DAC-31.   F.Y. B. Com.   ATKT Exam.- SEM - II (OCT.), **2023**   Time: 3 Hours.

Date: **09 /10 /2023**   Subject: **Accountancy and Financial Management**   Max. Marks: 100

Note: 1) All questions are **compulsory.**
         2) Figures to the right indicate **full marks.**
         3) Working is a part of your **answer.**

1. A) Select the most appropriate answer from the alternatives given below and rewrite the
    sentences: (**Any ten**)   **(10)**
   1. If books are kept under single entry system, credit sales are ascertained by preparing

      _____ .
         a. Total creditors account
         b. Total debtors account
         c. Credit sales account
         d. Trading account
   2. If books are kept under single entry system, credit purchases are ascertained by preparing

      _____.
         a. Total creditors account
         b. Total debtors account
         c. Credit purchases account
         d. Bills payable account
   3. In consignment accounting, to consign means _____
         a. To receive
         b. To purchase
         c. To send
         d. To transfer
   4. Out of the given option which cannot be treated as part of cost of purchase for valuing
      stock on hand.
         a. Packing
         b. Octroi
         c. Delivery charges
         d. Freight
   5. If total stock is rupees 50,000 the value of policy is rupees 70,000 and the entire stock is
      lost, the claim will be for _____
         a. Rs. 70,000
         b. Rs. 35,714
         c. Rs. 50,000
         d. Rs. 60,000
   6. Fire insurance provides cover for _____
         a. Tangible assets
         b. Intangible assets
         c. Fictitious assets
         d. Fixed assets
   7. Bills payable dishonored are debited to _____ account.
         a. Bills receivable
         b. Bills payable
         c. Sundry debtors
         d. Sundry creditors

8. If the rate of gross profit is 25% on sales and the cost of goods sold is rupees 10,000 the gross profit will be _____
    a. Rs. 2,500
    b. Rs. 3,333
    c. Rs. 2,800
    d. Rs. 3,300
9. The relationship between consignor and consignee is that of _____
    a. Principal and agent
    b. Debtor and creditor
    c. Buyer and seller
    d. Owner and servant
10. If the consignee gets _____, he will bear bad debts.
    a. Commission
    b. Del credere commission
    c. Discount
    d. Reward
11. Consignment account is a _____ account.
    a. Personal
    b. Real
    c. Nominal
    d. Cash
12. The amount to be paid by insurance company in the event of loss is called as
    a. Premium
    b. Insurance
    c. Sum assured
    d. Claim

 B) State whether the following statements are **True** or **False** (**Any Ten**)   (10)
1. Income tax act allows small traders to adopt single entry system for keeping books of accounts.
2. Consignment is a sale between the consignor and the consignee.
3. The income, expenses, assets and liabilities of an independent branch can be ascertained only by the head office.
4. Balance in goods sent to branch account is transferred to debit of trading account.
5. In case of over valuation of stock it should be brought down to cost.
6. Sales are ascertained from creditors account.
7. Bills receivable dishonored are credited to bills payable account.
8. Statement of assets and liabilities as on a particular date with missing figure is called as balance sheet.
9. Profit or loss on consignment belongs to the consignor.
10. Consignor is a person who consigns goods.
11. Fire insurance covers death of human beings due to fire.
12. RBI governs insurance business in India.

2 . Mr. Samiksha does not maintain her books of accounts on Double Entry Keeping System. She supplies you the following information: **(20)**
I. Assets and Liabilities as on 1st April, 2017 and 31st March, 2018

Particulars	1-4-2017 (Amount)	31-3-2018 (Amount)
Plant	72,000	72,000
Motor vehicle	1,00,000	?
Sundry debtors	67,000	49,000

Sundry creditors	74,000	59,000
Stock	76,000	1,00,000
Cash and bank balance	3,000	24,000

II. Cash transactions during the year :

Particulars	Amount
Purchase of motor vehicle (on 1-4-2017)	30,000
Capital introduced	30,000
Cash sales	?
Paid for rent	20,000
Paid for salaries	23,000
Received from debtors	2,00,000
Payment made to creditors	1,00,000
Paid to general expenses	17,000
Drawings	36,000
Carriage inward	49,000

1. Depreciation is to be provided on plant @ 10% per annum and motor vehicle @ 20% p.a.
2. Rent outstanding is Rs. 2000.
3. Discount allowed was Rs. 3000 and discount received Rs. 2,000.

You are required to prepare :
1. Trading and Profit and loss account for the year ended 31st March, 2018
2. Balance sheet as on 31st March, 2018.

OR

2. Following are given : (20)
   1) **Balance sheet of A on 1st January, 2013.**
   2) Cash book for cash receipts and cash payments during the year.
   3) Summary of other transactions of 2013.

I.   Balance Sheet as on 1st January, 2013

Liabilities	Amount	Assets	Amount
Bills payable	800	Cash at bank	1,950
Creditors	1,800	Bills receivable	750
Capital	10,100	Debtors	2,000
		Stock	3,000
		Plant and machinery	2,000
		Land and buildings	3,000
	12,700		**12,700**

II.   Cash Book of the year 2013

Receipts	Amount	Payments	Amount
To Balance 1-1-2013	1,950	By Salaries	600
To debtors	13,500	By wages	740
To Bills receivable	4,500	By Bills payable	3,660
		By creditors	7,350
		By Office expenses	400
		By A's Drawings	1,500
		By Balance c/d	5,700
	19,950		**19,950**

III. Summary of other transactions during the year 2013:

Purchases Rs.15,000, Sales Rs.19,000, Discount allowed to debtors Rs.100, Bills receivable during the year Rs.4,550, Bills payable given during the year Rs.7,750, Stock on 31-12-2013 Rs.3,500.

Depreciate plant and machinery by Rs. 200 and land and buildings by Rs. 150.

Prepare Trading and Profit and loss account and Balance Sheet for 2013.

3. Haridas and company of Mumbai consigned 50 bundles of cut piece cloth @ Rs. 700 each to Mukherjee and company of Kolkata to be sold on commission basis. An advance of Rs. 16,000 was received from Mukherjee and company. Mukherjee and company sent an account sale which states that total goods were sold for Rs.56,000 and Rs. 1,800 were paid for carriage, godown rent and port expenses. Their commission was Rs. 2000. They sent a bank draft for the balance amount to Haridas and Company. From the above pass necessary journal entries in the books of Haridas and Company and also show Ledger accounts in the books of the consignor and consignee. **(20)**

OR

3. On 1st November, 2013, C of Calcutta sends goods costing Rs.1,00,000 to D of Delhi on consignment basis, C paid Rs.5,000 as railway freight and Rs.2,000 as insurance.

On 31st December, 2013, an account sales was received from D disclosing that the entire quantity of goods were sold for Rs.1,50,000 ---- out of which Rs.30,000 was sold on credit. A customer who purchased goods for Rs.5,000 failed to pay and the debt proved bad. All other debts were collected by D in full. As per agreement D is allowed a commission @ 10% on sales. D sends the amount due to C by a cheque.

Prepare necessary Ledger accounts in the books of the C and D. **(20)**

4. Ishani enterprises of Mumbai has a branch at Shimla. Following information is obtained from the branch for the year 2018-19. **(20)**

Particulars	1-4-2018 (Amount)	31-3-2019 (Amount)
Stock	60,000	40,000
Debtors	50,000	60,000
Cash	1,500	1,000

Transactions during the year 2018-19 :-

Particulars	Amount
Good sent to branch	2,25,000
Credit sales	?
Cash sales	1,80,000
Goods returned by customers to branch	8,000
Goods returned to head office	6,000
Cash received from debtors	1,50,000
Expenses Paid at Branch :	
Salaries	15,000
Commission	10,000
Rent and taxes	16,500
Discount allowed to customers	2,500
Bad debts	1,000

Prepare following accounts for the branch under Stock and Debtors Method in Mumbai office.
a) Branch stock account
b) Branch debtor account
c) Branch expenses account
d) Branch profit and loss account.

OR

4. A fire occurred in the premises of Avani on 25th August 2013 when a large part of the stock was destroyed. Salvage was Rs.15,000. Avni gives you the following information for the period January 1, 2013 to August 25th, 2013:. **(20)**
a) Purchases Rs.85,000
b) Sales Rs.90,000
c) Goods costing Rs. 5,000 were taken by Avni for personal use.
d) Cost price of stock on January 1, 2013 was Rs.40,000.

Over the past few years Avni has been selling goods at a consistent gross profit margin of 33.33 %. The insurance policy was for Rs. 50,000. It included an average clause.

Avni asks you to prepare a statement of claim to be made on the insurance company.

5. A) What is single entry system ? Distinguish between single entry and double entry system of accounting? **(10)**
   B) Distinction between Ordinary and Del Credere Commission? **(10)**

OR

5. Write short notes (**Any Four**) **(20)**

a) Consignment account
b) Average clause
c) Memorandum trading account
d) Del credere commission
e) Dependent branch
f) Consignment, consignor & consignee.

DAC – 31   F.Y.B.COM SEM-II Exams (ATKT) 2023   Time: 3.00 Hrs.

Date: 06/10/2023   Sub- Business Communication   Max. Marks: 100

Note: 1. All questions are compulsory.

      2. Figure right indicates full marks.

Q.1 (a) Explain the following terms in 2-3 sentences: (any-5)   **(10)**

1. Grievance Interview
2. Notice
3. Role of Chairman in Meeting
4. Conference
5. Resolution
6. Informal Communication
7. FACEBOOK
8. Resume

b. Match the following: **(05)**

	A.		B.
1.	Skype	a)	Public Relation Officer
2.	Reprimand	b)	Video Chat
3.	Minutes	c)	Disciplinary Action
4.	RTI	d)	Record of decision taken in Meeting
5.	Quorum	e)	minimum number of participant required for the Meeting

Q. 2.write a short note on: (any four)   **(20)**

1. Informal Communication
2. Appraisal Interview
3. The role of Secretary during the meeting
4. WASP techniques of conducting interview
5. Consensus

Q. 3.Answer the following questions :(any two)   **(20)**

1. What is Grievance Interview? Why and how should be conducted?
2. Define 'Public Relations'. Discuss what are the internal measures of PRD?
3. Explain in detail the Role of Secretary during the Meeting.

Q. 4. Draft the following letters (any four)   **(20)**

1. Your college needs to replace the water filter cum coolers in the staff-room. Write a letter of inquiry to ABC Company Solutions, Dadar.
2. You have received a complaint about the quality of paper supplied Ruia College in Matunga, Mumbai for their examination work. Your investigations show that the complaint is baseless.
3. Write a sales letter promoting any one of the following :
    1. Personal computer
    2. Television set
4   You have been receiving irregular supply Electricity supply in your residential area for the two months. Draft a RTI letter addressed to the Municipal Corporation asking for reasons for the irregularity.
5   Write a petition in the form of a letter to be presented to the District Consumer Forum about a Television set in your house which has turned to be defective piece that you brought from much advertised Vijay Sales Sion Circle Electronic shop, which ignored all your complaints.

Q.5 Draft a business proposal to be made by Kalpataru Yoga Institute to SIWS College Matunga to start a part-time "Yoga Teacher Training Course "on their premises on revenue sharing basis.   **(10)**

OR

As the Chairperson of the committee that has been appointed to investigate the causes of

Decline in sales at Premier Industries Ltd; Draft your suitable report.

Q.6. Draft a notice and Agenda for a monthly board Meeting of Suresh Cotton Textiles,

Pune. Also draft two following Resolutions.   **(10)**

1. Appointment of Directors.
2. Common seals of the Company.

Q. 7. Summarize the following passage with suitable title.   **(05)**

Faith is the very sum and substance of life without faith human beings cannot achieve anything if we observed all the greatest Endeavors carried out in these world, we find that behind them faith was the sole driving force, without which everything is impossible. A person can set goal for himself, only if he has faith that ultimately he will achieve the goal. Thus faith forms the

foundation of every new achievement, every new invention and every new discovery and every new victory. There is correlation between faith and achievement. It was only because of faith that during the freedom struggle tills the last drop of their blood and freed India from the clothes of British Empire. Faith promoted the great Alexander to march along with his troops to conquer the whole world. Such was his spirit that he never lost faith in abilities and lived the life of a great warrior till his last breath.

_____

Note: 1) All questions are compulsory.
    2) Draw diagrams wherever necessary.
    3) Figures to the right indicate full marks.

Q 1 A) Select the best answer from the given option and rewrite the statement. (Any 10) (10)

  1) Sellers and buyers under- perfect competition have
    A) Complete knowledge   B) Sufficient knowledge
    C) No knowledge   D) Incomplete knowledge

  2) The demand curve faced by firm in perfect competition
    A) Horizontal   B) Flatter
    C) Vertical   D) Steeper

  3) Monopolist usually produce
    A) Less than optimum output   B) More than optimum output
    C) Optimum output   D) None of the above

  4) Monopoly firm is a
    A) Price- taker   B) Price- maker
    C) Supply manager   D) All the above

  5) Product differentiated is the main features of which competition
    A) Perfect competition   B) Monopoly
    C) Monopolistic competition   D) Duopoly

  6) Which of the following is not characteristics of monopolistic competition
    A) Many numbers of the seller   B) Firms are price takers
    C) There is free entry into the market   D) product differentiation

  7) Seller under Oligopoly market behave like a
    A) Group   B) Firm
    C) Industry   D) None of these

  8) Oligopoly is characterized by
    A) Single seller   B) Too many seller
    C) Few sellers   D) Single Buyer

  9) Price leadership avoids
    A)price war   B) New entrants to the market
    C) promotes product differentiation   D) Price rigidity

  10) The Goal of price discrimination is
    A) Profit maximization   B) Social justification
    C) Exploitation   D)Poverty alleviation

  11) Pricing of variety of goods produced by a single firm is called
    A) Dumping   B) Marginal cost pricing
    C) Multi-product pricing   D) Cost-plus pricing

  12) A project would be rejected if its NPV
    A) Zero   B) Negative
    C) Positive   D) One

Q.   1 B) State whether the following statements are True of False (Any Ten)   (10)
  1) A Firm is price taker under perfect competition
  2) In monopoly , the firms and industry are different

3) Advertisement is one of the important feature of monopolistic competition
4) Interdependence is an distinguishing feature of oligopoly
5) Cost plus pricing method is the simplest and most popular method of pricing.
6) Full cost pricing method has certain limitations
7) Capital Budgeting is a long – term investment decision
8) Transfer pricing is never equal to the market price of the product
9) Capital expenditure decisions are often reversible.
10) Price discrimination can be practiced in a perfectly competitive market.
11) In first degree price discrimination each customer is charged different price for same good or service.
12) In dumping, a monopolist is a price taker in the world market.

Q. 2. Attempt A and B or C and D

A) What are the main features of perfect competition?   **(8)**
B) How does monopolist attain equilibrium in the long-run   **(7)**
<center>**OR**</center>

C) What are the sources of monopoly power?   **(8)**
D) Explains different forms of monopoly   **(7)**

Q. 3. Attempt A and B Or C and D

A) Explain the concept of monopolistic competition and its Characteristics. **(8)**
B) Explain selling costs under monopolistic competition.   **(7)**
<center>**OR**</center>

C) Discuss the features of oligopoly.   **(8)**
D) Explain the equilibrium of oligopoly firm facing kinked demand curve.   **(7)**

Q 4 Attempt A and B or C or D

A)   Explain the different degrees of price discrimination   **(8)**
B)   When is price discrimination Profitable?   **(7)**
<center>**OR**</center>

C)   Discuss the full cost and marginal cost pricing.   **(8)**
D)   Discuss the objectives of the price policy   **(7)**

Q 5 Attempt A and B or C or D

A)   Discuss the meaning and Importance of capital budgeting   **(8)**
B)   Explain the concept of Net present value method (NPV)   **(7)**

<center>**OR**</center>

C)   Explain the steps in capital budgeting   **(8)**
D)   Explain payback period method.   **(7)**

Q 6 Attempt A and B

A)   Explain the difference between Perfect competition and monopolistic   **(10)**

competition

B)   Explain the concept of wastages of monopolistic competition.   **(10)**

OR

Q 6:- Write Short note. (Any four)
1. Short-run equilibrium of monopoly Firm incurring loss   **(20)**
2. Cartel
3. Kinked demand curve
4. Price-discrimination
5. Role of advertising
6. Price-war

Note: 1) All questions are compulsory.
       2) All questions have internal choice.
       3) Figures to the right indicate full marks.

Q1 (A) Multiple Choice Questions (Answer any 10 out of 12)   **(10)**

1) _____ are acts or performances performed by one party to another for a consideration.
A) Services   B) Goods
C) Assets   D) Liabilities

2) _____ refers to the communication mix that induces the customer to buy the services.
A) Promotion   B) Price
C) Process   D) Place

3) _____ is the value exchange between the service provider and its customers.
A) Price   B) Product
C) Promotion   D) Place

4) _____ is a systematic approach to solve marketing problems.
A) Service Research   B) Marketing Research
C) Product Research   D) Price Research

5) _____ refers to the various stages in the development of new services.
A) Product Development Cycle   B) Service Development Cycle
C) System Development Cycle   D) Business Development Cycle

6) Customer satisfaction survey helps to retain _____.
A) Dealers   B) Customers
C) Employees   D) Shareholders

7) _____ retail outlets are mainly traditional retail stores which includes general stores, street stores, kiosks, etc.
A) Organized   B) Modern
C) Unorganized   D) Ancient

8) _____ involves location of the store, store design and layout, the type of merchandise to display and sell, etc.
A) Shop Planning   B) Shop Designing
C) Store Planning   D) Store Designing

9) _____ is a contract between two parties from same country or from different countries under which one party transfer a package of rights and resources to other party.
A) Guarantee   B) Lease
C) Franchise   D) Agreement

10) _____ is a contract whereby a firm transfers its processes along with the associated operational activities and responsibilities to a third party.
A) Knowledge Process Outsourcing   B) Service Process Outsourcing
C) People Process Outsourcing   D) Business Process Outsourcing

11) _____ is a business management software that a company can use to collect, store, manage and interpret data from several business activities.
A) SPSS   B) Tally
C) System Application and Products   D) Enterprise Resource Planning

12) _____ is a computerized machine that enables a bank's customers to access their account for withdrawing cash, and to carry out other financial and non-financial transactions.
A) All Time Money   B) Automatic Transfer Machine
C) Any Time Money   D) Automated Teller Machine

Q1 (B) State whether the statement is True or False (Answer any 10 out of 12) **(10)**
    1) The potential service product is the lowest level of a service product.
    2) Place and time does not play any importance in the service mix.
    3) Services can be produced in anticipation of demand.
    4) Service providers need not to conduct marketing research.
    5) Idea screening is not required in service development cycle.
    6) Generally, a firm collects marketing research data from primary data.
    7) Generally, retail franchising is a long term contract between two parties.
    8) Government has opened up 100% FDI in single brand retail outlets.
    9) A career in retail offers a range of occupations more diverse than most other industries.
    10) The credit card encourages lavish expenditure as compared to debit card.
    11) B2B transactions are not very common in India.
    12) Over the years, the e-commerce sales have increased in India.

Q2. Answer the following question (Answer any 2 out of 3) **(15)**
    1) Define Services. Describe its characteristics.
    2) Importance of Service Sector in India.
    3) Explain Levels of Service by Prof. Theodore Levitt's Product Concept.

Q3. Answer the following question (Answer any 2 out of 3) **(15)**
    1) Explain Steps in Marketing Research Process.
    2) Distinguish Between Organized Retailing and Unorganized Retailing.
    3) What is Retail Franchising? Explain the Advantages to the Frenchisor and Franchisee.

Q4. Answer the following question (Answer any 2 out of 3) **(15)**
    1) What is Business Process Outsourcing (BPO). State its Disadvantages.
    2) What is Enterprise Resource Planning (ERP). Explain its Scope.
    3) What is ATM. State it Features.

Q5. Answer the following question (Answer any 2 out of 3) **(15)**
    1) What is E-Commerce? Explain its Features.
    2) What are the factors responsible for the transition to E-Commerce in India.
    3) Explain the stages of B2C.

Q6. Write Short Notes (Answer any 4 out of 6) **(20)**
    1) Pricing of Service
    2) Physical Evidence
    3) Careers in Retailing
    4) Knowledge Process Outsourcing (KPO)
    5) ATM
    6) Debit Card

DAC- 31 F.Y.B.Com   ATKT Exam Sem II (October) 2023   Time: 3Hrs.

Date:07/10/23   Sub: Environmental Studies   Max.Marks:100

N.B. All questions are compulsory carrying 20 marks.

Q.1A   Map Filling (Mumbai)   (10)
a   A slum area
b   An area of bird sanctuary
c   A railway junction on central railway line
d   Mount mery
f   Powai lake
g   Gilbert hill
h   Areas of Marine erosion
i   Kanheri caves
j   Kalbadevi commercial area

Q.1B   Map Filling (Konkan)   (10)
a   Bhimashankar Ghat
b   Kundalika river
c   Murud fort
d   Ganpati Pule
f   Malvan marine sanctury
g   Jawhar hill station
h   Kihim beach
i   Dapoli Agricultural university
j   Tarapur atomic power plant

Q.2   A) Enumerate on the different types of Solid waste & Elaborate on the (10)
preventive measures that can be undertaken to deal with solid waste.

B) Discuss on the harmful effects of solid waste on the Environment & (10)
health of all living organisms.

OR

Q.2   A) What are the problems of landfilling of solid waste?   (10)

Q.2   B) Waste management is one of the biggest problems for an urban (10)
metropolis. Discuss the above given statement with special reference to the
city of Mumbai

Q.3   A) What are the environmental problems created due to commercialization (10)
of agriculture.

B) Give a brief description on the hunger scenario in the world.   (10)

OR

Q.3   A) What are the major environmental problems associated with industries?   (10)

     B) write a note on   (10)
      I. Eutrophication
      ii.Green Business

Q.4   A) Why tourism considered as an emerging service? Give Indian examples   (10)
       to illustrate your answer.

     B) write a note on   (10)
      I. Medical tourism
      ii.Ecotourism

OR

Q.4   A) What are the steps taken by the Indian government to promote tourism   (10)
      in India?

     B) Discuss on the tourism potentials of India & what are the challenges   (10)
     faced by Indian Tourism?

Q.5   A) What are Carbon credits & Carbon Banks? How is India expected to   (10)
     benefit from it?

     B) Elaborate on constitutional & legal provisions towards environment   (10)
     protection in India.

OR

Q.5   A) Discuss the role of GIS in everyday life.   (10)

     B) Write a note on   (10)
     i. Narmada Bachao Andolan
     ii.Save Jaitapur movement

N. B. (1) All questions are compulsory.

     (2) Figures to the right indicates full Marks.

Q. 1 A) Multiple Choice Question (**Any 8**)   **(08)**

1. The term……. refers to freedom to business enterprises from excessive government control.
    a. Privatization
    b. Liberalization
    c. Globalization
    d. disinvestment

2. In the state of…… the number of farmer's suicides is the highest.
    a. Madhya Pradesh
    b. Karnataka
    c. Maharashtra
    d. Chhattisgarh

3. Human rights are derived from the principle of …… law.
    a. Government
    b. Natural
    c. Judicial
    d. human

4 ……. are define as basic human freedoms which every Indian citizen has the right to enjoy for a proper and harmonious development of personality.
    a. Directive Principles of State Policy
    b. fundamental rights
    c. Human Rights
    d. natural rights

5. …… environment provides scope for tourism, sports, wildlife, and adventure.
    a. Natural
    b. Political
    c. Social
    d. organizational

6. An ecosystem is a…. environment consisting of all the living and non-living organism in a particular area.
    a. Geographical
    b. Sociological
    c. Political
    d. biological

7. …. arises when goal directed behavior is blocked or thwarted.
    a. Stress
    b. Anger
    c. Frustration
    d. Violence

8. …. means pre judgement.
    a. Stereotypes
    b. Aggression

      c. Prejudice

      d. Violence

9. …. provide moral and social norms that are essentially desirable for the well-being of an individual in a society.

      a. Values

      b. Behavior

      c. Ethics

      d. Prejudice

10. …. helps to develop the power of concentration.

      a. Physical exercise

      b. Meditation

      c. Time management

      d. social support

Q. 1 B) State whether the following statements are True or False (**Any 7**)   **(07)**

1. Liberalization of Indian economy involves autonomy to public sector units.

2. Forced migration may also be called as forced displacement.

3 The basic human rights help not only in protection but also the preventions of human dignity.

4. Article 17 of the Constitution of India abolishes the practice of untouchability.

5. Natural environment provides renewable sources of energy.

6 Environmental degradations do not affect marine life.

7. Basic human values help to improve standard of living in a society.

8. Teachers alone are responsible for the development of an individual's personality

Q. 2 What in mean by migration? Discuss its causes and impact.   **(15)**

<div align="center">OR</div>

What are the basic fundamental right given by Constitution of India?

Q. 3 Discuss the impacts of environment degradation on human life.   **(15)**

<div align="center">OR</div>

Explain the importance of environmental studies in the current developmental context.

Q. 4 What are the agents of socialization?   **(15)**

<div align="center">OR</div>

What is the significance of ethics in individual development?

Q. 5 Discuss any two fundamental rights.   **(15)**

<div align="center">OR</div>

Q. 5 Short Notes. (**Any 3**)

      a. Privatization

      b. UDHR

      c. Right to Freedom of Religion

      d. Ecology

      e. Violence

DAC – 31.   F. Y. B.Com. SEM- II ATKT Exam. October -2023   Time: 3 Hrs.

Date: 10-10-2023   Subject: Mathematical and Statistical techniques   Marks: 100
_____

Note: 1) All questions are compulsory.
       2) Figures to the right indicate full marks.
       3) Graph papers will be provided on request.
       4) Use of non-programmable calculator is allowed.

Section I

Q.1 Attempt any four of the following.

1. The cost of producing x items is given by $C = x^2 + 9x + 100$. Find Average cost   [5]
   and marginal cost functions. What is the marginal cost when x = 10 ?

2. The total revenue is given by $R = 20 D - D^2$ where D is Demand. Find average revenue   [5]
   revenue and marginal revenue. Also find average revenue when marginal revenue = 0

3. Find elasticity of demand for the following where is D is demand and P is price   [5]
   $D = 25 - 4P - P^2$ at P = 2

4. Find elasticity of demand if average revenue is 60 and marginal revenue is 30.   [5]

5. Differentiate the following with respect to x.   [5]
   i) $y = e^x + \log x – 10 x^3$
   ii) $y = 4x^5 - x^3$
   iii) $y = 6x / \log x$
   iv) $y = 7^x - 5$
   v) $y = e^x$

Q. 2 Attempt any four of the following.

1. What is the amount principal which yields Rs.26,000 in 4 years at 7.5% p.a. simple   [5]
   interest.

2. Shekhar invested Rs.45,000 in bank for some years at 8% p.a. simple interest and   [5]
   Received Rs. 73,800 at maturity .Find number of years of investment.

3. Find the amount and the compound interest on Rs. 15,000 at 7.5 % p.a.for 2 years.   [5]
   If the interest is compounded annually.

4. What is the EMI on Rs. 40,000 at 10 % interest for one year. Find using   [5]
   i)   Interest on reducing balance
   ii)   Flat interest rate

5. Harish took a loan of Rs. 50,000 for 2 months at 10 % p.a. on reducing balance.   [5]
   Compute the EMI. Also find the interest and principal component for all 2 months.

Q.3 Attempt any four of the following.

1. Calculate Spearman's Rank Correlation Coefficient and State the type of   [5]
    Correlation

Marks obtained in Math's	30	45	15	60	40
Marks obtained in Stats	40	50	10	55	42

2. What is Scatter diagram and explain the types of Correlation with Scatter diagram?   [5]

3. Given the regression equations x on y is $8x - 3y - 28 = 0$ and y on x is   [5]
    $3x - 16y + 49 = 0$
    Find
    i)   Estimate x when $y = 20$
    ii)   Coefficient of Correlation r .

4. Given the following data, find the two regression equations and estimate y   [5]
    when $x = 15$. Also estimate x when $y = 5$.
    Mean value of $x = 4$ and Mean value of $y = 9$. Standard deviation of $x = 2$
    Standard deviation of $y = 1$ Coefficient of correlation $r = -1$.

5. Calculate Karl Pearson's Coefficient of Correlation and hence State the type of   [5]
    Correlation.
    Sum of x values $=30$, Sum of y values $= 40$, Sum of product of x and y values $=110$,
    Sum of square of x values $= 96$, Sum of square of y values $= 250$, No. of pairs $= 10$.

Q.4. Attempt any four of the following.

1. Define Time series. Explain the components of time series.   [5]

2. Find 3 yearly moving averages.   [5]

Year (X)	2002	2003	2004	2005	2006	2007	2008
Production In quintals (Y)	19	24	25	21	24	26	25

3. Fit the straight line trend by the method of least square for the data given below.   [5]
   Estimate trend for the year 2017.

X	2012	2013	2014	2015	2016
Y	1.5	1.4	1.3	1.1	1.2

4. For the following data Calculate i) Laspeyre's ii) Pasche's [5]
iii) Fisher's Index number

Commodity	Current Period		Base period	
	Price	Quantity	Price	Quantity
A	9	10	6	7
B	15	12	15	10
C	25	6	30	5
D	50	2	40	2

5. Calculate cost of Living Index Number by Family Budget Method. [5]

Items	Index Number	Weights
Food	420	60
Clothing	320	40
Rent	200	30
Fuel	120	50
Education	250	20

Q. 5. Attempt any four of the following.

1. Define Poisson distribution. State the properties of Poisson Distribution. [5]

2. Given Mean and Variance of Binomial Distribution of 6 and 2.4. Find [5]
   Probability of all Successes.

3. Given n = 5, p = 3/5. Find Mean and Variance of Binomial Distribution. [5]

4. Given random variable X follows Poisson Distribution with mean 2.Find [5]
   P[X=0] , P[X=1] ,P[X=2].Given e^{-2} = 0.135 .

5. For a standard Normal variate Z given the area between (Z = 0 to Z = 2) is [5]
   0.4772. Find Area between
   (i)   Z = 2 to Z= ∞   (ii) Z = -2 to Z = 0   (iii) Z = -2 to Z = 2