

# Question Paper Set of

F.Y.B.COM – Sem-I

**REGULAR**

University of Mumbai

November, 2022

4) Fujiyama mountain

5) Peru

9) Highest polluted country- china

10) The Equatorial line

2.11.2022

Marks:100

Duration: 3 hrs

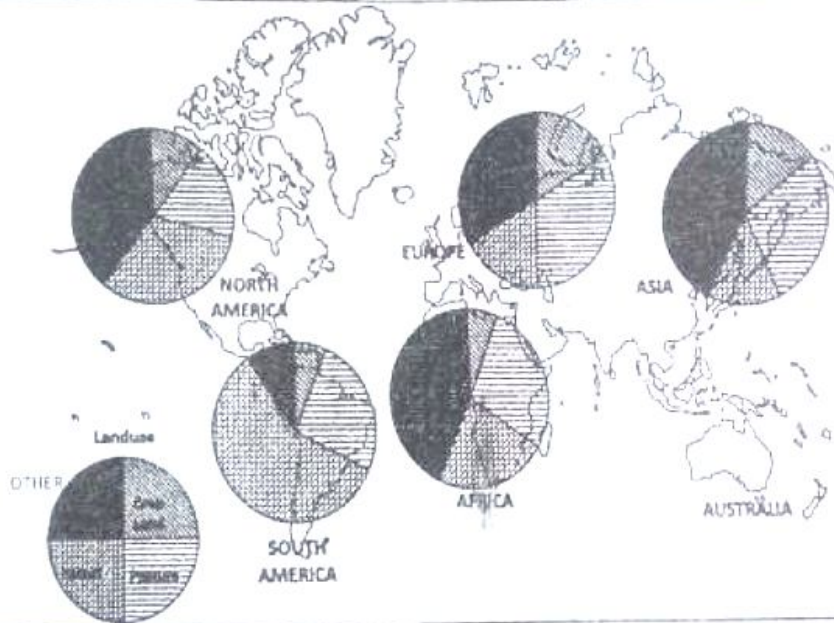
Instruction: 1) Figures to the right indicate full marks.

2) All questions are compulsory.

3) Draw suitable diagrams whenever necessary.

Q.1.A. Study the map given below world map and answer the following questions.

LANDUSE BY CONTINENT



- 1) Which type of cartographic technique used in this map? (1)
- 2) What is the theme of the map? (1)
- 3) Which continent has the highest area under forest? Why? (2)
- 4) Which continent has the least area under crop land? Why? (2)
- 5) Which continent has the largest area under pastures? (1)
- 6) Which two continents have the least area under forest? (2)
- 7) What is the approximate percentage of area under other land use for Asia? (1)

Q.1.B. Mark the following on the outline map of World supplied to you: (10 Marks)

- |                      |                                    |
|----------------------|------------------------------------|
| 1) Rocky mountains   | 6) Bangkok                         |
| 2) Ganga river       | 7) least populated country         |
| 3) Sahara desert     | 8) London                          |
| 4) Fujiyama mountain | 9) Highest polluted country- china |
| 5) Peru              | 10) The Equatorial line            |

**Q.2. Attempt any two from the following:**

**(20 Marks)**

- a) Define 'Environment'. Discuss its nature and scope.
- b) Briefly explain how location of a country is one of the most important components of environment.
- c) Define ecosystem. Explain the concepts of food chain, food web and ecological pyramid with suitable example for each.

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

**(20 Marks)**

- a) Describe the main causes of deforestation in the world.
- b) Define the term 'natural resources' and classify them.
- c) Explain the factors which influence the utilisation of Resources.

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

**(20 Marks)**

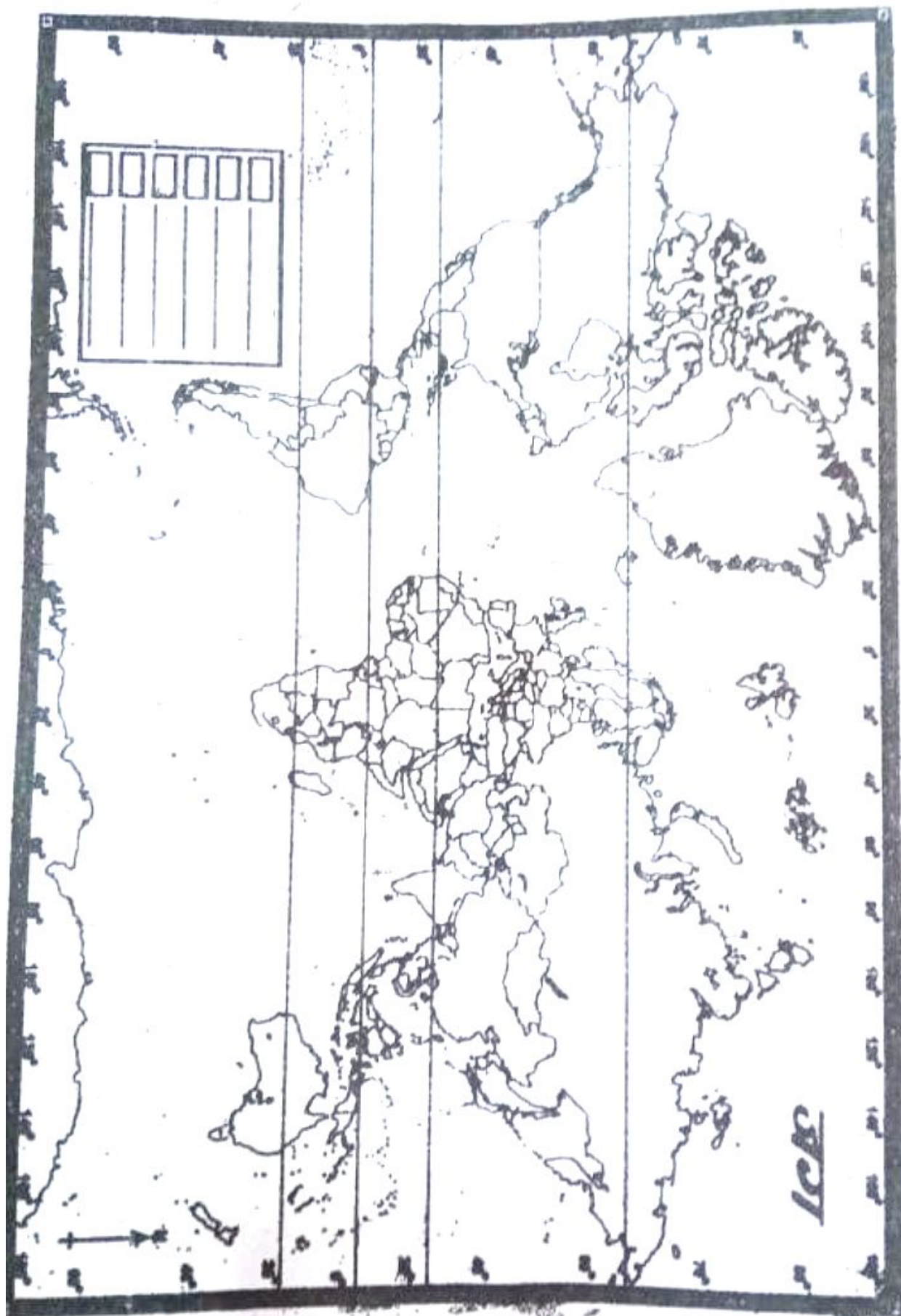
- a) What is population density? What are the factors which affect the population distribution?
- b) Define the term HDI. Why is human development necessary?
- c) Explain the causes and effects of population explosion in India?

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

**(20 Marks)**

- a) Define the urbanization. Explain the causes of urbanization.
- b) Describe the term migration. Explain the types of migration.
- c) Explain the problem of urbanisation.

# WORLD POLITICAL



Q-18



21191 ECR A

Marks- 100

Total pages-2

Time: 3 Hours

N.B: All Questions are compulsory.

Q.1 (a) Select the most appropriate answer from the options given below (Any Ten):

10

1. WTO replaced GATT in the year \_\_\_\_\_.  
a. 2000 b. 2005 c. 2003 d. 1995
2. \_\_\_\_\_ is the example of internal growth strategy.  
a. Merger b. Product development c. Joint venture d. Product innovation
3. \_\_\_\_\_ industry provides intangible goods.  
a. Extractive b. Manufacturing c. Service d. Construction
4. \_\_\_\_\_ is not aids to trade.  
a. Insurance b. Wholesale trade c. Transportation d. Banking
5. Project report is used as \_\_\_\_\_ by an entrepreneur.  
a. Bank document b. Communication tool c. Project planning tool d. Personal use
6. Trading blocs result in \_\_\_\_\_ creation.  
a. Disputes b. Restricted area c. Trade d. Investment
7. The key strength of \_\_\_\_\_ is type of entrepreneurs is imagination.  
a. Visionary b. Opportunist c. Adventurer d. Decision maker
8. Mahila Udyam Nidhi scheme for women entrepreneur is implemented by \_\_\_\_\_.  
a. RBI b. SIDBI c. SIDCO d. NABARD
9. SWOT is referred as \_\_\_\_\_ now a day.  
a. SWIFT b. SWOT c. SWOC d. SWAC
10. \_\_\_\_\_ scheme is specially meant for women entrepreneurs.  
a. DBK b. MDA c. CBK d. TREAD
11. Project planning is summarized in \_\_\_\_\_.  
a. Project report b. Feasibility study c. Legal report d. Technical report
12. The \_\_\_\_\_ is the company's character.  
a. Articles of association b. Memorandum of association c. Prospectus d. Book late

Q.1 b) State whether the following statements are True or False (Any 10):

10

- . The modern concept of business is concentrated only with profit.
- . At present there are 17 members of European Union.
- . Environment is an integral part of business.
- . NAFTA stands for North American Free Trade Area.
- . There is no need to conduct period review of performance.

6. Law and order situation is an important factor to be considered in plant location.
7. Entrepreneurs create economic and social wealth.
8. Intrapreneur is an entrepreneur within an existing organisation.
9. Social entrepreneurs are profit oriented.
10. Human resource development is concerned with the analysis of market external trade involves trade external to the firm.
11. A project report is of importance only to the entrepreneur.
12. Commerce is concerned with trade and aids-to-trade.

**Q.2. Answer any two of the following:**

- a) Define business and explain its main functions.
- b) Explain steps in setting business objectives.
- c) Explain the impact of liberalization on business.

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

- a) Explain the components of internal business environment.
- b) Explain the impact of educational environment on business.
- c) Explain the impact of trading blocks on Indian economy.

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

- a) Explain the business planning process.
- b) Describe the factors determining location of a business unit.
- c) Explain the procedure of licencing and registration of a business unit.

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

- a) Define the term entrepreneur and features of entrepreneurship.
- b) Explain the different types of entrepreneurs.
- c) Discuss the various promotional incentives offered to women entrepreneurs.

**Q.6. Write short notes on any four of the following:**

- a) Globalisation
- b) Merger Strategy
- c) WTO
- d) Pre-feasibility study
- e) Intrapreneur
- f) Competencies (qualities) of entrepreneur

Total Marks: 100

Duration: 3 hrs

No. of pages:

Note: 1) All questions are compulsory.

2) Draw neat diagrams wherever necessary.

3) Use of simple calculator is allowed.

4) Full marks are indicated on the right.

Q.1 A) Select the correct option and re-write the statement (any 10)

10

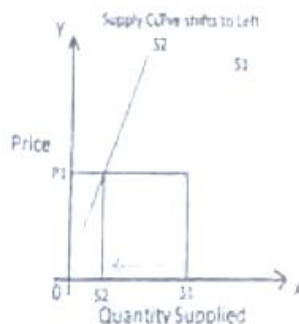
1) Integration of economic theory and business practice is known as \_\_\_\_\_

A) Business Economics B) Indian Economy C) Macro Economics D) Micro Economics

2) What is the formula to calculate slope of a straight line?

A)  $\Delta Y/\Delta X$  B)  $\Delta X/\Delta Y$  C)  $MR_n - MR_{n-1}$  D)  $ER_n$

3) What does this diagram signify?



A) Decrease in Supply B) Increase in Supply C) Extension in Supply D) Contraction in Supply

4) A demand curve differs from a demand schedule because a demand curve \_\_\_\_\_

A) holds the number of buyers constant, whereas the demand schedule allows the number to vary.

B) holds resource prices constant, whereas the demand schedule allows them to vary.

C) represents one firm, whereas the demand schedule represents all firms in the market.

D) is a graph and the demand schedule is a table.

5) The current price charged by a local movie theatre is Rs.100 per ticket. At the current ticket price, the theatre sells 300 tickets per showing. If the theatre raises ticket prices to Rs. 110 the theatre will sell 270 tickets. Using Arc method, calculate price elasticity of demand.

A) -0.90

B) 0.87

C) 0.40

D) -1.104

6) Suppose the cross elasticity of demand between Margarine and butter is 2.58. If the price of butter rises by 30%, what will be the percentage change in demand for margarine?

A) 77.4

B) 67.4

C) 87.4

D) 97.4

7)  $Q=f(L, K, T)$  is a \_\_\_\_\_ production function

A) Short run Production Function

B) Long Run Production Function

C) Continuous Production Function

D) Discrete Production Function

8) In case of increasing returns to scale, the distance between subsequent iso-quants



- A) Remain constant    B) Increase    C) Decrease    D) Increase and decrease

9) When TP falls, MP becomes \_\_\_\_\_

- A) Negative    B) Positive    C) Zero    D) Maximum

10) \_\_\_\_\_ is a direct contractual payment and money does flow out of pocket.

- A) Explicit cost    B) Social cost    C) Implicit cost    D) Real cost

11) Formula for MC is \_\_\_\_\_

- A)  $Q \cdot P$     B)  $TC/Q$     C)  $TC_n - TC_{n-1}$     D)  $TR/Q$

12) Which of the following statement is incorrect?

- A) Break even point reflects no profit, no loss.  
B) Break even point is a point at which losses end & profits start.  
C) At break even point,  $TR = TC$   
D) At break even point,  $TR - TC = 1$

**Q.1 B) State True or False (Any 10)**

10

- 1) When firms increase the output in chunks, it is called marginalism.
- 2) A supply curve shows the relation between the quantity of a good supplied and income.
- 3) If price falls and quantity demanded increases, this is represented by a movement along given demand curve.
- 4) Active forecasts try to predict the future situation by devising new policies and actions.
- 5) When price elasticity of demand  $< 1$ , MR is negative.
- 6) In case of luxuries, income elasticity of demand is greater than 1 and the demand curve flatter.
- 7) Iso-quants are convex to the origin due to diminishing MRTS.
- 8) Family of iso-quants is called as an iso-quant map.
- 9) Pollution is a type of internal economies of scale.
- 10) The next best alternative foregone is called as opportunity cost.
- 1) Rent for the land owned by the entrepreneur himself is an example of implicit cost.
- 2) The cost originally paid to acquire an asset is called as historical cost.

2 A) Define Business Economics. Explain the scope of it.

10

B) Explain the concepts- Equations & Function with suitable examples.

05

OR

2 C) Distinguish between Changes in Demand & Changes in Supply

10

D) Attempt the following-

05

i) In a whole vegetable market, the demand for brinjals is given by  $Q_d = 200 - 25P$  & the supply of brinjals is given by  $Q_s = 15P$  where  $P$  is the price per kg of brinjals and  $Q$  is the quantity sold in kg per day. What is the equilibrium price & quantity of brinjals?

ii) Define a supply schedule. Create an imaginary supply schedule.



- Q.3 A) Define Price Elasticity of demand. Explain its types with suitable diagrams. 08  
 B) Solve the following case study: 07

Products	Income elasticity of demand
Rice	0.58
Wine	2.61
Cigarettes	3.05
Mutton	0.90
Flour	-0.68

If income rises by 12% what will be the percentage change in demand for above products? Based on their income elasticities, also find out what type of goods they are- Necessities, Luxuries, Comfort goods, Neutral goods, Inferior goods.

OR

- Q.3 C) Define Demand Forecasting. Explain the types of it. 08  
 D) Calculate the trend values and estimate the scale for 2023 by using least squares method of demand forecasting 07

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Demand	400	500	650	720	800	840	900	1000	1020	2000	?

- Q.4 A) Explain the following properties of iso-quants - 08

- Iso-quants are non-intersecting.
- Iso-quants are oval in shape
- Higher the iso-quant, higher the output.

- B) Describe the external economies & diseconomies of scale 07

OR

- Q.4 C) Explain the Law of returns to Scale with the help of iso-quants 08

- D) What is an iso-cost line? Derive it. Also, illustrate producer's equilibrium with a suitable diagram 07

- Q.5 A) Explain any seven types of costs 07

- B) Complete the following cost schedule and explain the behaviour of the cost curves in the short run by drawing self-explanatory diagrams 08

Output	Total Fixed Cost	Total Variable Cost	Total Cost	Average Cost	Average Fixed Cost	Average Variable Cost	Marginal Cost
0	2000						
50		500					
100			2700				
150		850					
200			3000				
250		1250					
300			3900				
350		2550					
400			5600				

OR

- Q.5 C) Explain the characteristics of the long run cost curves. 08

- D) Draw Break-even chart & solve the following case study: 07

Suppose the selling price of a bag is Rs.100, Variable cost = Rs.10 & fixed cost is Rs.10,000. Calculate the BEP in terms of sales value.

Q.6 A) Explain the relationship between price elasticity of demand & revenue concepts with a suitable schedule and a diagram 10

B) Explain the Law of Variable proportions with suitable diagrams. 10

OR

Q.6 Short notes (any 4) 20

1) Survey method of demand forecasting

2) Law of demand

3) Types of Production function

4) Diminishing MRTS

5) Types of cross elasticity of demand

6) Learning curve

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(50)

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(A) Multiple Choice Questions. (Any Ten)

1. The Generally Accepted Accounting Principles are contained in
  - (a) Accounting Regulations
  - (b) Accounting Guidance Notes
  - (c) Accounting Standards
  - (d) Accounting Framework
2. Following is an example of an accounting policy
  - (a) Accrual
  - (b) Consistency
  - (c) Going Concern
  - (d) Depreciation
3. Valuation of inventories is governed by
  - (a) Companies Act
  - (b) Accounting Standard 2 by the ICAI
  - (c) Income-Tax Act
  - (d) Accounting Standard 6 by ICAI
4. According to AS 2, cost of inventories should exclude
  - (a) Direct labour costs
  - (b) Interest on loans
  - (c) Production Overheads
  - (d) Accounting Standard 6 by ICAI
5. Which Accounting Standard deals with recognition of revenue
  - (a) AS 1
  - (b) AS 2
  - (c) AS 10
  - (d) AS 9
6. Revenue from interest recognised –
  - (a) When interest is received
  - (b) When loan is re-paid
  - (c) When interest accrues on time basis
  - (d) When loan is taken
7. Under this method, it is assumed that the goods sold are the first units that were purchased.
  - (a) FIFO
  - (b) LIFO
  - (c) Specific identification
  - (d) Weighted average
8. Capital expenditure is \_\_\_\_\_ expenditure.
  - (a) Abnormal
  - (b) Recurring
  - (c) Non-recurring
  - (d) Wasteful
9. Addition of a new wing to the factory – Rs. 40,000
  - (a) Revenue expenditure
  - (b) Capital expenditure
  - (c) Deferred revenue expenditure
  - (d) None of the above
10. Prepaid salaries Rs. 5,000 appear in A's Trial Balance. These will appear in
  - (a) Trading Account
  - (b) Profit and Loss Account
  - (c) Balance Sheet
  - (d) Manufacturing Account
11. Lighting is allocated on the basis of \_\_\_\_\_ of each department
  - (a) No. Of points
  - (b) No. of employees
  - (c) Floor Area
  - (d) Wages
12. \_\_\_\_\_ is the purchase price payable if full payment is made immediately.
  - (a) Market Price
  - (b) Cash Price
  - (c) Hire Purchase Price
  - (d) Down Payment

(B) State whether the following statements are True or False after rewriting the same. (Any Ten)

1. Accounting policies are same for all concerns.
2. AS is mandatory under the companies Act.
3. AS 2 is applicable to mineral oil.
4. Inventories are assets invented by the proprietor.
5. AS deals with revenue arising from lease agreements.
6. AS 9 does not deal with insurance contracts.
7. Inventories should be valued at cost or net realised value, whichever is higher.
8. Capital work-in-progress is treated as capital expenditure.
9. Revenue earned in current year but not yet received is shown as asset in the balance sheet.
10. Fixed Assets are stated in the Balance Sheet at their market value.
11. Management expenses are taken to the general profit and loss account.
12. Down Payment means the total amount payable by the hirer.



Date	Transaction	Units	Rate Per Units (Rs.)
01-01-2022	Opening Stock	14,000	
08-01-2022	Purchases	24,000	3.50
07-01-2022	Sales	26,000	3.80
11-01-2022	Purchases	30,000	4.20
15-01-2022	Sales	34,000	3.90
19-01-2022	Purchases	32,000	4.30
23-01-2022	Sales	27,000	4.05
27-01-2022	Purchases	37,000	4.40
31-01-2022	Sales	31,200	4.10
			4.55

OR

Q.4 (B) Jayesh Purchased a Machine from Sammy Printers on Hire-Purchase basis on 01-07-2021. The terms of the contract were as follows - (20)

- The cash price of the machine was Rs. 75,000.
  - Rs. 15,000 was paid on signing the contract on 01-04-2021.
  - The balance was paid in instalment of Rs. 20,000 plus interest at 15% per annum.
  - The instalment were paid on 31<sup>st</sup> December every year commencing from 31-12-2021.
- Jayesh charged depreciation at 20% p.a. under S.L.M. They closed their books on 31<sup>st</sup> December. Show in books of Jayesh necessary Accounts.

Q.5 Answer the following:

- Explain Accounting Standard and state the advantages of Accounting Standards. (10)
- Explain in brief the main features of Accounting for Hire Purchase and contents of the Hire Purchase Agreement. (10)

OR

Q.5 Write short notes on any four of the following:

- Capital Expenditure
- Weighted Average Method
- Deferred Revenue Expenditure
- Manufacturing Account
- Fundamental Accounting Assumptions
- Periodic Inventory System

(2)

- NOTE: 1) All questions are compulsory.  
2) All questions carry equal marks.

**Q.1 (a) Choose the correct alternative (Any Eight):**

08

1. Tribes are referred as \_\_\_\_\_ in the Indian Constitution  
(Adivasis, Scheduled Castes, Scheduled Tribes)
2. Urban society is \_\_\_\_\_ in nature.  
(Homogenous, heterogeneous, diversity)
3. \_\_\_\_\_ deafness is caused due to genetic factors.  
(Sensory neural, Acquired, Congenital)
4. \_\_\_\_\_ is a system of structured inequality which rates and ranks members of a society based on definite criteria.  
(Demography, Diversity, Social Stratification)
5. \_\_\_\_\_ of the Indian Constitution states that untouchability is abolished and its practice in any form is forbidden.  
(Article 17, Article 21, Article 24)
6. \_\_\_\_\_ refers to the attachment towards one's own region.  
(Regionalism, Linguism, Communalism)
7. \_\_\_\_\_ justice means that everyone must have sufficient opportunity to earn daily bread and satisfy basic needs.  
(Social, Economic, Political)
8. The Constitution of India confers \_\_\_\_\_ citizenship  
(Dual, Single, Triple)
9. The main aim of every political party is to promote \_\_\_\_\_.  
(Secularism, Socialism, National Interest)
10. The president of Zilla Parishad has a term of \_\_\_\_\_ years.  
(Two, Two & Half, Five)

**Q.1 (b) Write True or False (Any Seven)**

07

1. The Indian languages belong to five language families.
2. Moksha refers to the state of liberation.
3. Max Weber identified three dimensions of social stratification, which are class, status and power.
4. Mental disorder and mental sickness is not one and the same.
5. Andhra Pradesh was the first state to be carved out on linguistic lines in the country.
6. Endogamy is the essence of Caste System.
7. The Indian Constitution provides for universal adult franchise.
8. India has a uniform civil code.

9. The Mayor possesses executive authority

10. Defections is a major problem for all political parties in India.

**Q.2 A.** Explain the causes and types of visually challenged person.

**OR**

**Q.2 B.** Explain the socio-economic problems faced by women in India.

**Q.3 A.** Discuss linguism as a basis for inter-group conflict and suggest measures to resolve linguistic conflicts in India.

**OR**

**Q.3 B.** Discuss the inequalities caused by the caste system. Explain the consequences of caste conflicts in India.

**Q.4 A.** Explain tolerance and communal harmony as crucial values in Indian society.

**OR**

**Q.4B.** Explain the following features of Indian Constitution:

- a. Federal system
- b. Parliamentary system
- c. Types of emergencies

**Q.5 A.** Write a detailed note on Urban Local Self Government in India.

**OR**

**Q.5 B.** Write short notes on (Any three)

1. Regional Variations in India
2. Multi Religious Society
3. Significance of Women in Indian Politics
4. Portrayal of women in media
5. Characteristics of Caste



1203IRACB

No. of pages: 2  
Marks: 100  
Duration: 3 hrs.

- NOTE: 1. Attempt all questions.  
2. Figures to the right indicate full marks.  
3. Begin every letter on a fresh page.

1. (A) Explain the following terms in 2-3 sentences (any five) (10)

- (a) Encoding
- (b) Noise
- (c) Horizontal communication
- (d) Upward communication
- (e) Grapevine
- (f) Open door policy
- (g) Posture
- (h) Email
- (i) Twitter

(B) Match the Columns. (05)

Column A	Column B
i. Instagram	a. Formal channel of communication
ii. Written communication	b. Non verbal communication
iii. Downward channel	c. Legal validity
iv. Grapevine	d. Social media
v. Paralanguage	e. Informal channel of communication

(C) Fill in the blanks choosing the best alternative from the ones given below: (05)

- (a) Warning needed for maintaining discipline at the workplace is an example of \_\_\_\_\_ channel of communication.  
(i) Downward (ii) Upward (iii) Horizontal (iv) Grapevine
- (b) The study of space and distance and its impact on communication is termed as \_\_\_\_\_.  
(i) Proxemics (ii) Kinesthetic (iii) Haptics (iv) Kinesics
- (c) Communication is derived from the term "communis" means to \_\_\_\_\_.  
(i) medium (ii) noise (iii) channel (iv) make common
- (d) \_\_\_\_\_ refers to movements of hands and arms, sometimes even legs and feet.  
(i) Haptics (ii) Kinesics (iii) Posture (iv) Gestures
- (e) Lateral communication is also as \_\_\_\_\_ communication.  
(i) Downward (ii) Upward (iii) Horizontal (iv) Grapevine

2. (A) Write short notes on the following (any four): (20)

- (a) Process of communication
- (b) Oral method of communication
- (c) Horizontal channel of communication
- (d) Advantages of social media
- (e) Using Grapevine effectively
- (f) Importance of communication in the corporate world

1205RAISM7-I

Max Marks: 100  
Time: 3 Hours

- N.B.**
- 1) All questions are compulsory
  - 2) All questions carry equal marks
  - 2) Figures to the right indicate maximum marks allotted to the sub questions
  - 3) Use of a simple calculator is allowed
  - 4) Graph paper will be provided on request

### SECTION I

- Q1. Attempt ANY FOUR of the following. (20 Marks)**
- a) Celina invested in shares of a certain company of face value Rs. 10. The company declared 7% dividend and she received a total dividend of Rs. 52.50. Find the number of shares she bought.
  - b) Shomita invested Rs. 49,572 in equity shares of Rs. 100 each at market price of Rs. 162 each. After receiving 11% dividend, she sold shares at Rs. 180 each. She paid brokerage of 2% on each transaction. Find her total gain.
  - c) Kedar invested Rs. 60,000 in a Mutual Fund on 20th April, 2022 with NAV of Rs. 157.2436. He redeemed all units on 17th August, 2022 and received 2.52% rate of return on his investment. If there were no entry or exit loads, find the NAV on 17th August upto 4 decimal places.
  - d) Rohit invested Rs. 18,000 in a Mutual Fund on 3rd April, 2022 with NAV of Rs. 75.1092 and entry load of 2.25% of the NAV. He sold all the units on 17th September, 2022 with NAV of Rs. 97.2516 without any exit load. Find his total gain.
  - e) Nadeem invested in a systematic investment plan of a Mutual Fund, a fixed sum of Rs. 10,000 on 5th of every month, for 4 months. The NAV on these dates were Rs. 34.26, Rs. 46.12, Rs. 39.34 and Rs. 41.85. The entry load was 2.25% through out the period. Find the average price, including the entry load, using the Rupee-Cost-Averaging Method.

- Q2. Attempt ANY FOUR of the following. (20 Marks)**
- a) In how many ways can the letters of the word "FATHER" be arranged? How many of these words begin with A and end with R?
  - b) A group of 10 people contains 4 males and 6 females. A committee of 5 is to be formed, find the number of ways such that the committee has all females.
  - c) How many different numbers of three digits can be formed with the digits 1, 4, 6, 7, 8, 9 if
    - a. none of the digits get repeated.
    - b. the digits can get repeated.
  - d) Solve the LLP graphically.  
 Maximize  
 $Z = 3x + 2y$   
 Subject to the constraints  
 $5x + y \leq 10$   
 $x + y \leq 6$   
 $x \geq 0, y \geq 0$
  - e) A cracker manufacturer produces two types of crackers, rockets and bombs packed in boxes of hundreds in its two factories. Factory I performs the basic assembly operation. Factory II performs the finishing operation. For financial reason, Factory I has only 180 hours available per week and factory II has 120 hours available. Factory I needs 3 hours on each box of rockets and 10 hours on each box of bombs. Factory II needs 6 hours on box of rockets and 4 hours on box of bombs.  
 The cost is Rs. 45 per box of rockets and Rs. 55 per box of bombs.  
 Formulate the LPP to minimize the cost.



## SECTION II

(20 Marks)

**Q3. Attempt ANY FOUR of the following.**

- a) Write merits and demerits of Arithmetic Mean.  
b) Find the median for the following data

Rainfall in cms	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55
No. of years	2	5	8	12	10	7	6

- c) Find the mode for the following data representing daily wages of 110 employees of a factory.

Daily wages in Rs.	10 - 30	30 - 50	50 - 70	70 - 90	90 - 110	110 - 130	130 - 150
No. of Employees	11	18	25	30	14	8	4

- d) From the following frequency distribution, calculate the quartile deviation.

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
No. of Students	22	38	46	35	19

- e) Calculate the combined mean and standard deviation of the combined group of 300 items from the following data

	Group I	Group II
No. of items	100	200
A.M. ( $\bar{x}$ )	83	87
S.D. ( $\sigma$ )	16	9

**Q4. Attempt ANY FOUR of the following.**

(20 Marks)

- a) Define the following terms with examples :  
(i) Sample Space (ii) Mutually exclusive events  
b) Two unbiased dice are thrown. Find the probability that  
(i) Number on first die is less than number on second die.  
(ii) Sum of number on the two dice is 8.  
c) If  $P(A) = \frac{1}{2}$ ,  $P(B) = \frac{1}{3}$ ,  $P(A \cup B) = \frac{1}{6}$  Find  $P(A')$  and  $P(A \cap B)$ .  
d) The following table shows a Probability Distribution of a Random Variable X

X	-1	0	1	2	3
P(X)	0.1	0.25	0.25	0.2	0.2

Find

- (i)  $P(X > 1)$  (ii)  $E(X)$  (iii)  $V(X)$   
e) In a group of 125 students, 70 passed in mathematics, 55 passed in statistics and 30 passed in both. What is the probability that a student selected at random has passed  
(i) at least one subject  
(ii) in only one subject.

**Q5. Attempt ANY FOUR of the following.**

(20 Marks)

- a) For the following pay off table, suggest the best decision by using,  
(i) Maximax criterion  
(ii) Maximin criterion  
(iii) Laplace criterion

Course of Action	States of Nature			
	S1	S2	S3	S4
A1	50	25	70	-20
A2	65	-10	85	0
A3	85	1	100	60



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- b) Draw a decision tree for the following decision making problem and suggest the best decision.

Course of Action	States of Nature		
	S1	S2	S3
A1	34	20	18
A2	14	16	12
Probability	0.2	0.3	0.5

- c) Define the following along with examples :

(i) Acts

(ii) States of Nature

- d) Given the pay-off matrix, solve the decision problem using EMV criterion

Course of Action	States of Nature		
	E1	E2	E3
P	15	14	10
Q	13	15	12
R	17	16	25
Probability	0.5	0.4	0.1

- e) Given the following pay-off table, prepare regret table and choose best decision using Minimax Regret criterion.

	S1	S2	S3	S4
A1	25	30	150	80
A2	45	120	50	130
A3	60	100	0	-10
A4	40	60	65	25

(20 Marks)

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Variable X

3
0.2

in statistics  
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(20 Marks)

3.