Cos\theta)^2} = \frac{5\pi}{32}$

ii. $\int_{-\infty}^{\infty} \frac{x^2-x+2}{x^4+10x^2+9} dx = \frac{5\pi}{12}$

UNIT-III

6. a) Show that bilinear Transformation   **6 M**
        $(2z+3)/(z-4)$ maps the circle $x^2+y^2-4x=0$ into the line $4u+3=0$
   b) Under the transformation $w=1/z$ **6 M**
        Find the image of $|z-2i| = 2$

(OR)

7.   Determine region of w plane into which of the following regions are mapped by   **12 M**
        transformation $w=z^2$
        i)   First quadrant of z plane
        ii)   Region bounded by $x=1, y=1, x+y =1$
        iii)   The region $1 \le x \le 2$ and $1 \le y \le 2$

UNIT-IV

8. a) Given $P(A) = \frac{1}{2}$, $P(B)= 1/3$ and $P(AB) =1/4$ Find the value of $P(A+B)$ **6 M**
   b) Let A and B be two events with $P(A) = \frac{1}{2}$, $P(B)= 1/3$ and $P(A \cap B) =1/4$ Find the   **6 M**
        value of $P(A/B)$, $P(AUB)$ and $P(A^I/B^I)$
(OR)
9. a) Show that the mean of a Binomial distribution is np   **6 M**
   b) Obtain the distribution function of total number of heads occurring in three tosses   **6 M**
        of an unbiased coin.

UNIT-V

10. a) Two samples of 9 and 7 . Individuals have variances 4.8 and 9.6 respectively. Is   **6 M**
        the variance 9.6 significantly greater than the variance 4.6
    b) Explain sampling distribution and testing hypothesis   **6 M**
(OR)
11.   In two groups of 10 children each, the increase in weight due to different diets   **12 M**
        during the same period were in pounds
        3,7,5,6,5,4,4,5,3,6
        8,5,7,8,3,2,7,6,5,7 Is there a significant difference in variability?

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Code: 13EC2008

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Regular & Supplementary Examinations, April-2017

ELECTRONIC CIRCUITS-II

(Electronics and Communication Engineering)

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

PART-A

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

1. a) What is the advantage of Darlington pair
    b) Overall gain of n-stage amplifier is------------
    c) What are the input and output resistances for voltage series
    d) What is the disadvantage of negative feedback
    e) What is the type of feedback used in oscillators
    f) What is the phase shift produced by single RC network in RC phase shift oscillator
    g) Write the increasing order of efficiencies of different class of power amplifier
    h) What is the expression for total harmonic distortion in power amplifiers
    i) What is the quality factor of series RLC circuit?
    j) Draw the block diagram of Regulated Power Supply (RPS)

PART-B

Answer one question from each unit   **[5 X 12=60M]**

UNIT-I

2. a) Briefly explain different types of coupling used in amplifiers with suitable circuits.
    b) Three identical stages of amplifiers are cascaded with lower and upper cutoff frequencies given by 300Hz and 5KHz respectively. Compute the overall lower and higher cutoff frequencies.

(OR)

3. a) Draw the circuit of a two stage RC coupled JFET amplifier and explain its working.
    b) What are the advantages of Darlington pair? Explain Darlington pair with circuit diagram.

CODE: 13EC2008

UNIT-II

4. a) Prove that negative feedback in amplifiers reduces the distortion and noise with appropriate equations.

   b) The β and open loop gain, A of an amplifier are 10% and 80 respectively. By how much percentage the closed loop gain changes if the open loop gain increased by 25%.

(OR)

5. a) Explain the effect of negative feedback on amplifier characteristics.

   b) An amplifier has a mid band gain of 125 and bandwidth of 250KHz. If 4% of negative feedback is introduced find the closed loop gain and the new bandwidth.

UNIT-III

6. Draw the circuit diagram of a RC phases shift oscillator using BJT. Derive the expression for frequency of oscillators.

(OR)

7. a) Describe the crystal oscillator. What are the advantages of crystal oscillator over LC oscillators?

   b) Calculate the value of capacitor in a Wien bridge oscillator operating at a frequency of 10KHz. Assume, R=10KΩ.

UNIT-IV

8. a) Distinguish between push-pull and complementary symmetry configurations of class B power amplifier.

   b) A push-pull amplifier has a transformer with turns ratio 160:40. It must be capable of delivering 40W to a load of 8Ω under maximum power conditions. What is the possible value of Vcc.

(OR)

9. Draw the circuit of class-A transformer fed power amplifier and derive the expression for maximum conversion efficiency.

UNIT-V

10. a) What is the importance of stagger tuning? Explain briefly about stagger tuned amplifier with it's characteristics.

    b) Explain the significance of various levels of coupling of transformers used in double tuned amplifiers.

(OR)

11. a) Explain the operation of simple Zener diode voltage regulator with its regulation characteristics.

    b) Write short notes on heat sinks.

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CODE: 13CS2005   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
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II B.Tech II Semester Regular & Supplementary Examinations, April-2017

SOFTWARE ENGINEERING
(Common to CSE & IT)

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

PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1. a) What is computer software?
   b) What is feasibility study?
   c) What is modularization?
   d) What is structured design?
   e) When you know programming, what is the need to learn software engineering concepts?
   f) What is level-0 DFD?
   g) What are various types of software maintenance?
   h) What are the categories of defects?
   i) Mention the formula to calculate Cyclomatic complexity of a program?
   j) How can we derive the size of software product?

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

UNIT-I

2. a) What are the management myths and practitioner's myths and realities? [6M]
   b) Compare the Incremental process models with the Evolutionary process models. [6M]

(OR)

3. a) Define Software Engineering. What are the challenges of Softawre Engineering? [6M]
   b) What is meant by CMMI? Discuss its significance. And also discuss about personal process models. [6M]

UNIT-II

4. a) What is meant by requirements validation? What are the checks that should be carried out on requirements? [6M]
   b) What is system requirements? Discuss the notations for requirements specifications. [6M]

(OR)

5. a) Describe four types of non-functional requirements that may be placed on a system. Give examples of each of these types of requirement. [6M]
   b) What are structured methods? Discuss the components of a CASE tools for structured method support. [6M]

UNIT-III

6. a) Discuss briefly about architectural design. [6M]
   b) Explain about data design and procedural design. [6M]

(OR)

7. a) What is meant by object oriented design? Discuss the design evolution. [6M]
   b) Explain the interface design evaluation cycle. [6M]

UNIT-IV

8. a) Discuss about software testing strategy and software testing steps.   [6M]
    b) Explain the metrics for software quality.   [6M]

                                        (OR)

9. a) What is meant by unit testing? Discuss the unit test considerations and unit test   [6M]
        environment.
    b) Explain the metrics for software testing and maintenance.   [6M]

UNIT-V

10. a) Discuss the reactive and proactive risk strategies.   [6M]
    b) Describe about ISO 9000 quality standards.   [6M]

                                        (OR)

11. a) Explain the software quality Assurance.   [6M]
    b) Discuss about Risk projection.   [6M]

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