Time: Three hours (11:00 AM TO 2:00 PM) **Marks: 100**

Notes:
1. All questions are compulsory
2. Each question carries **Twenty Marks**.
3. Working Notes should form part of your answer.
4. Use of simple calculator is allowed.

Q.1 A) State whether following statement is True or False: (Any Ten) (10 Marks)

i. The relationship between the consignor and consignee is that of Principal and Agent.
ii. Proforma Invoice is prepared by the Consignor.
iii. Consignee sends to consignor Account sales.
iv. Sundry Debtors Account does not include cash sales.
v. Dependent Branch does not maintain Books of Accounts.
vi. Under the stock and Debtors method, opening balance of Debtors is debited to Branch A/c
vii. Independent Branch maintains Books of Accounts.
viii. Under the Debtors method, closing balance of Furniture is Debited to Branch A/c
ix. Fire insurance Covers risk of profit
x. Salvage refers to Stock lost in fire
xi. In single entry two effects of every transaction are recorded.
xii. Consignee gets salary from cosigner for his services.

Q1B) Match the Following Columns (Any ten) (10Marks)

Column A	Column B
Ownership right of the consignment is always with the	From 1st Day of Memorandum Trading Account to the date of fire
Del Credere Commission is calculated on	Stock on the date of fire less Salvage
Stock on the date of fire	Consignor
Gross Profit	Trading Account
Period of Memorandum Trading Account	Memorandum Trading Account
Loss of Stock	Credit Sales
Salvage	Credit to Branch Adjustment Account
Cash received from Branch Debtors	Goods Saved from Fire
Adjust Loading on goods sent to Branch	Profit and Loss Account Debit Side
Rent Paid	Debit to Branch Cash Account
Credit Purchase	Debtors Account
Credit Sales	Creditors Account

Q.2 A) Anand of Andheri sent on consignment to Banarjee of Bandra 100 machines costing Rs.300 each. The consignor paid Rs.2,000 by way of frieght. Banarjee spent Rs.1,000 by way of godown rent and other expenses. At the end of the year 10 machines remaining unsold with Banarjee. The consignee sold machines @ Rs.400 per machine. Banarjee remitted the sale proceeds after deducting expenses and her commission which was 5% of the goods sold.
Prepare Consignment Account and Consignee's Account in the books of the consignor.

OR

Q2 B) On 1st April 2022, there was fire in the premises of Meghna Enterprises.

Sales	For the year ended 31-12-2021	12,00,000
	For the Jan and Feb 2022	1,20,000
Purchase	For the year ended 31-12-2021	5,47,500
	For the Jan and Feb 2022	36,000
Stock (At Cost) As on 1-1-2021		1,50,000
As on 31-12-2021		67,500
Wages for the year ended 31-12-2021		1,62,000
Other direct expenses for the year ended 31-12-2021		1,08,000

Further Information:
The sales and purchase for the month of march 2022 may be assumed as having been made at the same rate as in past two months.
In Jan 2022 a theft had taken place as a result of which goods selling price of Rs. 9,000 were lost. Wages and other direct expenses may be taken after 31-12-2021 at the same rate on sales as in the year 2021.
Insurance policy was taken for Rs. 40,000. There was an average clause in the policy. Salvage Rs. 10,000. Compute Insurance Claim.

Q.3 A) Tarak Chemicals of Mumbai have their branch at Baroda. Prepare the branch account and Branch total debtors Account in the books of the head office from the following transactions with the branch:

	Rs.
Opening balances at branch:	
Petty cash	625
Stock	38,500
Debtors	20,625
Goods supplied to branch during the year	1,89,000
Amounts remitted by the branch:	
Cash sales	13,125
Realizations from debtors	2,09,675
Amount remitted by the branch for:	
Petty cash expenses	3,750

Salary	9,250
Rent and taxes	3,000
Closing balances at branch:	
Petty cash	940
Debtors	63,075
Stock	28,940

OR

Q3B) Mumbai Ltd. sends goods to its Chennai branch at cost plus 25%. The following particulars are available in respect of the branch for the year ended 31st March, 2022

	Rs.
Opening stock at branch at cost to Branch	80,000
Goods sent to branch at invoice price	12,00,000
Loss in transit at invoice price	15,000
Pilferage at invoice price	6,000
Sales	15,00,000
Expenses	60,000
Closing Stock at Branch at cost to branch	40,000
Recovered from insurance Co. against Losses in transit	10,000

Show following ledgers account in Head Office books
    Branch Stock Account.
    Branch Adjustment Account.
    Branch Profit & Loss Account.

Q4Ai)   (10Marks)
Mr. Joy prepares account on 30th September each year, but on 31st December, 2021 fire destroyed the greater part of stock. Following information was collected from the books:

Particulars	Rs.
Stock as on 1-10-2021	1,78,200
Purchased from 1-10-2021 to 31-12-2021	4,50,000
Wages from 1-10-2021 to 31-12-2021	1,98,000
Sales from 1-10-2021 to 31-12-2021	8,40,000

The rate of gross profit is 331/3% on cost. Stock to the value of Rs. 25,000 was salvaged. Insurance policy was for Rs. 1,40,000 and claim was subject to average clause.
Additional Information:
(1) Stock in the beginning was calculated at 10% less than cost.
(2) A plant was installed by the firm's own worker. He was paid Rs. 3,000, which was included in wages.
(3) Purchases included the purchases of the plant for Rs. 30,000.
    You are required to calculate the claim for the loss of stock

Q4Aii) (10Marks)

From the following information from Mr. Zariwala, Prepare Debtors Account and Bills Receivable Account.

Particulars	Rs.	Particulars	Rs.
Capital in the beginning	300000	Cash paid to suppliers	75000
Cash in hand in the beginning	100000	Returns inwards	21750
B/R in the beginning	19500	B/R Dishonoured	4500
Debtors (Opening)	77000	B/R at the end of the year	15000
Cash received from Mr. Joy as loan	25000	Debtors at the end of the year	63750
Cash received from Debtors	175000	Cash Sales	102250
B/R encashed during the years	52250		
Bad Debt	7000		
Return outward	25000		
Credit Purchase	375000		

OR

Q4B) Mr. Rohan does not maintain proper books of accounts from the following information prepare trading and profit and loss account for the year ended 31-3-2022 and a balance sheet as on that date. Depreciate plant and machinery @ 5% p.a. and furniture @ 10% p.a. and also provide interest receivable on investment.

Assets and Liabilities	1-4-2021 (Rs.)	31-3-2022 (Rs.)
Plant and Machinery	280000	280000
Furniture	20,000	20,000
Stock	88,000	1,20,000
Debtors	1,62,000	225000
Creditors	54,000	45,000
6% Investment	1,00,000	1,00,000
Cash	40000	43200

Analysis of Other Transaction:

Particulars	Rs.
Cash paid to creditors	396000
Cash received from debtors	547200
Salaries	1,08,000
Rent	15,000
Office expenses	38,000
Drawings	27,000
Additional capital introduced	20,000
Cash sales	70,000
Cash purchases	50,000
Discount received	6,300
Discount allowed	2,700
Return inward	9,000
Return outward	7,200
Cash on 1-4-2021	40,000
Bad debts	1800

Q5 Answer the following:
a) Explain in detail Branch Account.
b) Explain the Accounting Process of computing fire insurance claim for the loss of stock.

OR

Q.5 Write short notes on (any Four) (Five marks each)
   a. Types of commission to consignee
   b. Distinguish between Branch and Department
   c. Average Clause
   d. Debtors Ledger Account
   e. Single entry
   f. Consignment Account

Duration: Three Hours   **Marks : 100**
N.B. 1. All questions are compulsory.
      2. Figures to the right indicate full marks.

Q.1 a) Explain the following terms in two to three sentences each. (Any five)   **10**

  i) Leadership in GD

  ii) Selection Interview

  iii) Technical sessions in a conference

  iv) Agenda

  v) Press release

  vi) Webinar

  vii) Findings in a report

  viii)Time and cost in proposals

Q.1 b) Match the following.   **05**

A	B
Resolution	Prescribed Format
Appraisal Interview	Formal decision taken at a meeting
Internal PR	Offers accountability
Formal Report	Connects employees at various levels
Signature	Improve job performance

Q.2 Write short notes on any four of the following.   **20**

i) Significance of Group Discussion in selection process

ii) Grievance Interview

iii) WASP technique of conducting an interview

iv) Role of the Chairperson in a meeting

v) Types of meetings conducted

vi) Advantages of meetings

Q.3 Answer the following question: (Any two) 20

i) What are the various types of committees? Explain each one in brief.

ii) What is a conference? Describe various pre-conference activities.

iii)State the different PUBLICS of Public Relations and show how external and internal communication caters to the needs of these publics.

Q.4 Draft the following letters: (Any four) 20

a) Write a letter of inquiry to Excellent Stationery Ltd. enquiring about various types of stationery products that you wish to buy for your shop.

b) Sujit Motors, Aurangabad has received a consignment of automobile products from Solid Motors, Pune in a damaged condition. Write a complaint letter on their behalf.

c) Draft a sales letter for the promotion of any one of the following:

   i) A new brand of ear phones

   ii) A smart phone

d) Dr. Mehta ordered new brand of medical apparels for his clinic from Surgical House Limited. However, the product received were torn and total numbers of apparels were less than ordered. The company did not respond in spite of the repeated mails sent to the company. Write a petition in the form of a letter to be presented to the District Consumer Forum.

e) Your application for a two-wheeler loan is not processed despite you having completed all the formalities of ABC Bank, Mumbai. Draft a RTI petition to question the delay.

Q.5 a) Draft a business proposal to be made by Vahini Mahila Gruh Udyog to be submitted to Rimjhim Departmental Store to start a "Pickle & Spices Corner" at their Strore premises on revenue sharing basis. 10

OR

b) A committee has been set up to investigate the possibility of starting a branch of "ABC Book Store". Draft the report of the committee with a covering letter making suitable recommendations. 10

Q.6 Draft the Notice and Agenda of the 45th Annual General Meeting of Kadak Footwears Ltd. Also draft the following resolutions: 10

   a) Declaration of Dividend

   b) Appointment of Secretary

Q.7. Summarize the following passage and give it a suitable title.

Evidence of the psychological and spiritual poverty of the rich and famous fills our newspapers, magazines, tabloids, and television programmes and hardly needs repeating here. "We always think if we just had a little bit more money, we'd be happier," says Catherine Sanderson, a psychology professor at Amherst College, "but when we get there, we're not." "Once you get basic human needs met, a lot more money doesn't make a lot more happiness," notes Dan Gilbert, a psychology professor at Harvard University and the author of the new book Stumbling on Happiness.

Yes, we get a thrill at first from expensive things. But we soon get used to them, a state of running in place that economists call the 'hedonic treadmill'. The problem is not money, it's us. For deep-seated psychological reasons, when it comes to spending money, we tend to value goods over experiences.

Money can help us find more happiness, so long as we know just what we can and cannot expect from it. Many researches suggest that seeking the good life at a store is an expensive exercise in futility. Money can buy us some happiness, but only if we spend our money properly. We should buy memories.

How much money it costs is not the issue, but how much the money costs us is important. Money should not cost us our soul, relationships, dignity, health, intelligence and joy in simple things of life. People who figure out what they truly value and then align their money with those values have the strongest sense of financial and personal well-being.

(Source:https://www.thehindu.com/opinion/open-page/Money-is-important-but-how-much-do-you-need/article16837896.ece)

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28/9/2022

Time 3 hrs   Marks 100

N.B. 1. All questions are compulsory.
2. All questions have internal choice.
3. Use of simple calculator is permitted.
4. Figures to the right indicate full marks.
5. Draw neat diagram wherever necessary.

Q.1 (A) Choose the most suitable answer from the given options and rewrite the

statement. (Any Ten)   10

1. The demand curve for a firm under perfect competition is _____.
   a) Vertical   b) Horizontal   c) Downward sloping   d) upward sloping

2. A Natural monopoly is attributed to _____.

   a) Government policy   b) Big market   c) Control over the raw materials

   d) Economics of scale

3. Excess profit is also known as _____ profit.

   a) Sub Normal   b) Super Normal   c) Normal   d) Minimum

4. In the long run a firm in Monopolistic competition will earn_____.

   a) Loss   b) Excess profit   c) Normal Profit   d) Sub Normal Profit

5. Price leadership avoids_____.

   a) Price war   b) Product Movements c) Product differentiation

   d) Promotion of products

6. The concept of kinked demand curve was developed by _____.

   a) Paul Samuelion b) Paul Sweezy   c) Stigler   d) Peter Drucker

7. _____is an intra firm trading of goods & services.

   a) Dumping   b) Marginal cost pricing   c) Cost plus pricing

   d) Transfer Pricing

8. Cost plus pricing is also known as _____.

   a) Transfer pricing   b) Dumping   c) Full cost pricing

   d) Marginal cost pricing

9. Under _____ price discrimination seller takes away all the consumer's surplus.

   a) First Degree   b) Second Degree   c) Third Degree   d) Fourth Degree

Q.5 Attempt A and B OR C and D.

A. Elaborate the Significance of Capital Budgeting.   07

B. In the following table there are four projects with the Initial investment and Annual cash flows. Calculate the payback period for each project and rank the project.

08

Project	Initial Investment	Annual cash flow
A	60,000	15,000
B	40,000	8,000
C	30,000	15,000
D	20,000	20,000

C. Write a note on Net Present value method of project evaluation.   08

D. Explain the Internal Rate of Return criteria of Investment appraisal.   07

6. Attempt A and B OR Write short notes on any four.

A. Explain different Degrees of Price Discrimination.   10
B. Discuss in detail the arguments for and against advertising.   10

OR

6. Write short notes. (Any Four)   20

i) Competitive firm's supply curve

ii) Sources of Monopoly

iii) Price Leadership

iv) Transfer pricing

v) Steps in Capital budgeting

vi) Cartel

F.Y. Bcom. Sem II A.T.K.T. Exam sept oct 202

Sub:- Commerce II

Duration:3 hrs.   **Marks: 100**

N.B. 1. All questions are compulsory
      2. Figures to the right indicate full marks

Q.1. (A) Fill in the blanks with the appropriate option given in the bracket: (Any10)   (10)

1.Highest level of services expectations is termed as _____ services

a. Adequate   b. Desired   c .Maximum   d. Minimum

2.When service performance is within the zone of tolerance customers are likely to be _____.

a. Satisfied   b. Dissatisfied   c. Maximum   d. Minimum

3.Customers satisfaction survey helps to retain_____.

a. Government   b. Customers c. Dealers   d. Shareholders

4.Service marketers faces the challenges of _____.

a. Intangibility   b. Tangibility   c. Serviceability   d. Zoning

5._____ is the first store to set up a shop in a mall.

a. Food Court   b. Convenience stores c. Anchor Client d. Outlet

6.Signage includes _____.

a. Zoning   b. Price list c. Logo   d. Documents

7._____card encourages lavish spending on the part of the user.

a. Adhar Card b. Credit Card   c. Ration Card   d. Smartcard

8.ERP software allows organization to use a _____ system of application.

a. Isolated   b. Outdated   c. Integrated   d. Present

9.BPO enables business firms to focus on _____activities.

a. Routine b. Core c. Daily   d. Weekly

10.EDI facilitates transactions of _____ trade exchanges.

a. First – Time b. One-Time   c. Recurrent d. Every

11.E-Commerce transactions are conducted with the help of _____channel.

a. Indirect   b. Direct   c. Long   d. Short

12._____management is an important element of logistics.

a. Inventory   b. Banking c. Retail   d. Insurance

(B) State whether the following statements are True or False (Any10)   **(10)**

1. Service providers always visit the customers site to provide services.

2. Services are generally tangible in nature

3. Service providers need to conduct marketing research.

4. Concept Testing is done to find out the acceptability of a new service.

5. Exit of a store must be overcrowded with goods.

6. Facility management at a mall involves only infrastructure management.

7. ATM cards create inconvenience to the customers.

8. Information technology does not play a significant role in logistics.

9. Internet banking offers banking services only for fixed hours.

10. B2B transactions are not very common in India.

11. Bricks and Mortar (BAM) stores are online stores.

12. E-Commerce permits audience sizing to the marketer.

Q.2.Answer the following (Any 2)   **(15)**

a. Describe in brief element of marketing mix for services

b. Discuss in brief strategies for managing capacity and its demand.

c. Explain in brief the challenges in service sector.

Q.3. Answer any two of the following   **(15)**

a. Discuss the growth of organised sectors in India.

b. What are the challenges of retailing in India?

c. Explain the impact of FDI in retailing in India.

Q.4. Answer any two of the following   **(15)**

a. Explain BPO. Discuss the Demerits of outsourcing.

b. Distinguish between Debit cards and Credit Cards.

c. Describe in brief the challenges for logistics in India.

Q.5. Answer any two of the following   **(15)**

a. What is E-commerce? Explain its features.

b. Write down the advantages and Limitations of online marketing research.

c. Explain the challenges for Indian corporates on account of transition of e commerce in India.

Q.6. Write any four short notes from the following   **(20)**

a. Service product

b. Types of service expectation

c. Objectives of Promotion in Service Industry

d. Advantages of Franchising

e. Careers in retailing

f. Advantages of Business to Consumers (B2C)

****

Duration : 3 Hrs

Total Marks: 100

Instructions:

- ❖ All Questions are <u>COMPULSORY</u>.
- ❖ Numbers to the right indicates marks allotted per question.
- ❖ Attach the Map supplement to the main answer book.
- ❖ Draw appropriate figures and diagrams wherever applicable.

Q.1. (a) On the Outline map of Mumbai provided to you, mark and name the following   (10)

- i.   A famous pilgrim centre.
- ii.   A polluted river.
- iii.   A fort site.
- iv.   A bird sanctuary.
- v.   An area subject to air pollution due to conventional power plant.
- vi.   An area affected by landslides and rockfalls.
- vii.   A kharland region.
- viii. A major slum area.
- ix.   A sinking area.
- x.   An area subject to noise pollution due to road transportation.

(b) On the Outline map of Konkan provided to you, mark and name the following   (10)

- i.   An area subject to Marine erosion.
- ii.   An area subject to intensive quarrying and mining activity.
- iii.   An earthquake prone region.
- iv.   An area subject to air pollution due to chemical, petrochemical and pharmaceutical industry.
- v.   A region rich in mangroves.
- vi.   An area having air pollution due to cattle sheds.
- vii.   An area of natural beauty in Raigad district.
- viii. An area of historical and archaeological significance.
- ix.   An area subject to noise pollution due to industrial workshops.
- x.   A non-conventional energy site.

Q. 2. Attempt <u>any two</u> of the following:

- a)   Classify the different forms of Solid Waste and elaborate on any one form in detail.   (10)
- b)   What is waste management? Discuss on the methods used for waste management for the city of Mumbai.   (10)
- c)   Write a brief note on the effects of Solid Waste on human health.   (10)

Q. 3. Attempt **any two** of the following:

a) What is water pollution? Explain the different types of water pollution. (10)

b) What is the meaning of term Sustainable Agriculture? Discuss the techniques of Sustainable Agriculture. (10)

c) Write a detailed note on loss of soil productivity. What are its causes and impact? (10)

Q. 4. Attempt **any two** of the following:

a) Discuss on the tourism potentials of India and what are the tourism challenges faced by the country?

b) Elaborate on the various types of tourism. (10)

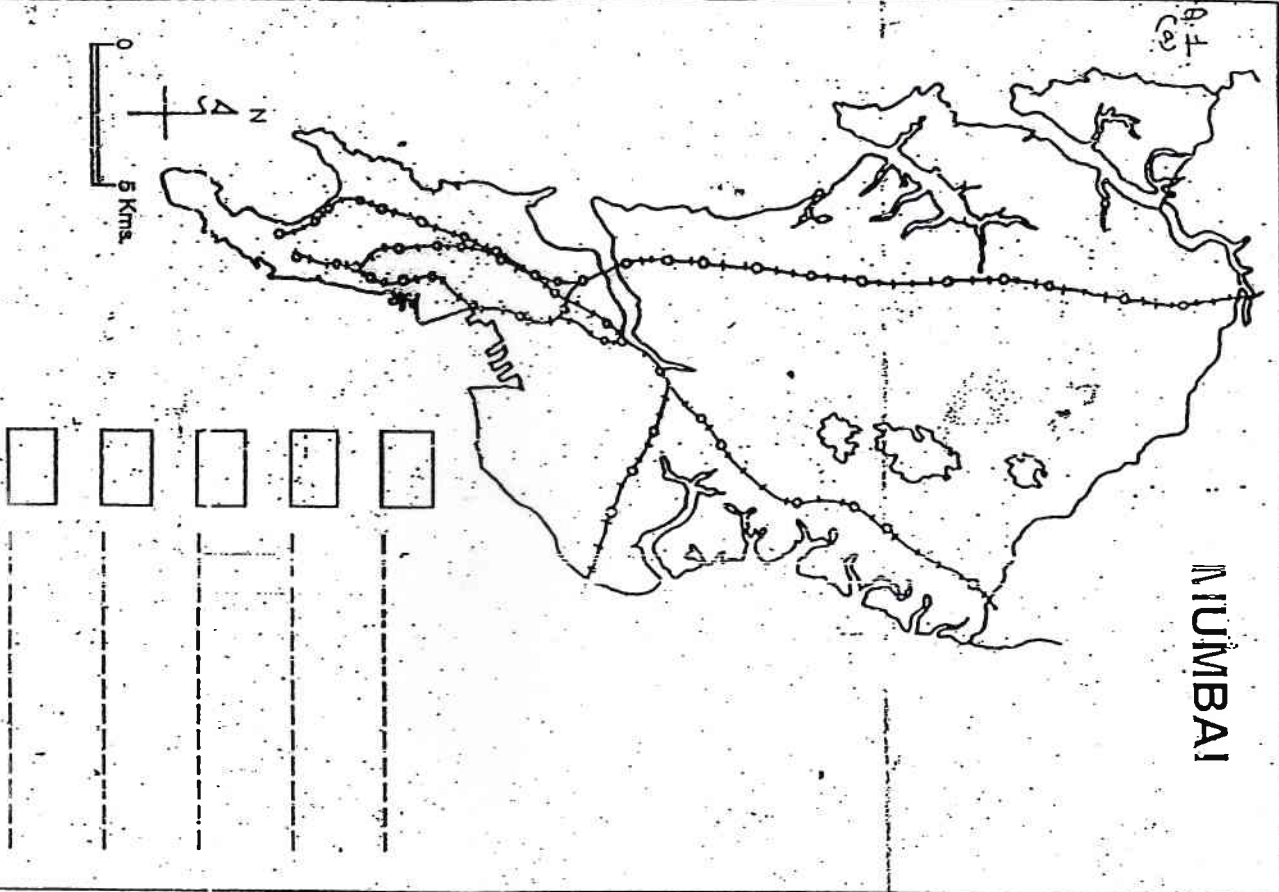c) Explain with suitable examples the concept of Eco-tourism. (10)
(10)

Q. 5. Attempt **any two** of the following:

a) Deliberate on 'Save the Narmada Valley Movement' and the 'Appiko Movement'. (10)

b) What are Carbon Credits? Discuss on its significance to India. (10)

c) Write a brief note on Geo Spatial Technology with specific relevance to its application in Environmental Management.
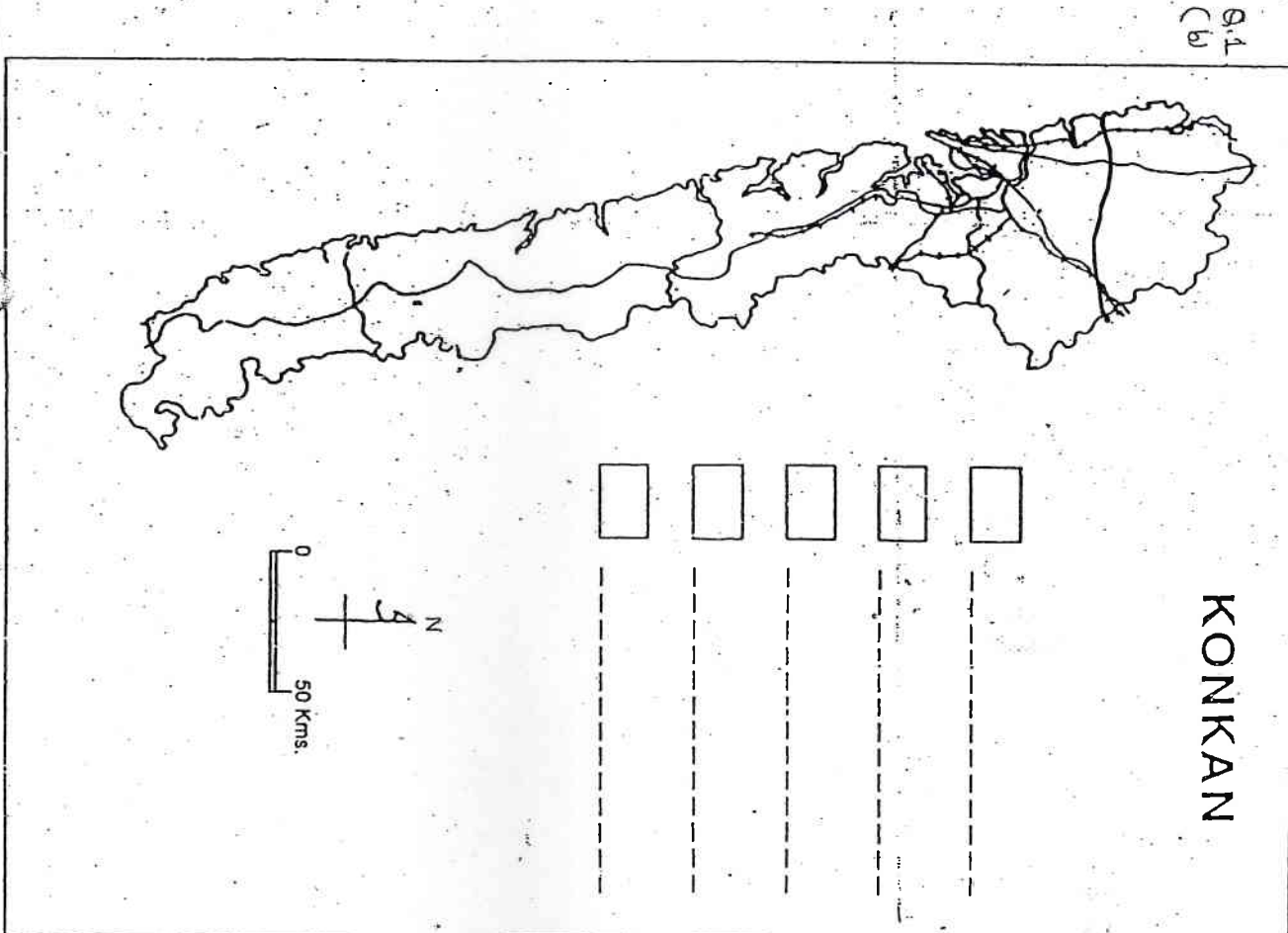
(10)

XXXXXXXXXX

Q. 1
(a)

MUMBAI

Q. 1
(b)

KONKAN

F.Y.B.com. Sem II. A.T.K.T.
Exam. Sept. 2022
Sub.:- F.C. II

27/9/2022

Marks: 75

Time: 2.30 Hours

N.B. (1) All questions are compulsory
   (2) Figures to right indicate full marks.

1.(a) Choose the right alternative (Any Eight)   (8)

i. Migration of people unwillingly away from their hometowns is known as

   _____.

   a) Forced migration b) Internal migration c) international migration

ii. GATS is defined as _____

   a) General Area Transport system b) General Agreement on Trade in Services c) General account transaction service

iii. _____ was the chairperson in framing the Indian constitution.

   a) Jawaharlal Nehru b) Sardar Vallabhbhai Patel c) Bhimrao Ramji Ambedkar

iv. India obtained independence on _____.

   a) 15th August 1947 b) 15th August 1948 c) 15th August 1949

v. Aquatic Ecosystems are found in _____.

   a) Desert b) Grassland c) Ponds

vi. The herbivorous animals consuming plants and grasses are called as_____.

   a) Primary consumers b) Secondary consumers c) Tertiary consumers

vii. _____ often pose conflicts in society.

   a) Apology and forgiveness b) Stereotypes and prejudice c) organisation stress

viii. After home, children spend more time in _____

   a) School b) Garden c) Neighbourhood

ix. Conflicts between two people at work place is called _____ type of conflict.

   a) Intra personal conflict b)Inter personal conflict c) Inter group conflict

x. Maslow identified _____ set of needs.

   a) Two b) Five, c) Six

1.(b) State whether the following statements are True or False : (any seven) (7)

i. Make in India was launched by the Manmohan Singh government.

ii. TRIPs stands for Trade Related Intellectual Property Rights.

iii. UDHR stands for Universal Declaration of Human Rights.

iv. Right to education is not the fundamental right in India.

v. Saltation is removal of soil and minerals by wind, water or gravity.

vi. Plant or grass eating animals are called as secondary consumers.

vii. Casteism refers to hereditary social classes.

viii. Eustress is also known as positive stress.

ix. Transcendence needs include search for knowledge.

x. All individual has same set of needs.

2. Explain the concept of globalisation and its impact on Indian economy (15)

OR

2. Write a note on the globalisation and changes in farming sector leading to the farmers suicide.

(15)

3. Describe Right to Freedom in detail (15)

OR

3. Elaborate on the significance and characteristics of fundamental rights. (15)

4. What is Environment? Explain its importance in context of development and how it helps to gain natural capital (15)

OR

4. Explain the Disciplines of Ecology. (15)

5. Write a detailed note on Maslow's Theory of Self -Actualization (15)

(15)

OR

5. Write short notes on (Any three)

(i) Types of migration (15)

(ii) Cultural and Educational rights

(iii) Population and Environment

(iv) Importance of ethics

(v) Types of conflict

*****

Duration: 3 hours

N.B.:

1. All five questions are compulsory.

2. Each question carries 20 marks and each sub question carries 5 marks.

3. Use of a simple calculator is allowed.

4. Use of a scientific calculator, digital diary or a mobile phone is not allowed.

5. Graph papers will be provided on request.

Q.1 **Attempt any FOUR of the following.**

a Find derivative of the following functions   5
    i) $y = 4x^7 + \sqrt{x} - \log x + 25$
    ii) $y = (x^5 + 4x^3 + 3)(x + 1)$

b The demand and supply functions for a commodity are given by P=14-D   5
and P=6+3D respectively. Find the equilibrium price and quantity.

c The total cost function is given by C= $3x^2 - 5x + 12$. Find the average cost,   5
marginal cost and the marginal average cost when x =5.

d The total revenue function is given by R=$4x^3 - 72x^2 + 420x + 100$. Find x for   5
which the total revenue is maximum.

e The demand function is D=$\frac{2P+5}{P-2}$, where D=demand and P = price. Find the   5
elasticity of demand when price is 10.

Q.2 **Attempt any FOUR of the following.**

a The difference between simple interest & compound interest on a certain   5
principal amount for 3 years at 6% rate of interest p.a. is Rs.13.50, find the
principal amount.

b Mr. A deposits Rs. 12,000/- at the end of each year in a bank at 8% p.a.   5
compound interest. Calculate the accumulated amount after 4 years.

c Raj invested Rs.40,000/- in fixed deposit for 2 years at a certain rate of   5
compound interest p.a. in a bank. After 2 years he got Rs.48,400/- as the
accumulated amount. Calculate the rate of interest.

d A car was purchased at a certain price. Its value after one year was   5
Rs.3,12,800/- with a certain rate of depreciation. Further its value decreased
to Rs.2,87,776/- after 2 years. Find original price of the car & rate of
depreciation p.a.

e Mr.B takes a loan of Rs. 1,20,000/- from a bank for a period of 8 months.   5
Calculate the EMI at 12% p.a. on reducing the balance method.

Q.3 Attempt any FOUR of the following.

a Explain the concept of correlation with the help of Scatter diagrams. 5

b Calculate Spearman's rank correlation coefficient (correct up to 3 decimal places) for the following data. 5

X	160	154	160	140	152	190	151
Y	130	169	121	121	90	121	80

c From the following data, calculate Karl Pearson's correlation coefficient (correct up to 3 decimal places) 5

X	21	22	23	24	25	26	27
Y	15	10	12	16	11	14	13

d Given that means of two variable X and Y are 8 and 10 and their variance are 25 and 36 and coefficient of correlation is 0.20 find likely value of y when x=20. 5

e If regression equation Y on X is $x - 6y + 9 = 0$, and regression equation X on Y is $x - 3y + 11 = 0$ find (i) the coefficient of correlation and (ii) the mean values of x and y. 5

Q.4 Attempt any FOUR of the following.

a Write a short note on time series. 5

b Calculate 4 yearly moving averages from the following time series, also plot the moving averages on graph paper. 5

Year	2014	2015	2016	2017	2018	2019	2020	2021
Sales	150	160	110	190	150	140	120	110

c Fit a straight-line trend for the following data, estimate the trend for the year 2021. (Note: Write all values correct up to 3 decimal places) 5

Year	2013	2014	2015	2016	2017	2018	2019	2020
Production	10	12	13	15	18	19	21	24

d Calculate Laspeyre's, Paasche's and Dorbish-Bowleys price Index Number   5
from the following data

Commodities	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	100	3	150	6
B	200	6	300	10
C	150	2	200	5
D	300	4	400	7

e **Construct Index Number using Family budget method for the following**   5
data:

Commodity	Base year price	Current year price	Weights
A	10	50	10
B	20	70	30
C	30	80	20
D	40	100	10

Q.5 **Attempt any FOUR of the following.**

a If the Mean of a Binomial Distribution with 7 trials is 3, find the probability   5
of i) zero success, ii) one success, iii) ither two or three successes iv) at
least 5 successes.

b For a Binomial distribution if X in usual notation, probability of   5
success "p" is equal to probability of failure "q" and P $(x = 3) = $ P $(x = 4)$
find the mean and hence find i) P $(x = 5)$, ii) P $(x = 6)$, iii) P $(4 < x \le 6)$.

c If X follows Poisson distribution with mean is 5 then, find   5
i)P $(x = 0)$, ii) P $(x = 1)$, iii) P $(x \le 1)$, iv) P$(x \ge 1)$.
[Given: $e^{-5} = 0.0067$]

d If X follows normal distribution with mean 45 and standard deviation 5,   5
find i) P $(x \le 35)$, ii) P $(x \ge 55)$. iii)P $(35 < x \le 55)$. [Given: area under
the curve between $z = 0$ and $z = 2$ is 0.4772]

e If X follows a normal distribution with mean μ and standard deviation σ 5
then, write the probability density function of Normal Distribution and State
any four characteristics of Normal Curve.

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