

**Code: 13HS2004****ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)****II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, AUGUST-2015****MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS  
(COMMON TO CIVIL AND MECHANICAL ENGINEERING)****Time: 3 hours****Max Marks: 70M****PART-A****Answer all questions****[10X1=10M]**

1. a) What is Micro Economics?  
b) Define demand forecasting  
c) What is isocosts?  
d) Define Production  
e) Write any two advantages of perfect competition  
f) Define business cycles  
g) What is capital?  
h) Write any two applications of funds flow statement  
i) Define Journal  
j) What is financial statement?

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

2. a) Explain Demand /determinants. [6M]  
b) Define law of demand. Explain its exceptions in detail. [6M]
- (OR)**
3. a) Explain about the importance of elasticity of demand. [6M]  
b) What is Managerial Economics? Explain its characteristics in detail. [6M]

**UNIT-II**

4. a) Explain about production function in detail. [6M]  
b) Explain about importance and limitations of Break Even Analysis (BEA) [6M]
- (OR)**
5. a) What is law of returns to scale? Explain it briefly. [6M]  
b) Define cost analysis. Explain it briefly. [6M]

**UNIT-III**

6. a) Explain about monopoly and monopolistic competition in detail. [6M]  
b) Explain the following:
  - i. Penetration pricing
  - ii. Bundling pricing
  - iii. Peak Load pricing [6M]

**Code: 13HS2004****(OR)**

7. a) Explain in detail about joint stock companies. [6M]  
b) Discuss different phases of business cycles. [6M]

**UNIT - IV**

8. Himalaya Ltd. Has Rs.2,00,000 to invest in a certain project. The following proposals are under consideration. The cost of capital of the company is estimated to be 15%.

Project	Initial Outlay (Rs.)	Cash Inflows (Rs.)	Life (Years)
A	1,00,000	25,000	10
B	70,000	20,000	8
C	30,000	6,000	20
D	50,000	15,000	10

Rank the project on the basis of

- a. Profitability index method [6M]  
b. Net Present Value method [6M]

**(OR)**

9. ABC Inc is evaluating two projects for investments and whose each cash flows are follows

[12 M]

	<b>Expected Cash Flows (in INR)</b>	
YEAR	PROJECT -A	PROJECT-B
0	(1000)	(1000)
1	500	100
2	400	300
3	300	400
4	100	600

Compute Payback Period and NPV for both the projects and the discount factor for NPV is 10%

**Code: 13HS2004****UNIT - V**

10. Prepare Trading and Profit and Loss a/c and a Balance Sheet as on 31.3.2013 from the following Trial Balance:

Particulars	Debit Balance	Credit Balance
Cash in hand	1,000	
Opening stock	3,500	
Creditors		3,900
Debtors	19,200	
Drawings	5,130	
Sales		92,800
Purchases	81,200	
Wages	7,200	
General expenses	5,170	
Furniture	4,000	
Goodwill	3,000	
Capital		32,700
Total	1,29,400	1,29,400

**Adjustments:**

- (a) Closing stock was valued at Rs.4,500
- (b) Depreciate furniture by 10%
- (c) Wages due Rs.1,000
- (d) Interest on capital is 5%

**[12M]**

**(OR)**

11. The Balance Sheet of Sriram ltd., as on 31-12-2002 is as follows :

<b>Liabilities</b>	<b>Rs.</b>	<b>Assets</b>	<b>Rs.</b>
Equity share capital (Shares of Rs.10 each)	5,00,000	Land and Buildings	6,00,000
10% Preference Share capital (Shares of Rs.00 each)	2,00,000	Plant and Furniture	5,00,000
Reserves and surplus	3,00,000	Stock in trade	2,40,000
12% Debentures (Rs.100 each)	4,00,000	Sundry Debtors	1,95,000
Sundry Creditors	1,50,000	Cash in hand	60,000
Bank overdraft	50,000	Prepaid expenses	5,000
	<b>16,00,000</b>		<b>16,00,000</b>

Calculate : (a) Current Ratio, (b) Liquid Ratio, (c) Debt- Equity Ratio

[12M]

**Code: 13BS 2007****ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTOONOMOUS)****II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, AUGUST-2015****COMPLEX VARIABLES AND STATISTICAL METHODS  
(ELECTRICAL AND ELECTRONICS ENGINEERING)****Time: 3 hours****Max.Marks:70****PART-A****Answer all questions****[10X1=10M]**

1. a) Define singular point.
- b) State Cauchy's integral formula
- c) Define Residue at infinity.
- d) Determine the zeros and singularities of  $\frac{z^2 + 1}{1 - z^2}$ .
- e) Determine the fixed points of the transformation  $w = (2z+3)/(z-4)$ .
- f) Define conformal mapping.
- g) If X is a Poisson random variable with parameter  $\lambda$ , then find the mean and variance of X.
- h) A die is rolled. If the outcome is an odd number. What is the probability that it is prime?
- i) Find the value of the population correction factor for  $n=10$  and  $N=400$ .
- j) Define Type-1 and Type-II errors.

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

2.a) If  $u = \frac{x}{x^2 + y^2}$ , find the conjugate harmonic of u such that  $u+iv$  is holomorphic function. [6M]

b) Determine p such that the function  $f(z) = r^2 \cos 2\theta + i r^2 \sin p\theta$  is analytic. [6M]

**(OR)**

3. Apply Cauchy's integral formula, evaluate

$$\int_C \frac{\sin^2 z}{(z - i/6)^3} dz, \text{ where } C \text{ is the circle } |z|=1. \quad [12M]$$

**UNIT-II**

4. a) Apply Residue theorem, evaluate  $\int_C \frac{3z^2 + z + 1}{(z^2 - 1)(z + 3)} dz$  where  $C: |z|=2$ . [8M]

b) Determine residue of  $\tan z$  at  $z = \pi/2$ . [4M]

**(OR)**

5. Apply the calculus of residues, evaluate  $\int_0^{2\pi} \frac{d\theta}{(5 - 3\cos\theta)}$ . [12M]

# AR13

# SET-2

Code: 13BS 2007

## UNIT-III

6. a) Obtain the bilinear transformation which maps the points  $z=0,1$ , into the points  $w = -3,-1,1$ , respectively. [6M]  
b) Prove that the transformation  $w=\sin z$  maps the family of lines  $x=\text{constant}$  and  $y=\text{constant}$  into two family of confocal central conics. [6M]

(OR)

7. a) Discuss the transformation  $W = e^z$ . Is it conformal at all points? [6M]  
b) Find the bilinear transformation that maps the points  $z_1 = -1, z_2=0, z_3=1$  into the points  $w_1=0, w_2=i, w_3=3i$ . [6M]

## UNIT-IV

- 8 a) In a normal distribution, 31% of the items are under 45 and 8 % are over 64. Find the mean and S.D. of the distribution. [6M]  
b) The mean and S.D. of the marks obtained by 1000 students in a examination are respectively 34.4 and 16.5. assuming the normality of the distribution, find the approximate number of students expected to obtain marks between 30 and 60. [6M]

(OR)

9. Three machines  $M_1, M_2$  and  $M_3$  produce identical items. Of their respective out put 5%, 4% and 3% of items are faulty. On certain day,  $M_1$  has produced 25% of the total out put,  $M_2$  has produced 30% and  $M_3$  the remainder. An item selected at random is found to be faulty. What are the chances that it was produced by the machine with the highest output? [12M]

## UNIT-V

10. a) A random sample of size 144 is taken from an infinite population having the mean 75 and the variance 225. What is the probability that  $\bar{x}$  will be between 72 and 77. [6M]  
b) The following table gives the number of air craft accidents occurred during the various days of the week. Find whether the accidents are uniformly distributed over the week? [6M]

Days:	Sun	Mon	Tue	Wed	Thu	Fri	Sat
No.of accidents	14	16	8	12	11	9	14

(OR)

11. The mean yield of two sets of plots and their variability are given below. Examine whether the difference in the mean yields of the two acts of plots is significant. [12M]

	Set of 40 plots	Set of 60 plots
Mean yield per plot	1258	1243
S.D per plot	34	28

**Code: 13EC2008****ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)****II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, AUGUST-2015****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 are the demerits of direct coupled amplifiers?
  - b) List the applications of transformer coupled amplifier.
  - c) What type of feedback is employed in common collector amplifier?
  - d) What is the disadvantage of negative feedback?
  - e) What type of feedback is provided in Wein bridge oscillator?
  - f) What is the minimum  $h_{fe}$  required for a transistor to be used in RC phase shift oscillator?
  - g) What are the drawbacks of complementary symmetry push-pull class B power amplifier?
  - h) Give the value of efficiency in a transformed coupled class-A amplifier.
  - i) What is a single tuned amplifier?
  - j) What do you mean by load regulation?

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

2.
  - a) What are DC amplifiers? Explain its operation and frequency response. Mention few applications of DC amplifiers. [6M]
  - b) Discuss the effect of emitter bypass capacitor on low frequency response of BJT amplifiers. [6M]

**(OR)**

3.
  - a) Describe the operation an RC coupled amplifier with the help of circuit diagram. [6M]
  - b) A multistage amplifier is to be constructed using 4 identical stages each of which has a lower cut-off frequency 15 KHz and upper cut-off frequency 30 KHz. (a) What will be the lower and upper cut-off frequencies of the multistage amplifier? (b) If the mid band voltage gain of each stage is 8.2, what will be the approximate gain of multistage amplifier at 7.5 Hz and 300 KHz. [6M]

**UNIT – II**

4.
  - a) Draw the circuit of voltage-series feedback amplifier and derive the expressions for the input impedance and output impedance of the same. [6M]
  - b) An amplifier has an input of 10mV and a gain of 200 without feedback. The distortion produced at the output of the amplifier is 10%. It is desired to reduce the distortion to 1% by using negative feedback. Calculate the gain and output voltage with feedback. [6M]

**Code: 13EC2008****(OR)**

5. a) With the help of neat block diagram derive the expressions for input resistance and output resistance with feedback for Current shunt feedback amplifier. [8M]
- b) The open loop gain of an amplifier changes by 5%, if 10dB negative feedback is applied. Calculate the percentage change in the closed loop gain. [4M]

**UNIT – III**

6. a) With a neat circuit diagram explain the operation and derive an expression for frequency of oscillations of RC-phase shift oscillator using BJT [10M]
- b) In the Colpitts oscillator,  $C_1=0.2\mu\text{f}$  and  $C_2=0.02\mu\text{F}$ . If the frequency of the oscillator is 10 KHz, find the value of inductor. [2M]

**(OR)**

7. a) Draw the circuit of an Hartley oscillator and derive an equation for frequency of oscillations [8M]
- b) List the advantages of Crystal oscillators over LC and RC oscillators. [4M]

**UNIT – IV**

8. a) What are the advantages and disadvantages of class B push-pull amplifiers? [4M]
- b) For a class B amplifier providing a 20V peak signal to 16  $\Omega$  load (speaker) and a power supply of  $V_{CC}=30\text{V}$ , determine the input power, output power and circuit efficiency. [8M]

**(OR)**

9. a) Draw the circuit of a complementary symmetry push-pull amplifier and derive an expression for maximum power output? [8M]
- b) Calculate effective load resistance looking into the primary of a 10:1 transformer connected to an output load of 16  $\Omega$ . [4M]

**UNIT – V**

10. a) What is a tuned amplifier? Explain the classification of tuned amplifiers. [6M]
- b) Explain briefly about stagger tuned amplifier. [6M]

**(OR)**

11. a) Explain in detail about series and shunt regulators [8M]
- b) What are the limitations of linear voltage regulator? [4M]



**Code: 13CS2005****ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)****II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, AUGUST-2015****SOFTWARE ENGINEERING  
(COMMON TO CSE & IT)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1 X 10 = 10M]**

1.
  - a) Specify the characteristics of Software.
  - b) What are the phases of unified process?
  - c) Define Functional Requirement.
  - d) What is SRS?
  - e) Define Refactoring.
  - f) What is DFD?
  - g) Define Cyclomatic complexity.
  - h) Compare Alpha and Beta testing.
  - i) Difference between Bug and defect.
  - j) Define SQA.

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

2.
  - a) What is CMMI? Explain various levels present in it. [6M]
  - b) Explain briefly about different software myths. [6M]
- (OR)**
3.
  - a) Explain in detail about layers present in layer technology. [6M]
  - b) Explain concept of RAD model with neat diagram. [6M]

**UNIT-II**

4.
  - a) Discuss about requirement engineering process. [6M]
  - b) Explain the different activities to be carried out in requirements analysis phase and explain the importance of each activity in the process. [6M]
- (OR)**
5.
  - a) Write short notes on different object models. [6M]
  - b) What are differences between functional and Non-functional requirements? [6M]

**Code: 13CS2005****UNIT-III**

6. a) Explain about design process and quality guidelines [6M]  
b) Discuss about different elements in the design model [6M]  
(OR)
7. a) Differentiate between Object and Object Class. Explain different steps involved in OOD Process. [6M]  
b) Explain different types of Architectural styles and patterns [6M]

**UNIT-IV**

8. a) Explain different testing strategies like black-box and white-box testing and their purpose with suitable example. [6M]  
b) Discuss about McCall's Quality factors. [6M]  
(OR)
9. a) Define Software Quality. Explain Metrics for Analysis model [6M]  
b) Explain COCOMO model for cost estimation. [6M]

**UNIT-V**

10. a) Define Software Risk. With a sample risk information sheet, explain the RMMM plan [6M]  
b) Discuss briefly about ISO 9000 Quality standards [6M]  
(OR)
11. a) Write short notes on reactive and proactive risk strategies. [6M]  
b) Explain i) Software risks ii) Software reliability. [6M]