

P.R.GOV'T. COLLEGE (AUTONOMOUS), KAKINADA.
II B.SC, ACTUARIAL SCIENCE/THIERD SEMESTER – 2020-21
II B.SC, (MSAS) PAPER- III
COURSE: FINANCIAL ACCOUNTING

SEMESTER-III

Total Hrs. of Teaching-Learning:75 @ 5 h/Week

Total Credits:05

Objectives:

- To make the students to acquire the conceptual knowledge of accounting.
- To develop the skills of recording financial transactions and preparation of reports using computers.
- To equip the students with the knowledge of accounting process and preparation of final accounts.

Learning Outcomes: Demonstrate their knowledge

- By the end of this course, students will be able to Demonstrate their knowledge by preparing the books like journals, ledgers.
- By the end of this course, students will have the skill to prepare the ratio analysis.
- By the end of this course students have better understanding about the preparation of final accounts of an organization.

MODULE I : ACCOUNTING CONCEPTS

Need for Accounting- definition features, objectives, functions systems and bases and scope of accounting - Book keeping and Accounting - Branches of Accounting - Advantages and limitations – basic terminology used - Accounting concepts and conventions.

- a. Accounting process - Accounting cycle - Accounting equation – classification of accounts – rules of double entry book keeping – identification of financial transaction – journalizing – posting to ledgers, balancing of ledger accounts – computerized accounting. Meaning and features - creating of an organization – types of vouchers.
- b. Sub division of journal-preparation of subsidiary books including different types of cashbooks – simple cash book, cashbook with cash and discount columns, cashbook with cash, discount and bank columns, cashbook with cash and bank columns and petty cash book.

Self Study: Grouping of accounts – voucher entry – editing and deleting of vouchers, Preparation of sales register, purchase register, journal proper, debit note register, credit note register, and different cash books including interest and discount transactions using computers.

Assignment : creation of accounts – creation of inventory – creation of stock categories, units of measurement – stock items – entering of financial transactions — voucher numbering – customization of vouchers.

MODULE II :FINAL ACCOUNTS

- a. Trail Balance meaning, objectives, methods of preparation – Final Accounts meaning, features, uses and preparation of manufacturing, trading account, profit & Loss Account and balance sheet – adjusting and closing entries.
- b. Assignment :Preparation of Trial Balance Sheet and Final Accounts

MODULE III : MANGEMENT ACCOUNTING CONCEPTS

- a. Funds flow and cash flow statements uses and limitations–concept of cash construction of cash flow statement as per accounting standard 3
- b. meaning of ratio analysis– classification of ratio analysis–computation and interretation of different accounting ratios–liquidity, profitability turnover ratio and solvency ratios

Assignment preparation of funds flow statement and cash flow statements.

MODULE IV : LIFE INSURANCE CONCEPTS AND FINANCIAL DERIVATIVES

- a. life insurance companies–preparation of revenue accounts profit and loss account
balance sheet and valuation of balance sheet.

Assignment: preparation of insurance claims.

Suggested Readings:

Principles and Practice of Accounting R.L. Gupta & V.K. Gupta Sulthan Chand &sons Accountancy – I, S.P. Jain & K.L Narang ,Kalyani Publishers

Accountancy – I, Tulasian,TataMcgraw Hill
Co Financial Accounting – Dr.V.K.Goyal ,
Excel Books

Introduction to Accountancy, T.S.Grewal ,S.Chand and
CO Accountancy – I, Haneef and Mukherjee,
tataMcgraw Hill co Advanced Accountancy –
Arulanandam, Himalaya publishers

Advanced Accountancy-I, S.N.Maheshwari&V.L.Maheswari, Vikash
Publishing co. Financial Accounting, Ashok Banarjee, Excel

Financial Accounting, Warren, Cengage

BLUE PRINT FOR THE QUESTION PAPER SETTER

PAPER - FINANCIAL ACCOUNTING

(FOR I B.Sc ACTUARIAL SCIENCE) SEMESTER-II

Max.Marks:60

Time:2 ½ Hours

CHAPTER NAME	ESSAY QUESTIONS 10 MARKS	SHORT QUESTIONS 05 MARKS	MARKS ALLOTTED TO CHAPTER
ACCOUNTING CONCEPTS	02	02	30
FINAL ACCOUNTS	02	01	25
MANGEMENT ACCOUNTING CONCEPTS	02	01	25
LIFE INSURANCE CONCEPTS AND FINANCIAL DERIVATIVES	02	02	30
TOTAL MARKS INCLUDING CHOICE	08	06	110

SAQ=Short answer questions (5M), EQ=Essay questions (10M)

P.R.GOVERNMENT COLLEGE(AUTONOMOUS), KAKINADA
MODEL PAPERS FOR THE YEAR 2020-21
II YEAR B.Sc. (MSAS) PAPER-III
MODEL PAPER FINIANCIAL ACCOUNTING
SEMESTER -III

DATE:
TIME: 2 ½ Hours

Max.Marks: 60

SECTION – A

Answer any four of the following :

4x5= 20 Marks

1. What is the difference between book keeping and Accounting?
2. What are the importance and limitations of Accounting?
3. Explain various types of subsidiary books?
4. Write a simple Cash account for the following transactions>
 - a. Opening Dr. Balance: Rs. 10,000/-
 - b. Cash Received from Roshan Rs. 6,250/-
 - c. Cash Deposited into bank Rs. 1200/-
 - d. Rent paid Rs. 1500/-
 - e. Salaries paid Rs. 2,900/-
 - f. Cash Sales Rs. 15,000/-
 - g. Goods sold to RohithRs. 5,000/-
5. What is trail balance; advantages of trail balance, draw a perform for good trail balance?
6. Draw proform of various accounts that generally maintained in Insurance companies?

SECTION – B

Answer all questions: each one carry ten marks

4x10= 40 Marks

7. (a) What is the difference between Financial Accounting, Cost Accounting and Management Accounting?

Or

(b) Write Journal Entries to the following transactions:

- i. March: 1 Started Business with – 1,00,000
 - ii. Purchased good for Rs. – 25,000
 - iii. purchased Machinery and paid by bank – Rs. 40,000
 - iv. Purchased good from Chaitanya Rs. 17,000
 - v. sale Rs. 1,52,000
 - vi. Sales to Reddy Rs. 20,000
8. (a) Explain clearly the concepts and conventions of accounting?

Or

(b) Prepare a triple column cash book with bank, cash and discount columns from the following transactions:

Date	Particulars	Amounts in '000'
Mar- 1	Opening balance	14
2	Cash received from sales	25
3	Credit purchases	26
4	Paid into bank	18
5	Cash with drawn for office use	17
6	Cash with drawn for personal use.	4
7	Rent paid by cheque	10

9. (a) What are final accounts? Explain with examples how adjustments can be treated in final accounts?

(Or)

(b) Prepare final accounts from the following trail balance?

Debit	Amount	Credit	Amount
Buildings	10,000	Capital	17,000
Plant & Machinery	12,000	Creditors	12,500
Debtors	8,000	Bill payable	500
Purchases	15,000	Rent received	3,500
Repairs	2,000	Sales	25,000
Salary	9,000	Purchase returns	1,500
Insurance	500		
Sales returns	1200		
Wages	1800		
Postage & Stationery	500		
	60,000		60,000

Adjustments: Closing Stock: 5,000/- Outstanding Salary: 3,500/- , Depreciate Plant and Machinery @ 10%

10. (a) How accountancy in insurance company is different from other forms?

Or

(b) the following trail balance was extracted from the books of the new India Life Insurance Company? As on 31-3-2017

Particulars	Debit	Credit
Paid – up capital		
10,000 shares @ 10 each		2,00,000
Life fund balance as on 1-4-2016		29,72,300
Dividend paid	15,000	
Bonus in reduction of premium	31,500	
Premium less re-assurance premium (commission there on Rs. 5,000)		1,61,500
Claims paid	1,97,000	
Outstanding clams on 1-4-2016		7,000
Commission	9,300	
Management expenses	32,300	
Mortgages in India	4,92,200	
Interest, dividend and rent		1,12,700
Freehold premises	1,40,000	
Agents balance	9,300	

Investments	23,05,000	
Loans on policies	1,73,600	
Cash on deposits	27,000	
Cash on current account	7,300	
Surrenders	7,000	
Medical stores	7,000	
Consideration for annuities granted		10,000
Annuity	10,000	
	34,63,500	34,63,500

Prepare the revenue account for the year ended 31-3-2017 and a balance sheet of the company after considering the adjustments:

- (A) Claims outstanding Rs. 10,000/-
- (B) Further Bonus in reduction of premium Rs. 5000/-
- (C) Premium outstanding Rs. 5000/-
- (D) Claims covered under re-insurance Rs. 80,000/-
- (E) Management expenses due Rs. 30,000/-

P.R.GOV.T. COLLEGE (AUTONOMOUS), KAKINADA.
II B.SC, ACTUARIAL SCIENCE/ FOURTH SEMESTER (2020-21)
II B.Sc, (MSAS) PAPER-IV
COURSE: SURVIVAL MODELS

Total Hrs. of Teaching-Learning:60 @ 4 h/Week

Total Credits:03

UNIT-1

Principles of modeling: Need, benefits and limitations of models. (12L)

UNIT-2

Concepts of Survival Models (12L)

The distribution and density functions of the random future lifetime, the survival function, the force of mortality or hazard rate and derive relationships between them, Laws of mortality like Gompertz and Makeham, the distribution and density functions of the curtate future lifetime random variable.

UNIT-3

Estimating the future lifetime distribution (12L)

Truncation, Right censoring, Left or interval censoring, Likelihood construction for censored and truncated data, Kaplan-Meier model, Nelson Aalen model, Cox proportional hazard model, Breslow's approximations to the partial likelihood estimator.

UNIT-4

Binomial and Poisson Model (12L)

Maximum likelihood estimator of transitions intensities in Binomial and Poisson model and their mean-variances, advantages and disadvantages of multiple state models and the binomial models, including consistency, efficiency, simplicity of the actuarial estimators and their distributions, application to practical observations and generality.

UNIT-5

Graduation (12L)

Initial and central exposed to risks, graduation, purpose and methods of graduation, testing goodness of fit and testing smoothness of a set of graduated estimates, statistical test for comparing a set of crude estimates and a standard table or a set of crude estimates and a set of graduated estimates, effect of duplicate policies on estimates.

Additional Input: Calculation of nonparametric estimates of survival models using the Kaplan-Meier and Nelson-Aalen formulas for series data and adaptations for grouped data. (not included in examination)

References

UK Institute of Actuaries core reading for subject CT4-Models.

Klein J.P. and Moeschberger, M.L.(2003) Survival Analysis: Techniques for Censored and Truncated Data 2nd Edition, Springer Verlag, New York,.

Klugman, S.A.(June 2003), "Estimation, Evaluation, and Selection of Actuarial Models".

Dick London (1997), Survival Models and their Estimation, second edition, ACTEX publications.

Cox, D.R. and Oakes, D.(1984) Analysis of Survival Data, Chapman and Hall, NewYork.

List of Practicals:

Conduct any SIX:

1. Plotting of utility functions.
2. Life table using analytical laws of mortality.
3. Estimation of the empirical survival functions in the absence of censoring.
4. Kaplan-Meier (or product limit) estimate and Nelson-Aalen estimate of the survival function in the presence of censoring.
5. Find the actuarial estimates of Initial and Central Exposed to risk under Binomial and Poisson models of number of deaths observed.
6. Test crude estimates for consistency with a standard table or a set of graduated estimates.
7. Test for smoothness of a set of graduated estimates.

BLUE PRINT FOR THE QUESTION PAPER SETTERPAPER - IV

SURVIVAL MODELS (FOR II B.Sc ACTUARIAL SCIENCE) SEMESTER-IV

Max.Marks:60

Time :2 ½ Hours

CHAPTER NAME	ESSAY QUESTIONS 10 MARKS	SHORT QUESTIONS 05 MARKS	MARKS ALLOTTED TO CHAPTER
I. Principles of Modeling	02	01	25
II. Concepts of Survival Models	02	01	25
III. Estimating the future lifetime distribution	01	01	15
IV. Binomial and Poisson Model	02	02	30
V. Graduation	01	01	15
TOTAL MARKS INCLUDING CHOICE	08	06	110

SAQ=Short answer questions (5M), EQ=Essay questions (10M)

II YEAR B.Sc. (MSAS)-PAPER-IV
SURVIVAL MODELS
SEMESTER-IV
Question Bank

SHORT QUESTIONS

1. Explain necessity of modeling.
2. Write the survival function.
3. Explain concept of right censoring.
4. Explain concept of left censoring.
5. Advantages of multiple state models.
6. Objective of graduation.
7. Effectiveness of duplicate policies on estimates.
8. Limitations of models.
9. Explain truncation.
10. MLE of transition intensities.
11. Force of mortality.
12. Central exposed to risk.

ESSAY QUESTIONS

1. Explain advantages and limitations of modeling.
2. Derive density function of future life time.
3. Explain Gompertz curve in survival models.
4. Explain construction procedure of likelihood function for truncated data.
5. Explain Cox Proportional Hazard model.
6. Mean and Variance of MLE of transition intensities in Poisson model.
7. Explain various methods of graduation.
8. Explain test for goodness of fit of a set of graduated estimates.
9. Explain Kaplan-Meier model.
10. Advantages and disadvantages of multiple state models.

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPERS FOR THE YEAR 2020-21
II YEAR B.Sc. (MSAS)-PAPER-IV
MODEL PAPER
SURVIVAL MODELS
SEMESTER-IV

DATE:
TIME:

Max. Marks: 60

SECTION-A

Answer any **Four** of the following:

4x5=20M

1. Define complete and curtate expectation of life. Derive the relation between them.
2. Define survival function. In a certain population, the force of mortality is given by

	μ_x
$60 < x \leq 70$	0.01
$70 < x \leq 80$	0.015
$x > 80$	0.025

calculate the probability that a life aged exactly 65 will die between exact ages 80 and 83.

3. Relationship between the Kaplan-meier and nelson Aalen estimates.
4. Explain estimating q_x from the data by using binomial data.
5. Define poisson distribution and its model.
6. Explain the need for graduation.

SECTION-B

Answer any **TWO** of the following:

2x10=20M

7. state gompertz and makeham laws of mortality.
8. A mortality table, which obeys gompertz law for older ages, has $\mu_{70} = 0.025330$ and $\mu_{90} = 0.126255$. find the probability that a life aged 60 will survive for 20 years.
9. Write a brief note on censoring.
10. Calculate nelson-aalen estimate $F(t)$ for the following data.

$J: 1$	2	3	4	5	6	7	8	9	10
$t_j: 4$	5	10	11	13	15	17	18	21	22
$d_j: 1$	1	2	1	1	1	2	2	1	1
$n_j: 20$	19	15	13	12	10	8	6	2	1

SECTION-C

Answer any **TWO** of the following:

2x10=20M

11. Derive the maximum likelihood estimator for the rate of mortality in the binomial model and its mean and variance. ?
12. Write statistical properties of maximum likelihood estimates and extending the models?
13. Describe a test for smoothness of a set of graduated estimates ?
14. Describe the reasons for graduating crude estimates of transition probabilities and state the desirable properties of a set of graduated estimates.?