BOARD OF STUDIES

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF INDIA

COMMON PROFICIENCY TEST

Model Test Paper – BOS/CPT – 9

Time : 4 hours ***Maximum Marks : 200***

The test is divided into four sections.

Questions 1 to 200 have only one correct answer and carry + 1 mark for each correct answer and – 0.25 mark for each wrong answer.

SECTION – A : FUNDAMENTALS OF ACCOUNTING (60 MARKS)

1. Every transaction or event has two aspects as per

(a) Going concern concept (b) Dual aspect concept
(c) Cost concept (d) Realisation concept.

2. A bill was drawn on 20.1.2010 payable after 60 days, the maturity date of the bill will be

(a) 24.4.2010 (b) 21.3.2010
(c) 24.3.2010 (d) None of the above

3. Amount spent for the construction of temporary huts which were necessary for construction of the overbridge (flyover) and demolished when the flyover was ready is a

(a) Capital expenditure
(b) Deferred Revenue expenditure
(c) Revenue expenditure
(d) Both (a) and (c)

4. Difference of total of debit and credit side of the trial balance is transferred to

(a) Suspense A/c (b) Difference A/c
(c) P & L A/c (d) Trading A/c

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5. In the absence of any partnership agreement, profits and losses are shared among the partners

(a) Equally
(b) In the ratio of capital
(c) In the ratio of loan given by them to the partnership firm
(d) Either (a) or (b)

6. Which of the following statement is not true?

(a) Petty cash is an asset
(b) In case of debt becoming bad the amount should be credited to bad debts A/c
(c) Plant & Machinery is a fixed asset
(d) Goods distributed as sample is credited to Purchases A/c

7. Returns inward is debited to

(a) P & L A/c (b) Balance Sheet
(c) Trading A/c (d) None of the above

8. Carriage outward is debited to

(a) Balance Sheet (b) P & L A/c
(c) P & L appropriation (d) All of the above

9. Which of the following is correct?

(a) Liabilities = Capital + Assets
(b) Capital = Assets – Liabilities
(c) Capital = Assets + Liabilities
(d) Assets = Liabilities – Capital

10. Material costing Rs. 4,000 and labour charges Rs. 3,000 paid for the erection of the building is debited to

(a) Purchases A/c (b) Material A/c
(c) Building A/c (d) Wages A/c

11. Fundamental accounting assumptions are

(a) Consistency concept (b) Going concern concept
(c) Accrual concept (d) All of the above

12. Writing of transaction in the Ledger is called

(a) Casting (b) Balancing
(c) Posting (d) Journalizing

13. Municipal tax Rs. 6,000 under dispute is a

(a) Contingent Liability (b) Revenue expenditure
(c) Current Liabilities (d) Current assets

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14. Purpose of accommodation bill is

(a) To facilitate trade transaction
(b) When both parties are in need of fund
(c) Provide loan for actual purchases or sales of goods
(d) All of the above

15. In the Journal there are

(a) 4 columns (b) 5 columns
(c) 6 columns (d) 7 columns

16. In the ledger there are

(a) 5 columns (b) 6 columns
(c) 7 columns (d) 8 columns

17. Joint Venture account is a

(a) Nominal A/c (b) Personal A/c
(c) Real A/c (d) Dummy A/c

18. Freight charges paid on purchase of a new motor will be debited to

(a) Carriage A/c (b) Motor A/c
(c) Freight A/c (d) Freight & Motor A/c

19. Capital expenditure provides–benefit

(a) Very short-term (b) Long term
(c) Short term (d) All of the above

20. Capital expenditures are recorded in the

(a) Trading A/c (b) P & L A/c
(c) Balance sheet (d) All of the above

21. Arjun purchased goods for Rs. 10,00,000 and sold 70% of such goods during the year ended 31st December 2009. The market value of the remaining goods was Rs. 2,00,000. He valued the closing Inventory at cost. He violated the concept of

(a) Periodicity (b) Money measurement
(c) Conservatism (d) Cost

22. A building was purchased for Rs. 4,00,000 on 1.04.2009. On 31st March, 2010, its net realizable value was Rs. 5,00,000. The value of building to be shown in the books as on 31st March, 2010 will be

(a) Cost price
(b) Net realisable value
(c) Cost or Net realisable value which ever is less
(d) Cost or Net realisable value which ever is more

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23. **Cash sales Rs. 70,000**
Cash collected from debtors Rs. 2,00,000
Bad debts Rs. 7,000
Opening Debtors Rs. 30,000
Closing Debtors Rs. 16,000
Total sales will be

(a) Rs. 2,33,000 (b) Rs. 2,63,000
(c) Rs. 2,43,000 (d) Rs. 2,60,000

24. **A cheque of Rs. 6,000 received from X was dishonoured and had been posted to debit of Sales returns account. Rectifying journal entry will be**

(a)	X A/c	Dr.	6,000	
	To Sales Returns A/c			6,000
(b)	Sales Return A/c	Dr.	6,000	
	To X A/c			6,000
(c)	Sales Return A/c	Dr.	6,000	
	To Suspense A/c			6,000

. (d) None of the above

25. **Ram and Shyam entered into a joint venture. Ram purchased goods costing Rs. 52,500. Shyam sold goods costing Rs. 45,000 at Rs. 60,000. Balance goods were taken over by Ram at Rs. 10,000. The profit on Joint Venture is**

(a) Rs. 15,000 (b) Rs. 17,500
(c) Rs. 7,500 (d) Rs. 25,000

26. **K and L are equal partners. They admitted M for 1/4 share in future profit. New profit sharing ratio will be**

(a) 2:2:1 (b) 3:3:1
(c) 3:3:2 (d) none of the above

27. **X, Y and Z are partners sharing profits in the ratio of 4:3:2. Y retires, X and Z decide to share future profits in the ratio of 5:3. Gaining ratio between X and Z will be**

(a) 12:10 (b) 10:12
(c) 13:11 (d) None of the above

28. **A machinery is purchased for Rs. 60,000. Depreciation is to be provided annually on the basis of fixed instalment method. Useful life of the asset is 8 years and the residual value is Rs. 10,000. Rate of depreciation will be**

(a) 10.416% (b) 10%
(c) 9.416% (d) 11%

29. **Goods worth Rs. 7,000 given as charity should be credited to**

(a) Trustee A/c (b) Sales A/c
(c) Purchases A/c (d) Charity A/c

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30. Perpetual inventory valuation system entails

(a) Maintenance of records of each receipts and issues.
(b) Direct determinatin of cost of goods issued and closing Inventory is taken as residual figure.
(c) Reconciliation of physical Inventories with the Inventory as per records.
(d) All of the above

31. Ram, Shyam and Mohan are partners sharing profits in the ratio of 4:3:2. Sohan is admitted for 1/3 share in future. Profit sacrificing ratio will be

(a) 2:3:2 (b) 4:3:2
(c) 3:2:3 (d) None of the above

32. Y and Z are partners sharing profit in the ratio of 3:2. X is admitted as a partner. The new profit sharing ratio among Y, Z and X is 5:3:2. Sacrificing ratio will be

(a) 2:3 (b) 1:1
(c) 3:2 (d) None of the above

33. On admission of a partner, unrecorded investment worth Rs. 10,000 and unrecorded liability toward suppliers for Rs. 4,000 will be recorded in

(a) Capital A/c (b) Realization A/c
(c) Revaluation A/c (d) None of the above

34. M, N and O are partners with capitals of Rs. 10,000, Rs. 7,500 and Rs. 5,000 respectively. On O's retirement his share is acquired by M and N in the ratio of 3:2 respectively. Gaining ratio will be

(a) 2:2 (b) 2:3
(c) 1:2 (d) 3:2

35. Goodwill is to be calculated at one and half years purchases of average profit of last 6 years. The firm earned profit during the first 3 years as Rs. 30,000, 20,000 and 20,000 and suffered losses of Rs. 5000, 3000 and 2000 in the last 3 years. Goodwill amount will be

(a) Rs. 10,000 (b) Rs. 15,000
(c) Rs. 20,000 (d) Rs. 25,000

36. X started business with Rs. 1,00,000 cash and furniture Rs. 20,000. He bought goods worth Rs. 3,00,000 on credit basis. Sales amount to Rs. 5,00,000 including Rs 50,000 cash sales. Out of credit sales, Rs. 1,00,000 were outstanding at the end of the year. Cash balance after giving affect of above transactions will be

(a) Rs 4,50,000 (b) Rs 3,50,000
(c) Rs 5,00,000 (d) Rs 2,00,000

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37. An old furniture appearing in the books at Rs. 10,000 is to be exchanged for a new furniture of Rs. 10,000. The old furniture has been valued at Rs. 2,000 for exchange purpose. Loss on exchange will be

(a) Rs. 18,000 (b) Rs. 22,000
(c) Rs. 8,000 (d) Rs. 7,000

38. Goods of Rs. 30,000 (sales price) sent on approval or return basis were included in the sales book. The profit included in the sales was 20% on cost. Inventory with the party will increase closing Inventory by

(a) Rs. 25,000 (b) Rs. 30,000
(c) Rs. 20,000 (d) Rs. 24,000

39. Which of the following is a non cash expense?

(a) Depreciation (b) Salary paid
(c) Rent paid (d) Carriage

40. Salary paid to employee Rs. 10,000 debited to Employee A/c by Rs. 1,000. Rectifying entry will be

(a)	Salary A/c	Dr	10,000	
	To Employee A/c			10,000
(b)	Salary A/c	Dr	10,000	
	To Employee A/c			1,000
	To Suspense A/c			9,000
(c)	Salary	Dr	1,000	
	To Employee A/c			1,000

(d) None of the above

41. In the trial balance of joint stock company the following balances are given

i. 10% Mortgage debentures (payable after 4 years) 4,00,000

ii. Discount allowed on issue of debenture 10,000

Amount of discount written off per year will be

(a) Rs. 2,400 (b) Rs. 2,500
(c) Rs. 3,000 (d) Rs. 2,600

42. Recovery of bad debt is a

(a) Revenue expenditure
(b) Revenue receipt
(c) Deferred revenue expenses
(d) Capital receipt

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43. **Capital on April 1, 2009 Rs. 20,000**
Capital on April 1, 2010 Rs. 25,000
Drawings during the year Rs. 5,000
Additional capital introduced during the year Rs. 6,000
Net Profit of the year will be

(a) Rs. 6,000 (b) Rs. 5,000
(c) Rs. 4,000 (d) Rs. 3,000

44. **Raj draws a bill on Rohan for Rs. 1,00,000 for mutual accommodation. Raj discounted the bill for Rs. 98,000 from Bank and remitted Rs. 49,000 to Rohan. On the due date Raj will send to Rohan**

(a) Rs. 49,000 (b) Rs. 42,000
(c) Rs. 47,000 (d) Rs. 50,000

45. **In bank reconciliation statement, when balance as per cash book is taken as the starting point, then interest collected by the bank Rs.9,000 and direct deposit by a customer into his bank Rs. 18,000 will be**

(a) Ignored (b) Added
(c) Subtracted (d) None of the above

46. **Expenses of Rs. 20,000, incurred in obtaining a license for starting the factory is**

(a) Capital Expenditure (b) Revenue Expenditure
(c) Deferred revenue Expenditure (d) None of the above.

47. **On 10.05.2010, A draws a bill on B for Rs. 50,000 for 40 days. June 22 is a public holiday. The maturity date of the bill will be**

(a) 21 June, 2010 (b) 23 June, 2010
(c) 22 June, 2010 (d) 19 June, 2010

48. **Which of the following errors will effect the trial balance**

(a) Repairs to motor plant wrongly debited to motor plant account
(b) Total of purchases journal is short by 70,000
(c) Wages paid on purchase of new motor plant debited to wages a/c
(d) None of three

49. **Rohit acceptance to Sumit for Rs. 15,000 renewed at 6 month on the condition that Rs. 10,000 be paid in cash immediately and a new bill of 6 months will be drawn for the remaining amount which will carry interest @ 10% p.a. The amount of interest will be**

(a) Rs. 100 (b) Rs. 150
(c) Rs. 250 (d) Rs. 200

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50. Goods destroyed by fire Rs. 80,000 and insurance company admitted 50% claim. The loss on insurance claim will be entered in

(a) Balance Sheet (b) Trading A/c
(c) P & L A/c (d) All of the above.

51. Following balances are given in trial balance
10% loan on (1.04.2009) Rs. 70,000 (Cr.)
Interest on loan 3,500
Interest outstanding at the end of the year will be

(a) Rs. 3,500 (b) Rs. 10,500
(c) Rs. 7,000 (d) Rs. 3,000

52. Furniture bought on 1st October 2008 for Rs. 40,000 was sold on 31st March, 2010 for Rs. 36,000. Depreciation is charged @ 10% p.a. on original cost. Accounting year closes on 31st March every year . Profit on sales will be

(a) Rs. 3,000 (b) Rs. 1,000
(c) Rs. 4,000 (d) Rs. 2,000

53. Following figures have been taken from the book of a trader

Purchases	**1,00,000**	**Purchases returns**	**9,000**
Sales returns	**8,000**	**Sales**	**1,60,000**
Carriage outward	**5,000**		
Office rent	**4,000**		

Amount of gross profit will be

(a) Rs. 60,000 (b) Rs. 61,000
(c) Rs. 52,000 (d) Rs. 70,000

54. The profit for the last four years are given as follows

Years	*Rs.*
2006	**10,000**
2007	**15,000**
2008	**20,000**
2009	**15,000**

The value of goodwill on the basis of three years purchases of average profit based on last four years will be

(a) Rs. 15,000 (b) Rs. 60,000
(c) Rs. 20,000 (d) Rs. 45,000

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55. Which of the following is a fixed asset?

(a) Cash (b) Building
(c) Inventory (d) Trade receivables

56. General Reserve at the time of admission of a new partner is transferred to

(a) Capital A/c of partners (b) Trading A/c
(c) P & L adjustment (d) Balance Sheet

57. Which of the following is a current asset?

(a) Plant & Machinery (b) Land & Building
(c) Trade receivables (d) Furniture

58. The words 'To Balance b/d or 'By Balance b/d' are recorded in the particulars column at the time of –

(a) Journalising (b) Posting of an entry other than opening entry
(c) Balancing (d) Carry forwarding

59. Goods costing Rs. 30,000 were sold at 25% profit on selling price. Sales price will be

(a) Rs. 7,500 (b) Rs. 22,500
(c) Rs. 37,500 (d) Rs. 40,000

60. On April, 2009, Gita invested capital of Rs. 60,000. She withdrew Rs. 5,000 on the first day of each month interest on drawing is provided @ 20%. The amount of interest on drawings deducted from capital will be

(a) Rs. 6,000 (b) Rs. 12,000
(c) Rs. 6,500 (d) Rs. 1,000

SECTION – B : MERCANTILE LAWS (40 MARKS)

61. Actual breach may be:

(a) During the course of performance
(b) On the date of performance
(c) (a) and (b)
(d) (a) or (b)

62. A contract implied by law is known as:

(a) Contingent contract (b) Alternation
(c) Quasi contract (d) Implied contract

63. Specific performance may be ordered by court if:

(a) There is no standard for ascertain actual damage
(b) Pecuniary compensation is not adequate relief
(c) The act is done wholly on part of trust
(d) Both (a) and (b)

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64. Which of the following is not referred to as goods:

(a) Stock (b) Shares
(c) Money (d) Grass

65. A contract can be performed by:

(a) An agent of the promisor (b) The promisor himself
(c) (a) or (b) (d) Both (a) and (b)

66. Which of the following statement is false? Consideration:

(a) Must be of some value in law
(b) Must move at the desire of the promisor
(c) May move from any person
(d) Must be illusory

67. An executory consideration:

(a) Is a promise for a promise
(b) Consists of a promise in future
(c) Is an outstanding liability on both the parties
(d) All of the above

68. _____ of a firm means the breaking up or extinction of the relationship which subsisted between all the partners of the firm:

(a) Registration (b) Dissolution
(c) Amalgamation (d) Demerger

69. Publishing defamatory statements or agreements which are opposed to public policy are :

(a) Valid (b) Voidable
(c) Illegal (d) Void

70. Following is not a mode of delivery:

(a) Statutory delivery (b) Constructive delivery
(c) Actual delivery (d) Symbolic delivery

71. In a breach of contract, if the promisee did not suffer any real damage, he can claim:

(a) Exemplary damages (b) General damages
(c) Nominal damages (d) No damages

72. In an agreement one party agrees to assist the other in recovering property, with a view to sharing the profits of litigation. It is:

(a) Maintenance (b) Champerty
(c) Stifling litigation (d) None of the above

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73. Risk prima facie passes with:

(a) Payment of price
(b) Property or ownership
(c) Completed agreement
(d) Verification and delivery of goods

74. When the seller fails to give notice to the buyer under Section 39(3), the risk during sea-transit lies with the:

(a) Seller (b) Buyer
(c) Carrier (d) Insurer

75. A pen or pencil that will not write, a watch that will not keep time, a rubber that will not help to erase cannot be considered as:

(a) Presentable (b) Whole some
(c) Merchantable (d) None of the above

76. Audit of a partnership firm's account is compulsory under the Partnership Act, 1932:

(a) Yes (b) Partly yes
(c) No (d) Partly No

77. Seller has right of resale where:

(a) Goods are perishable. (b) Seller has reserved such right
(c) Seller gives notice (d) All of these.

78. Competitions involving games of skill are

(a) Illegal & void (b) Voidable
(c) Unlawful (d) Valid

79. A contingent contract is

(a) Void from beginning
(b) Void if based on happening of an impossible event
(c) Enforceable if the contingent event is under the control of the promisor
(d) Wagering agreement

80. Champerty and maintenance are the _____agreement.

(a) Lawful (b) Void
(c) Valid (d) Voidable

81. When both the benefits & burden devolve on the legal heir, it would be called

(a) Will
(b) Assignment
(c) Delegation
(d) Succession

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82. _____cannot enter with a contract.

(a) Partner (b) Agent
(c) Lunatic (d) Sole Trader

83. The objects of an agreement shall not be unlawful if _____.

(a) It is forbidden by law (b) It defeats the provisions of law
(c) It is for legal consideration (d) It is fraudulent

84. A _____ agreement is one, which is enforceable at the option of one party.

(a) Voidable (b) Void
(c) Valid (d) Illegal

85. Under the Sale of Goods Act, 1930, the property in goods passes when_____.

(a) Payment is made (b) Goods are ascertained
(c) The contract is made (d) None of the above

86. Privity of contract is subject to the exception _____.

(a) Where a trust or charge is created
(b) Where payment is made to a third party
(c) Where payment is made by a third party
(d) None of the above

87. A contract involving two promises is called:

(a) A contract having reciprocal promises (b) A bilateral contract
(c) A contract having cross promises (d) An unenforceable contract

88. Partnership deed is also called_____.

(a) Partnership Agreement (b) Constitution of Partnership
(c) Articles of Partnership (d) All of the above

89. Property of the firm shall be held by use of the partners _____.

(a) For charitable purposes
(b) For private purposes of the partners
(c) For business purposes as well as private purposes
(d) Exclusively for business purposes

90. Section 10 of the Sale of Goods Act 1930 deals with fixation of price of goods by _____.

(a) The Judge
(b) The Arbitrator
(c) The Central Government
(d) The valuation of a third party.

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91. In an agreement to sell the property (ownership) in the goods passes _____.

(a) Immediately
(b) At a future date
(c) Either immediately or future date
(d) Never

92. A contract of sale may be_____.

(a) Conditional (b) Absolute
(c) Written (d) All of the above

93. Under the Sale of Goods Act, 1930, goods may be _____.

(a) Existing (b) Future
(c) Contingent (d) All of the above

94. Where the unpaid seller has obtained a decree for the price of the goods, the right of lien _____.

(a) Is lost
(b) Is at the optioning the court
(c) Is at the optioning the seller
(d) Can be exercised

95. The rights available to an unpaid seller against the buyer are right to sue for _____.

(a) Price (b) Damages
(c) Interest (d) All of the above

96. An agreement to sell in respect of goods is an executory contract which creates _____.

(a) A jus in personam (b) A jus in rem
(c) Both (a) and (b) (d) Neither (a) nor (b)

97. A contract of sale of contingent goods is _____.

(a) Sale (b) Agreement to sell
(c) Unlawful (d) All of the above

98. In a contract of sale of goods, if the seller is not the owner of goods, then the title of the buyer shall:

(a) Be same as that of the seller (b) Not be same as that of the seller
(c) Be better than that of the seller (d) None of the above

99. 'A' buys a readymade shirt for his son, The shirt does not exactly fit his son. Decide.

(a) A has no right to return or exchange the same
(b) A has right to return the same
(c) He will demand for damages
(d) He may file a suit for exchange

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100. 'A' buys a T.V. set from 'B'. 'B' agrees to deliver the set to 'A'. After some time during the day, B sells the same to 'C' at a higher price. Decide title of the good.

(a) 'C' gets a good title (b) A gets a good title
(c) Nobody gets a goods title (d) None of these

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101. If budget deficit is Rs. 11,350 crore and borrowings are Rs. 33,300 crore, what is fiscal deficit?

(a) Rs. 11,350 crore (b) Rs. 44,650 crore
(c) Rs. 33,300 crore (d) Rs. 21,950 crore

102. Sir Robert Giffen was surprised to find out relationship of price with two other goods, which were:

(a) Bread and Rice (b) Meat and Rice
(c) Bread and Meat (d) Cheese and Meat

103. If the proportion of income spent on a good remains the same as income increases, then income elasticity for the good in:

(a) More than one (b) One
(c) Less than one (d) Zero

104. Marginal utility analysis was mainly propounded by:

(a) J.B. Say (b) Robbins
(c) Adam Smith (d) Alfred Marshall

105. Indifference curve analysis is propounded by:

(a) Alfred Marshall (b) Adam Smith
(c) Hicks and Allen (d) None of the above

106. Cardinal Measurability of utility means:

(a) Utility can be measured
(b) Utility cannot be measured
(c) Utility can be ranked
(d) Utility can be measured in some case

107. Which of the following statements is false?

(a) An indifference curve is concave to the origin
(b) An indifference curve is convex to the origin
(c) A higher indifference curve is better than a lower indifferent curve
(d) An indifference curve is a curve which represents all those combinations of two goods which give same satisfaction to the consumer.

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108. Identify the factor which generally keeps the price-elasticity of a demand for a good high.

(a) Its very high price
(b) Its very low price
(c) Large number of substitutes
(d) None of the above

109. Suppose price of fashionable Shirts rises from Rs. 400 per piece to Rs. 700 per piece. The Shopping Mall manager observes that the rise in price causes demand for shirts to fall from 500 shirts per week to 300 shirts per week. What is the price elasticity of demand for shirts? (use Mid Point Method)

(a) 0.916
(b) 1.5
(c) 1
(d) 1.667

110. The basic distinction between M1 and M2 is in the:

(a) Treatment of post office savings deposits
(b) Treatment of time deposits of banks
(c) Treatment of saving deposits of banks
(d) Treatment of currency

111. After 1950, commercial banks in India were nationalized:

(a) Once in 1969
(b) Twice in 1969 and 1980
(c) Thrice in 1969, 1980 and 1991
(d) None of the above

112. In order to increase money supply in the country, the RBI may:

(a) Reduce CRR
(b) Increase CRR
(c) Sell securities in the open market
(d) Increase Bank Rate

113. Monetary Policy is given by:

(a) RBI
(b) Planning Commission
(c) Finance Minister
(d) Monetary Bank of India

114. Which of the following is incorrect?

(a) The shape of the average cost and marginal cost curve is 'U'
(b) The AR and MR curves of a firm under perfect competition are parallel to X-axis.
(c) At Equilibrium AR=MR
(d) At Equilibrium MC=MR

115. The slope of indifference curve indicates:

(a) Price ratio between two commodities
(b) Marginal rate of substitution
(c) Factor substitution
(d) Level of indifference

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116. If the quantity of Banana demanded is 100 kg when price is Rs 40 per kg and quantity demanded is 50 kg, when price per kg of Banana is Rs. 60. Find price elasticity of demand using arc-elasticity method.

(a) 2.5
(b) 1.8
(c) (-) 1.66
(d) (-) 2.2

117. Suppose Mohan & Co. produces 10 units of output and incurs Rs. 30 per unit of variable cost and Rs. 5 per unit of fixed cost. In this case, total cost is:

(a) Rs. 300 (b) Rs. 35
(c) Rs. 305 (d) Rs. 350

118. A condition needed for a perfectly competitive industry to exist is that:

(a) Buyers are able to influence the price of the commodity
(b) Any units of commodity are considered by buyers to be different
(c) Buyer discriminates in their purchases based on non-price factors.
(d) There are no obstacles to the free mobility of resources.

119. If the price of petrol rises by 25% and demand for car falls by 40% then, cross elasticity between petrol and car is:

(a) -1.6 (b) 1.6
(c) -2.6 (d) 2.6

120. Which of the following statements is correct?

(a) Economic laws are mere statement of tendencies
(b) Economics laws are as exact as physical laws
(c) Economics laws are permanent
(d) All of the above

121. If after selling 10 units, a seller realises Rs. 12, 000 and after selling 15 units he realises Rs. 20, 000 what is the marginal revenue here?

(a) Rs. 1500 (b) Rs. 1600
(c) Rs. 8000 (d) Rs. 2000

122. Under which market structure, the control of firm over price is nil?

(a) Perfect competition (b) Monopoly
(c) Oligopoly (d) Monopolistic Competition

123. If as a result of 80 percent increase in all inputs, the output increases by 25 percent, this is a case of:

(a) Increasing return to scale (b) Decreasing return to factor
(c) Decreasing returns to scale (d) Diminishing return to factor

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124. When marginal product is negative, then total product is:

(a) Maximum (b) Decreasing
(c) Constant (d) None of the above

125. In the long run, a firm in monopolistic competition:

(a) Always earns super profits
(b) Incurs losses
(c) Earns normal profit only
(d) May earn normal profits, super normal profits or incur losses.

126. Assume that when price is Rs.40 quantity demanded is 9 units, and when price is Rs. 38, quantity demanded is 10 units. Based on this information, what is the marginal revenue resulting from an increase in output from 9 units to 10 units?

(a) Rs.20 (b) Rs.40
(c) Rs.38 (d) Rs.1

127. Suppose a firm is producing at level of output, such that MR>MC what should be the firm do to maximise profit?

(a) The firm should increase output
(b) The firm should do nothing
(c) The firm should hire less labour
(d) The firm should decrease price

128. Marginal Revenue is equal to

(a) Change in quantity, divided by the change in price
(b) Change in price divided by change in output
(c) The change in PxQ due to a one unit change in output
(d) None of above

129. Suppose that an owner is earning total revenue of Rs.1,00,000 and is increasing explicit cost of Rs.60,000. If the owner could work for another company for Rs.30,000 a year, we would conclude that:

(a) The firm is earning economic profit or Rs. 10,000
(b) The firm is earning accounting profit or Rs. 40,000
(c) The firm is earning economic profit of Rs. 40,000
(d) Both (a) and (b)

130. Which is not the essential condition of pure competition?

(a) Large number of buyers and sellers
(b) Homogeneous product
(c) Freedom of entry
(d) Perfect knowledge among buyers and sellers

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131. What is the shape of AR curve faced by a firm under perfect competition?

(a) Horizontal
(b) Vertical
(c) Positively sloped
(d) Negatively sloped

132. Which of the following is the condition for equilibrium of a firm?

(a) AC = AR (b) MR = AR
(c) MC = MR (d) AC = MR

133. _____ measure estimates the number of persons who may be said to be chronically unemployed.

(a) Usual Status
(b) Current Weekly Status
(c) Current Daily Status
(d) Current Yearly Status

134. When due to introduction of new equipments, some workers tend to be replaced by equipments; their unemployment is termed as _____

(a) Structural (b) Seasonal
(c) Frictional (d) Technological

135. Every_____ person in the world is an Indian

(a) Second (b) Sixth
(c) Tenth (d) Ninth

136. _____ measures generally gives the lowest estimate of unemployment.

(a) CWS (b) Usual Status
(c) CDS (d) CMS

137. Which of the following statements is correct?

(a) Countries which are industrially well-developed generally have higher per-capital income than countries which are not.
(b) India is a capital surplus economy
(c) Agriculture sector need not depend upon industrial sector for its growth
(d) None of the above

138. Mahalanobis model stressed upon the establishment of:

(a) Consumer goods industries
(b) Export oriented industries
(c) Agro-based industries
(d) Capital and basic goods industries

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139. If income elasticity of the household for good X is 3 then it is a:

(a) Normal Good (b) Necessity Good
(c) Luxury Good (d) Inferior Good

140. Which of the following is not included in foreign exchange reserves?

(a) Foreign currency assets held by RBI
(b) Gold holding of the RBI
(c) Special Drawings Rights
(d) None of the above

141. Based II framework is for:

(a) Banks (b) Insurance Companies
(c) RBI (d) None of the above

142. The total area under the demand curve of good measures:

(a) Marginal utility (b) Total utility
(c) Consumers surplus (d) Producer surplus

143. Which of the following is not a quantitative measure of credit control?

(a) Bank rate policy (b) Open market operation
(c) Margin requirement (d) Variable reserve requirement

144. Integration of the domestic economy with the world economy is called____.

(a) Liberalisation (b) Globalisation
(c) Privatisation (d) Disinvestment

145. Which of the following is not an indirect Tax Reform?

(a) Reducing the peak rate of custom duties
(b) Rectifying anomalies like inverted duty structure
(c) Introduction of VAT for achieving harmonized taxation regime
(d) The tax rate on foreign companies has also been reduced from 55% to 40%

146. Occupational structure refers to the:

(a) Number of workers living in a country.
(b) Size of working population in the industrial sector
(c) Distribution of working population among different occupations
(d) Nature of different occupation in the economy

147. Which of the following is not a characteristic of a price taker?

(a) Negatively Sloped Demand Curve
(b) TR = P x Q
(c) AR = Price
(d) MR = AR

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148. All are features of monopoly except:

(a) There is a single seller
(b) The firm is a price taker
(c) The firm produces a unique product
(d) The existence of some advertising

149. A monopolist is able to maximize his profits when:

(a) His output is maximum
(b) He charges a higher price
(c) His average cost is minimum
(d) His marginal cost is equal to marginal revenue

150. _____ is the difference between total receipts and total expenditure

(a) Fiscal Deficit (b) Budget Deficit
(c) Capital Deficit (d) Revenue Deficit

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151. If $\frac{x}{x+y}=\frac{17}{23}$, what is $\frac{x+y}{x-y}$ equal to

(a) $\frac{11}{23}$ (b) $\frac{17}{32}$
(c) $\frac{23}{11}$ (d) None of these

152. If $\sqrt{1+\frac{25}{144}}=1+\frac{x}{12}$, then x is

(a) 1 (b) 2
(c) 3 (d) None of these

153. If $(4)^3 \times \left(\sqrt{2}\right)^8 = 2^n$, then n is

(a) 10 (b) 12
(c) 13 (d) None of these

154. A number of men went to a hotel and each spent as many rupees as there were men. If the money spent was Rs. 15625; find the number of men.

(a) 110 (b) 125
(c) 145 (d) None of these

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155. A, B and C have to distribute Rs. 1,000 between them, A and C together have Rs. 400 and B and C Rs. 700. How much does C have?

(a) Rs. 100 (b) Rs. 200
(c) Rs. 150 (d) None of these

156. If $\log \frac{a+b}{2} = \frac{1}{2}(\log a + \log b)$, the value of $a^2 + b^2$ is

(a) 6ab (b) 8ab
(c) $6a^26^2$ (d) None of these

157. If $\log_{10} x = 4$, then the value of x is

(a) 100 (b) 1000
(c) 10000 (d) None of these

158. If log 2 = 0.301 and log 3 = 0.477, then the value of log 225 is:

(a) 2.352 (b) 3.452
(c) 7.452 (d) None of these

159. If log 2 = 0.3010, find the number of digits in 2^{100}

(a) 36 (b) 31
(c) 38 (d) None of these

160. If ${}^nP_3 = 60$, then the value of n is

(a) 3 (b) 10
(c) 5 (d) None of these

161. Evaluate $\lim_{x \to 0} \frac{a^x + b^x - 2}{x}$

(a) log ab (b) $\log \frac{a}{b}$
(c) log (a – b) (d) None of these

162. Evaluate $\lim_{x \to 0} \frac{10^x - 5^x - 2^x + 1}{x}$

(a) 1 (b) 0
(c) log 5 × log 2 (d) None of these

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163. **Evaluate** $\lim_{x \to 0} \frac{10^x \quad 5^x \quad 2^x \quad 1}{x^2}$

(a) log 5 × log 2 (b) log 5 + log 2
(c) 0 (d) None of these

164. **Evaluate** $\lim_{x \to 0} \frac{e^{5x} - e^{3x} - e^{2x} + 1}{x}$

(a) 6 (b) 0
(c) 1 (d) None of these

165. **Evaluate** $\lim_{x \to 0} \frac{e^{5x} - e^{3x} - e^{2x} + 1}{x}$

(a) 6 (b) 0
(c) 1 (d) None of these

166. **Evaluate:** $\int \frac{1}{\sqrt{x^2 + a^2}} dx$

(a) $\log\left(x + \sqrt{x^2 + a^2}\right) + c$ (b) $\log\left(x + \sqrt{x^2 - a^2}\right) + c$

(c) $\log\left(x - \sqrt{x^2 - a^2}\right) + c$ (d) None of these

167. **Evaluate:** $\int \frac{1}{\sqrt{x^2 - a^2}} dx$

(a) $\log\left(x - \sqrt{x^2 - a^2}\right) + c$ (b) $\log\left(x + \sqrt{x^2 + a^2}\right) + c$

(c) $\log\left(x + \sqrt{x^2 - a^2}\right) + c$ (d) None of these

168. **Evaluate** $\int \frac{1}{9x^2 - 1} dx$

(a) $\frac{1}{6}\log\left(\frac{3x+1}{3x-1}\right) + c$ (b) $\frac{1}{6}\log\left(\frac{3x-1}{3x+1}\right) + c$

(c) $\frac{1}{3}\log\left(\frac{3x+2}{3x+2}\right) + c$ (d) None of these

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169. Evaluate $\int \frac{x-1}{\sqrt{x^2+1}}\,dx$

(a) $\sqrt{x^2+1}-\log\left(x+\sqrt{x^2+1}\right)+c$

(b) $\sqrt{x-1}-\log\left(x+\sqrt{x-1}\right)+c$

(c) $\sqrt{x^2+1}-\log\left(x+\sqrt{x-1}\right)+c$

(d) None of these

170. Evaluate $\int (1-x^2)\log x\,dx$

(a) $\left(1-x^2\right)x\log x-\left(1-\frac{x^2}{9}\right)+c$

(b) $\left(1-x^2\right)\log x-\left(1+\frac{x^2}{9}\right)+c$

(c) $\left(1-\frac{x^2}{3}\right)x\log x-\left(x-\frac{x^3}{9}\right)+c$

(d) None of these

171. From a panel of 4 doctors, 4 officers and one doctor who is also an officer, how many committee of 3 can be made if it has to contain at least one doctor and one officer?

(a) 76 (b) 78
(c) 80 (d) None of these

172. In an election, there are five candidates contesting for three vacancies; an elector can vote any number of candidates not exceeding the number of vacancies. In how many ways can one cast his votes?

(a) 12 (b) 14
(c) 25 (d) None of these

173. In how many ways can 12 different things be equally distributed among 4 groups?

(a) 15,400 (b) 15,000
(c) 14,400 (d) None of these

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174. The number of factors of 420 is

(a) 20 (b) 22
(c) 25 (d) None of these

175. Five balls of different colours are to be placed in three boxes of different sizes. Each box can hold all the five balls. In how many different ways can we place the balls so that no box remains empty?

(a) 100 (b) 120
(c) 150 (d) None of these

176. Find the sum of the series. 243 + 324 + 432 + ……. to n terms

(a) $3^6\left(\frac{4^n}{3^n}-1\right)$ (b) $3^4\left(\frac{4^n}{3^n}-1\right)$

(c) $3^6\left(\frac{3^n}{4^n}-1\right)$ (d) None of these

177. The sum of the first eight terms of a G.P. is five times the sum of the first four terms; then the common ratio is –

(a) $\sqrt{2}$ (b) $-\sqrt{2}$
(c) $\pm\sqrt{2}$ (d) None of these

178. The sum of the following series 4 + 44 + 444 + …… to n term is:

(a) $\frac{4}{9}\left[\frac{10(10^n-1)}{9}-n\right]$ (b) $\frac{4}{9}\left[\frac{10(10^n-1)}{9}+n\right]$

(c) $\frac{10(10^n-1)}{9}+n$ (d) None of these

179. The Arithmetic Mean between two numbers is 15 and their G.M. is 9; then the numbers are

(a) 27,3 (b) 9, 9
(c) 16, 9 (d) None of these

180. The product of n G.M.s between the two given numbers is equal to the n power of the single G.M. between them. This statement is –

(a) True (b) False
(c) Cannot say (d) None of these

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181. The weighted arithmetic mean of first n natural numbers whose weights are equal to the corresponding numbers is equal to:

(a) $\frac{2n+1}{3}$ (b) $\frac{2(2n+1)}{2}$

(c) $\frac{n(n+1)}{2}$ (d) None of these

182. The mean weight of 15 persons is 110 kg. The mean weight of 5 of them is 100 and another 5 is 125 kgs. What is the mean weight of the remainder?

(a) 110 kgs. (b) 105 kgs.
(c) 100 kgs. (d) None of these

183. The sum of diviations of certain number of items measured from 2.5 is 50 and the sum of deviations of the same series measured from 3.5 is –50. Find the number of observations and their mean?

(a) 100, 3 (b) 200, 6
(c) 100, 4 (d) None of these

184. The most reliable central value is

(a) Mean (b) Median
(c) Mode (d) (a) and (b) both

185. In which Central value arranging is required.

(a) Mean (b) G.M.
(c) Median (d) H.M.

186. The chance of 53 Tuesdays in a year is

(a) $\frac{2}{7}$ (b) $\frac{1}{7}$

(c) $\frac{3}{7}$ (d) None of these

187. Two unbiased dice are thrown. Find the probability that sum of the faces is not less than 10.

(a) $\frac{1}{6}$ (b) $\frac{5}{6}$

(c) $\frac{2}{3}$ (d) None of these

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188. The probability that a person travels by a plane is $\frac{1}{5}$ and that he travels by train is $\frac{2}{3}$ Find the probability of his traveling neither by plane nor by train?

(a) $\frac{13}{15}$ (b) $\frac{2}{15}$

(c) $\frac{1}{15}$ (d) None of these

189. A card is drawn from a well shuffled pack of playing cards. Find the probability that it is either a diamond or a king.

(a) 5/13 (b) 3/13
(c) 4/13 (d) None of these

190. A problem in statistics is given to two students A and B. The odd in favour of A solving the problem are 6 to 9 and against B Solving the problem are 12 to 10. If both A and B attempt, find the probability of the problem being solved.

(a) 0.673 (b) 0.237
(c) 0.255 (d) None of these

191. For a binomial distribution is 7 and its Standard Deviation is $\sqrt{8}$. This statement is

(a) True (b) False
(c) Cannot say (d) None of these

192. The mean and variance of a binomial distribution and 3 and 2 respectively. Find the probability that the variate takes values less than or equal to 2.

(a) 0.3767 (b) 0.3760
(c) 0.3067 (d) None of these

193. Two digits are selected at random from the digits 1 through 9. Find the probability that their sum is even.

(a) $\frac{2}{9}, \frac{7}{18}$ (b) $\frac{5}{9}, \frac{5}{18}$

(c) $\frac{4}{9}, \frac{5}{18}$ (d) None of these

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194. A die is thrown twice and the sum of the number appearing is observed to be 6. What is the conditional probability that the number 4 has appeared at least once?

(a) $\frac{3}{5}$ (b) $\frac{2}{5}$

(c) $\frac{4}{5}$ (d) None of these

195. A bag contains 5 white and 5 black balls. If two balls are drawn they are of same colour is

(a) 4/9 (b) 5/9

(c) 1/25 (d) 2/5

196. A simple random sample of size 36 is drawn from a finite population consisting of 101 units. If the population Standard Deviation is 12.6, find the Standard Error of sample mean when the sample is drawn with replacement.

(a) 2.1 (b) 1.69

(c) 2.23 (d) None of these

197. A simple random sample of size 36 is drawn from a finite population consisting of 101 units. If the population Standard Deviation is 12.6, find the Standard Error of sample mean when the sample is drawn without replacement.

(a) 2.1 (b) 1.69

(c) 2.45 (d) None of these

198. A random sample of size 9 is drawn without replacement from a finite population consisting of 25 units. If the number of defective units in the population be 5, find the Standard Error of the sample proportion of defectives.

(a) 0.1288 (b) 0.1088

(c) 0.0588 (d) None of these

199. A population consists of 4 numbers. Find the number of sample of size 2 for with replacement condition.

(a) 16 (b) 6

(c) 10 (d) None of these

200. A population consists of 4 numbers. Find the number of sample of size two for without replacement condition.

(a) 16 (b) 6

(c) 10 (d) None of these

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COMMON PROFICIENCY TEST

Model Test Paper – BOS/CPT –10

Time : 4 hours ***Maximum Marks : 200***

The test is divided into four sections.

Questions 1 to 200 have only one correct answer and carry + 1 mark for each correct answer and – 0.25 mark for each wrong answer.

SECTION – A : FUNDAMENTALS OF ACCOUNTING (60 MARKS)

1. Cash discount allowed to a Debtor should be credited to

(a) Debtors A/c (b) Purchase A/c
(c) Discount A/c (d) Sales A/c

2. On 31st December, 2009 Ashok Ltd. purchased a machine from Mohan Ltd., for Rs. 1,75,000. This is

(a) A transaction
(b) An event
(c) None of these
(d) A transaction as well as an event

3. Prepaid commission has a

(a) Negative balance (b) Debit balance
(c) Credit balance (d) None of these

4. The following account will have debit balance

(a) Loan to other party
(b) Capital A/c
(c) Outstanding salary
(d) Reserve for doubtful debts

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5. A sum of Rs. 50,000 was spent on painting the new plant. It is a

(a) Revenue expenditure
(b) Capital expenditure
(c) Deferred revenue expenditure
(d) None of these

6. Bills receivables is a

(a) Intangible fixed asset (b) Tangible fixed asset
(c) Current asset (d) Investment

7. When closing inventory is understated, net income for the accounting period will be:

(a) Overstated (b) Understated
(c) Not affected (d) None of the above.

8. Under annuity method, interest is calculated on

(a) Written down value (b) Original cost
(c) Scrap value (d) None of the above

9. Inventory should be out of godown in the sequence in which they arrive is based on

(a) HIFO (b) FIFO
(c) Weighted overage (d) LIFO

10. All the expenditures of revenue nature go to

(a) Balance Sheet (b) Trading A/c
(c) Profit & Loss A/c (d) Either (b) or (c)

11. Memorandum joint venture account is prepared

(a) When each co-venturer keeps records of their own joint venture transactions
(b) When separate set of joint venture books is prepared
(c) When each co-venture keep records of all the joint venture transaction himself
(d) None of the three

12. In the absence of any agreement between the partners

(a) No partner has a right to receive salary (b) No interest is allowed on capital
(c) No interest is charged on drawings (d) All of the above.

13. Endorsement, discounting and collection of bills of exchange is made by

(a) Debtors (b) Creditors
(c) Drawee (d) Drawer

14. Returns Inward, appearing in the trial balance are deducted from

(a) Purchases (b) Capital
(c) Sales (d) None of the above

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15. Drawings is deducted from

(a) Capital (b) Sales
(c) Purchases (d) None of the above

16. Purchase of Plant & Machinery on credit basis is recorded in

(a) Cash book (b) Journal proper
(c) Purchases (d) Both (a) and (b)

17. The trial balance of Rajesh Ltd. shows closing inventories of Rs. 90,000. It will be recorded in

(a) Profit & Loss A/c (b) Trading A/c
(c) Balance Sheet (d) None of the above

18. Rings & pistons of an engine were changed at a cost of Rs. 5,000 to get fuel efficiency. This is a

(a) Deferred revenue expenditure (b) Revenue expenditure
(c) Capital expenditure (d) None of the above.

19.

Cash sales	**Rs. 1,40,000**
Total sales	**Rs. 5,26,000**
Bad debts	**Rs. 14,000**
Opening Debtors	**Rs. 60,000**
Closing Debtors	**Rs. 32,000**

Cash collected from Debtors will be

(a) Rs. 4,00,000 (b) Rs. 5,40,000
(c) Rs. 5,00,000 (d) None of the above.

20. Noting charges are paid at the time of

(a) Renewal of the bill (b) Retirement of the bill
(c) Dishonour of the bill (d) None of the three

21. The Balance of an account is always known by the side which is-

(a) Shorter (b) Higher
(c) Equal (d) None of these

22. An undervaluation of previous year's opening inventory will

(a) Cause current year's net income to be overstated
(b) Cause previous years net income to be understated
(c) Cause previous years net income to be overstated
(d) None of the above

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23. Parul accepted a bill for 90 days of Rs. 10,000 drawn by Rahul on 10 Feb., 2010. On 18th March, 2010, Parul wished to retire the bill, Rahul offered rebate @ 12% p.a. considering the year of 360 days rebate amount will be

(a) Rs. 184 (b) Rs. 150
(c) Rs. 180 (d) None of the above

24. Which of the following is a credit transaction?

(a) Sold goods (b) Sold goods for cash
(c) Sold goods to Ram for cash (d) Sold goods to Ram.

25. On equity share of Rs. 10, the company has called up Rs. 9 but actually received Rs. 8. The share capital would be credited by

(a) Rs. 10 (b) Rs. 9
(c) Rs. 8 (d) Rs. 5.

26. If total sales during the year Rs. 1,00,000; Cash sales Rs. 20,000 and Debtors at the end of the year Rs. 30,000 then cash received from Debtors during the year will be

(a) Rs. 70,000 (b) Rs. 50,000
(c) Rs. 1,10,000 (d) Rs. 90,000

27. Cost of goods sold Rs. 1,50,000
Closing Inventory Rs. 40,000
Opening Inventory Rs. 60,000
Amount of purchases will be

(a) Rs. 1,30,000 (b) Rs. 1,70,000
(c) Rs. 50,000 (d) None of the above

28. If a bill of exchange will mature on 15th August but it is a public holiday then the bill will mature on

(a) 15 August (b) 16 August
(c) 14 August (d) 18 August

29. A, B and C are partners in a firm sharing profits and losses in the ratio of 2:3:5. The firm took separate life policy of Rs. 50,000, Rs. 1,00,000 and Rs. 1,50,000 for A, B and C respectively. The share of B in the policy will be

(a) Rs. 90,000 (b) Rs. 1,50,000
(c) Rs. 3,00,000 (d) Rs. 60,000

30. A company purchased a motor car for Rs. 5,00,000. Estimated useful life of the motor car is 15 years and residual value is Rs. 50,000. Rate of depreciation will be

(a) 9% (b) 6%
(c) 10% (d) 15%

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31. A company issued Rs. 20,000, 15% debentures at a discount of 10% redeemable after 15 year at a premium of 5%. Loss on issue of debentures will be

(a) Rs. 1,400 (b) Rs. 1,000
(c) Rs. 3,000 (d) None of the above

32. Raj Ltd. purchased machinery for Rs. 20,000 payable Rs. 6,500 in cash and the balance by an issue of 10% debentures of Rs. 100 each at a discount of 10%. Discount on issue of debentures will be

(a) Rs. 1,000 (b) Rs. 1,500
(c) Rs. 1,400 (d) None of these

33. A firm had an unrecorded investment of worth Rs. 50,000. Entry in the firms journal on admission of a partner will be

(a)	Partner Capital A/c	Dr.	50,000	
	To Revaluation A/c			50,000
(b)	Revaluation A/c	Dr.	50,000	
	To Partner's capital			50,000
(c)	Unrecorded investment A/c	Dr.	50,000	
	To Revaluation A/c			50,000
(d)	Revaluation A/c	Dr.	50,000	
	To Unrecorded investment A/c			50,000

34. Gaining ratio is applied when

(a) A partner is insolvent (b) A partner is admitted
(c) A partner retires (d) All of the above

35. Interest on capital at 12% p.a. is to be allowed. Capital in the beginning was Rs. 6,00,000. Interest amount will be

(a) Rs. 70,000 (b) Rs. 72,000
(c) Rs. 60,000 (d) Rs. 75,000

36. Lal & Co. issued 10,000 debentures of Rs. 100 each at a discount of 4% redeemable after 5 years at a premium of 6%. Loss on issue of debentures will be

(a) Rs. 60,000 (b) Rs. 1,60,000
(c) Rs. 1,00,000 (d) Rs. 40,000

37. Dismantling and demolition charges is a

(a) Deferred Revenue expenditure
(b) Capital expenditure
(c) Revenue expenditure
(d) None of the above

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38. On equity share of Rs.20, the company has called up Rs.18 but actually received Rs. 16. The share capital would be credited by

(a) Rs. 20 (b) Rs. 18
(c) Rs. 16 (d) Rs. 10

39. Net salary paid to employees Rs. 5,00,000 in cash after deducting income tax Rs. 50,000 professional tax Rs. 10,000. Salary A/c will be debited with

(a) Rs. 5,00,000 (b) Rs. 4,40,000
(c) Rs. 5,60,000 (d) Rs.4,50,000

40. Ram and Mohan are partners sharing profits equally. They admitted Sohan for 1/3 share in the firm. The new profit sharing ratio will be

(a) 2:2:1 (b) 1:1:1
(c) 1:2:3 (d) 3:2:1

41. A, B and C are partners sharing profits and losses in the ratio of 5:4:3. C retires and if A and B share profits of C in 4:3 then new profit sharing ratio will be

(a) 5:4 (b) 4:3
(c) 5:3 (d) 47:37

42. Following figures have been taken from the trial balance of a trader:

Cost of goods sold	**45,000**
Sales	**60,000**
Closing Inventory	**10,000**

The amount of gross profit will be

(a) Rs. 15,000 (b) Rs. 25,000
(c) Rs. 5,000 (d) None of those

43. In January 2007, a trader purchased machinery for Rs. 1,00,000 depreciation is charged @ 20% by diminishing balance method. At the end of the third year it was sold for Rs. 31,000. Profit or loss on sale will be

(a) Loss Rs.20,200 (b) Loss Rs.40,000
(c) Profit Rs.20,000 (d) Profit Rs.20,200

44. Net profit before charging manager's commission is Rs. 24,000 and the manager is to be allowed a commission of 20% on the profit after charging such commission. Commission amount will be

(a) Rs. 4,000 (b) Rs. 4,800
(c) Rs. 4444.44 (d) None of the above

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45. Amount spent on "Structural alteration" under pressure of law is a

(a) Capital loss (b) Revenue expenditure
(c) Capital expenditure (d) Deferred revenue expenditure

46. M, N and O share profits and losses in the ratio of 3:2:1. Upon admission of D, they agreed to share 5:4:2:1. The sacrificing ratio will be

(a) Nil : Nil : 1/l2 (b) Nil : 1/12 : Nil
(c) 1/12 : Nil : Nil (d) None of the above

47. A was holding 100 shares of Rs. 10 each of a company on which he had paid Rs. 4 on application and Rs. 3 allotment, but could not pay Rs. 2 on first call. Forfeited share A/c will be credited with

(a) Rs. 500 (b) Rs. 400
(c) Rs. 700 (d) Rs. 600

48. The following information pertains to Arjun Ltd.

(1)	**Equity share capital called up**	**Rs. 1,00,000**
(2)	**Calls in arrear**	**Rs. 10,000**
(3)	**Calls in advance**	**Rs. 10,000**
(4)	**Proposed dividend**	**15%**

The amount of proposed dividend payable is

(a) Rs. 15,000 (b) Rs. 13,500
(c) Rs. 85,000 (d) None of the above

49. Ram Ltd. purchased the business of Rahim Ltd. for Rs. 9,00,000 payable in fully paid shares of Rs. 100 each. Shares were issued at a premium of 25%. Number of shares issued against purchased consideration will be

(a) 7,200 shares (b) 10,800 shares
(c) 2,250 shares (d) 6,750 shares

50. Credit balance in the ledger will be

(a) A revenue or an asset (b) A revenue or a liability
(c) An expenses or an asset (d) None of the above

51. Gross profit is the difference between

(a) Sales and cost of goods sold (b) Sales and total expenses
(c) Sales and purchases (d) None of the above

52. Closing entry for transfer of net profit Rs. 6,300 to the capital a/c will be

(a) Trading A/c 6,300 Dr. To Balance sheet 6,300
(b) Trading A/c 6,300 Dr. To Profit & Loss A/c 6,300
(c) P & L A/c 6,300 Dr. To Capital A/c 6,300
(d) Capital A/c 6,300 Dr. To P& L A/c 6,300

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53. The total of "Discount allowed" column in the Cash book for the month of July, 2010 amounting to Rs. 10,000 was not posted. Rectifying entry for the same will be

(a) Discount allowed A/c Dr. 10,000 To Suspense A/c 10,000
(b) Suspense A/c Dr. 10,000 To Discount A/c 10,000
(c) Customer A/c Dr. 10,000 To Discount A/c 10,000
(d) None of the above

54. After preparing the trial balance the accountant find that the total of the credit side is short by Rs. 2,000. This difference will be

(a) Debited to Suspense A/c
(b) Credited to suspense A/c
(c) Adjusted to any of the credit balance A/c
(d) Adjusted to any of the debit balance A/c

55. Goods purchased for Rs. 2,00,000 and were sold for Rs. 1,60,000. Margin 20% on sales. Closing Inventory is ….

(a) Rs. 32,000 (b) Rs. 72,000
(c) Rs. 50,000 (d) None of the above

56. Journal entry for wages paid Rs. 3,000 for installation of plant will be

(a) Dr. Plant repairs A/c and Cr. Cash A/c Rs. 3,000
(b) Dr. Wages A/c and Cr. Cash A/c Rs. 3,000
(c) Dr. Plant A/c and Cr. Cash A/c Rs. 3,000
(d) None of the above

57. On June 1, Sahil paid salary amounting Rs. 20,000. This is

(a) A transaction (b) An event
(c) Both (a) and (b) (d) None of the above

58. Ram sells goods at cost plus 40%. Total sales were Rs. 21,000. Cost price of the goods will be

(a) Rs. 8,400 (b) Rs. 15,000
(c) Rs. 12,600 (d) Rs. 20,000

59. Bright stationery used stationery for business purposes Rs. 500. Amount will be credited to

(a) Purchases A/c (b) Sales A/c
(c) Cash A/c (d) None of the above

60. Goods destroyed by fire Rs. 50,000 and insurance company admitted full claim. Claim receivable will be recorded in

(a) Trading A/c (b) P & L Appropriation A/c
(c) P & L A/c (d) Balance Sheet

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SECTION – B : MERCANTILE LAWS (40 MARKS)

61. Under the Sale of Goods Act, 1930 price means:

(a) Consideration in money
(b) Transfer value of goods
(c) Revenue consideration
(d) Economic Exchange Value

62. While obtaining the consent of the promise, keeping silence by the promisor when he has a duty to speak about the material facts, amounts to consent obtained by:

(a) Coercion
(b) Misrepresentation
(c) Mistake
(d) Fraud

63. Agreement which are in nature of bets and gambling are called:

(a) Invalid agreements
(b) Voidable contracts
(c) Contingent contracts
(d) Wagering agreements

64. Offer implied from conduct of parties or from circumstances of the case is called:

(a) General offer
(b) Specific offer
(c) Express offer
(d) Implied offer

65. Consideration without agreement are valid in case:

(a) Out of love and affection
(b) Compensation for past voluntary services
(c) Promise to pay time barred debt
(d) All of the above

66. In case of sale on approval, the ownership is transferred to the buyer when he

(a) Accepts the goods
(b) Adopts the transaction
(c) Fails to return the goods
(d) In all the above cases

67. Novation may take place between

(a) Different parties
(b) The same parties
(c) (a) or (b)
(d) (a) and (b)

68. Recission of a contract means

(a) The renewal of original contract
(b) Cancellation or termination of contract
(c) Substitution of new contract
(d) Alteration of contract

69. Discharge of contracts by implied consent does not include

(a) Novations
(b) Actual performance
(c) Merger
(d) Waiver

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70. If the contingent depends on the mere will of the promisor it would be –

(a) Valid (b) Void
(c) Illegal (d) Depends on the circumstances

71. A contract is discharged by alteration which means the:

(a) Acceptance of loser performance
(b) Cancellation of the existing contract
(c) Change in one or more terms of contract
(d) abandonment of rights by a party

72. A agrees with B to build a ladder up to the moon. The agreement is:

(a) Void (b) Voidable
(c) Unenforceable (d) None of these

73. Which of the following persons can perform the contract?

(a) Promisor alone
(b) Agent of the promisor
(c) Legal representatives of promisor
(d) All of these

74. Which of the remedies not available to a defrauded party?

(a) Consideration of the contract
(b) Rescind the contract
(c) Insistence on specific performance
(d) Suit for damages

75. A seller is an unpaid seller:

(a) When only a part of the price has been paid
(b) When a cheque has been issued and the payment of the same is stopped
(c) When whole of the price has not been tendered
(d) Any one of the above

76. When property in goods has not passed to the buyer, the unpaid seller has a right of:

(a) With holding delivery (b) Stoppage in transit
(c) (a) and (b) (d) (a) or (b)

77. A seller agrees to supply a crop which is to be grown by him. This is a:

(a) An agreement to sell (b) Sale
(c) Bailment (d) Contract for work & labour

78. A notice given to a partner is deemed to be a notice given to the firm when notice is given to:

(a) Any active partner (b) Any partner
(c) Sleeping partner (d) All the partner

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79. On the insolvency of a partner, the insolvent ceases to be a partner in the firm whether the firm is dissolved or not:

(a) Yes (b) No
(c) Practically dissolved (d) Dissolve in capital ratio

80. A contract for sale of certain goods to be manufactured by a seller is a:

(a) Void contract (b) Future contract
(c) Contingent contract (d) Implied contract

81. For loss caused to the firm by his fraud in the conduct of the business, every partner shall identify as a _____.

(a) Firm (b) The other partners
(c) Only the working partners (d) All the retiring partners

82. A partner may be expelled from the firm by any majority of the partners _____.

(a) In good faith
(b) Based on the contract between partners
(c) Either (a) or (b)
(d) Both (a) and (b)

83. A person who lends his name to the firm, without having any real interest in it is called

(a) A nominal partner (b) A sleeping partner
(c) A working partner (d) A active partner

84. A wagering agreement in India is declared by the Contract Act as _____.

(a) Illegal and void
(b) Void but not illegal
(c) Voidable at the option of the aggrieved party
(d) Immoral

85. A partnership firm cannot use _____ the words as part of its name.

(a) Limited (b) Co-operative
(c) Enterprises (d) Both (a) and (b)

86. Which of the following needs to be given to the partners even after dissolution of the firm:

(a) Interest on advances (b) Interest on capital
(c) Remuneration (d) None of the above.

87. _____ makes the agreement void and neither party can enforce the contract against the other.

(a) A misrepresentation (b) A mistake
(c) An object (d) A consideration

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88. A contract of sale is a contract for sale by sample if it is_____.

(a) By operation of law
(b) By way of custom or usage of trade
(c) By way of an express or implied term in the contract, to that effect
(d) By decision of the seller

89. In case of _____, the term of contract may be altered by mutual consent, but the parties to the contract will remain the same

(a) Novation (b) Remission
(c) Rescission (d) Alteration

90. Consent should be given _____.

(a) By the person to whom offer is made
(b) Without condition
(c) In clear terms either oral or written
(d) All of the above

91. Revocation of offer can be done by _____.

(a) Lapse of time (b) Death of the offeror
(c) Counter offer (d) All of the above

92. The terms of offer must be _____.

(a) Definite (b) Certain
(c) Unambiguous (d) All the above

93. "Active concealment of fact" is associated with which one of the following?

(a) Misrepresentation (b) Undue influence
(c) Fraud (d) Mistake

94. Under _____, the goods passes to the buyer only upon payment of last instalment

(a) Hire purchase (b) Sale
(c) Leasing (d) Instalment purchase.

95. Communication of offer may be by _____.

(a) Words only (b) Conduct only
(c) Words or conduct (d) None of the above

96. In case letter of acceptance is lost in transit, it will be deemed to be a valid acceptance if it is proved that the letter_____.

(a) Sufficiently stamped (b) Correctly addressed
(c) Posted (d) All the above

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97. The juristic concept of contract consists of _____.

(a) Offer and acceptance
(b) Consideration and coercion
(c) Agreement and obligation
(d) Free consent and capacity

98. Advertisement inviting tender is _____.

(a) An offer (b) A counter offer
(c) An agreement (d) An invitation to offer

99. 'A', as surety 'B', makes a bond jointly with 'B', to 'C', to secure a loan from 'C' to 'B', afterwards, 'C' obtains from 'B' a further security for the same debt. Subsequently, 'C' gives up the further security. Decide.

(a) A is discharged (b) A is not discharged
(c) B cannot file a suit (d) None of the above

100. 'A' and 'B' bet as to whether it would rain on a promising to pay Rs. 100 to 'B', if it rained, and, 'B' promising an equal amount to 'A', if it did not. Decide the type of agreement.

(a) Contingent contract (b) Quasi contract
(c) Wagering contract (d) Implied contract

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101. If the proportion of income spent on a good increase as income increases, then income elasticity for the good is:

(a) Greater than one (b) Less than one
(c) One (d) Infinite

102. Which is not the assumption of marginal utility analysis?

(a) Cardinal measurability of utility
(b) Constancy of the marginal utility of money
(c) Rationality of human behaviour
(d) Ordinal Measurability of utility

103. Law of diminishing marginal utility may not apply to:

(a) Money (b) Butter
(c) Pepsi, Coke etc. (d) Ice cream

104. Which is not the assumption of the law of diminishing marginal utility?

(a) The different units consumed should be identifiable in all respects
(b) The different units consumed should consist of standard units
(c) There should be time gap or interval between consumption of one unit and another unit
(d) The law may not apply to hobbies, music etc.

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105. Concept of consumer surplus was evolved by:

(a) Allen and Hicks (b) Adam Smith
(c) Alfred Marshall (d) Robbins

106. Contraction of demand is the result of:

(a) Increase in the price of other good
(b) Increase in the price of substitute goods
(c) Decrease in the income of the consumer
(d) Increase in the price of the good concerned

107. Which of the following method is not used for measuring elasticity of supply?

(a) Arc Method (b) Percentage Method
(c) Total outlay Method (d) Point Method

108. If the local ice-cream shop raises the price of a ice cream cup from Rs 10 per cup to Rs. 15 per cup, and quantity demanded falls from 500 cups per day to 300 cups per day, the price elasticity of demand for ice-cream cup is: (use arc Elasticity Method)

(a) 1 (b) 2.5
(c) 2 (d) 1.25

109. SJSRY stands far:

(a) Silver Jubilee Swarozgar Yojna
(b) Swarnajayanti Shahari Rozgar Yojna
(c) Swarnajayanti Gram Sadak Yojna
(d) Swarnajayanti Swarozgar Yojna

110. Which of the following is not included in M1?

(a) Currency
(b) Demand Deposits
(c) Other deposits with RBI
(d) Other deposits with post office

111. In order to increase money supply in the country RBI may:

(a) Buy securities in the open market
(b) Sell securities in the open market
(c) Increase CRR
(d) Increase Bank rate

112. Which is not Pure money?

(a) Cash
(b) Chequable deposits
(c) Both (a) and (b)
(d) Time deposits

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113. Monopoly power refers to the firm's ability to:

(a) Earn economic Profit
(b) Restrict entry into the industry
(c) Set prices above marginal cost
(d) Possess economies of scale

114. In the long run monopolistic competitive firm has:

(a) Excess Capacity (b) Excess Profits
(c) Zero Fixed cost (d) All of the above

115. Which of the following is a normative statement?

(a) Planned economies allocate resources via government departments
(b) Reducing inequality should be a major priorities for mixed economies
(c) There is greater degree of consumer sovereignty in market economies
(d) Most economies have experienced problems of falling output and rising prices

116. The market of computers is not in equilibrium, then which of the following statements is definitely true?

(a) The prices of computer will rise
(b) The prices of computer will fall
(c) The prices of computers will change, but not enough information is given to determine the direction of the change
(d) None of the above

117. As the price of Bananas rises:

(a) The quantity demanded for bananas increases
(b) The demand curve for bananas shifts to the right
(c) The quantity demanded for bananas decreases
(d) The demand curve far bananas shifts to the left

118. Suppose the short run cost function can be written as TC=250+10Q. Average Fixed cost equals:

(a) 250/Q (b) 250
(c) 10 (d) 250/Q+10

119. Gopal inherited 1 acre of land from his father in 1960. Today the value of that land is Rs. 90 lakh per acre. What is the opportunity cost to Gopal for keeping that land? His father paid Rs. 50, 000 for this land.

(a) Nothing, since the land was inherited
(b) Rs.50, 000 which his father paid
(c) Rs.90 lakh, since this amount Gopal is getting now if he sells it
(d) Both (b) and (c)

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120. Suraj is a high school senior thinking about becoming an economic research assistant. Shyam just graduated from college with an economic degree and is looking for a job as an economic research assistant. For whom is the college tuition an opportunity cost?

(a) Suraj
(b) Shyam
(c) Both Suraj and Shyam
(d) Neither Suraj nor Shyam

121. Which of the following is incorrect?

(a) The shape of average cost is U-shaped
(b) MC Curve cuts AC curve at the minimum level of AC
(c) The AR and MR curves of the industry under perfect competition are parallel to X-axis
(d) MC curve cuts AVC curve at the minimum level of AVC

122. Other things remaining constant, the law of supply states:

(a) Supply for commodities is directly related to its price
(b) Price is not related to supply
(c) As supply rises, price also rises
(d) Supply is not related to factors other than price

123. Kinked demand curve in oligopoly market explains:

(a) Price and output determination
(b) Existence of very few firms in the market
(c) Price rigidity
(d) Price leadership

124. Right to own private property is found in:

(a) Socialism (b) Capitalism
(c) Mixed Economy (d) Both (b) and (c)

125. Which of the following is not a factor of production?

(a) Man (b) Labour
(c) Capital (d) Entrepreneurs

126. _____ shows the relationship of output with given inputs.

(a) Demand Function (b) Production Function
(c) Cost function (d) PPC function

127. $TC_n - TC_{n-1}$ = which cost function?

(a) Marginal Cost (b) Average Cost
(c) Total Cost (d) None of the above

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128. Shares traded in the stock market depict characteristics close to_____.

(a) Perfect competition
(b) Oligopoly
(c) Monopolistic Competition
(d) Monopoly

129. Assume that when price is Rs.20, quantity demanded in 10 units, and when price is Rs. 19 quantity demanded in 11 units. Based on this information, what is the marginal revenue resulting from an increase in output from 10 units to 11 units.

(a) Re.1 (b) Rs.9
(c) Rs.19 (d) Rs.10

130. Which of the following is not a characteristic of a price taker?

(a) Positively sloped demand curve
(b) TR = PxQ
(c) AR = Price
(d) Marginal Revenue = Price

131. The cost of one thing in terms of the alternative given up is known as

(a) Production cost (b) Real cost
(c) Opportunity cost (d) Physical cost

132. With a given supply curve, a decrease in demand causes:

(a) An overall decrease in price but an increase in equilibrium quantity
(b) An overall increase in price but a decrease in equilibrium quantity
(c) No change in overall price but a reduction in equilibrium quantity
(d) An overall decrease in price and a decrease in equilibrium quantity

133. _____ measure generally gives the highest estimate of unemployment especially for poor economy

(a) CDS (b) CMS
(c) Usual Status (d) CWS

134. When due to introduction of new machinery, sonu workers get replaced by machines. Such unemployment is called :

(a) Seasonal Unemployment
(b) Mechanical Unemployment
(c) Technological Unemployment
(d) Frictional Unemployment

135. The measure of absolute poverty is:

(a) Used only by India
(b) Not related to the income or consumption expenditure distribution
(c) Related to the distribution of income or consumption expenditure
(d) None of the above

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136. National Population Policy was announced in:

(a) 2001 (b) 1999
(c) 2000 (d) 2005

137. Unproductive consumers consist of:

(a) Children upto 15 years (b) Adults above 60 years
(c) Both (a) and (b) (d) Adults above 40 years

138. Which of the following statements is correct?

(a) Agriculture occupies 20% population of India
(b) Merely 15% population is below the poverty line
(c) The production techniques in India are very advance
(d) None of the above

139. _____ is the top most bank for agricultural loans in India.

(a) NABARD (b) RBI
(c) SIDBI (d) SBI

140. MR curve and AR curves coincide in

(a) Monopoly (b) Monopolistic Competition
(c) Oligopoly (d) Perfect Competition

141. Law of increasing return operates due to:

(a) Indivisibility of Fixed Factors
(b) Division of Labour and specialization
(c) Both (a) and (b)
(d) Misuse of machinery

142. Law of variable proportion is applicable in:

(a) Short run
(b) Long run
(c) Both Short run and Long run
(d) Very Short run

143. Which of the following statements is incorrect?

(a) Both AP and MP can be calculated from TP
(b) When AP rises then MP>AP
(c) When AP is maximum then MP = AP
(d) When AP falls, MP also falls but MP>AP

144. Supply of a Commodity is a :

(a) Flow concept (b) Stock concept
(c) Both stock and flow concepts (d) None of these

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145. If two goods are perfect substitutes to each other, then is necessarily follows that.

(a) An indifference curve relating to the two goods will be curvilinear
(b) An indifference curve relating to the two goods will be linear
(c) An indifference curve relating the two goods will be concave to the origin
(d) An indifference curve relating the two goods will be convex to the origin

146. When the price of a substitute of X commodity falls, the demand for X commodity:

(a) Falls (b) Rises
(c) Remains unchanged (d) Any of the above

147. Generally supply curve of industrial products is

(a) Positively sloped (b) Negatively sloped
(c) Both (a) and (b) (d) Parallel to Y axis

148. Which of the following is not a fixed cost?

(a) Payment of interest on loan
(b) Cost of electricity and fuel
(c) Depreciation on building
(d) Rent of godown.

149. The relationship between the AC and MC is that

(a) MC will always be less than the AC
(b) MC will be more than AC when MC is falling
(c) MC will be more than AC, when AC is rising
(d) None of the above

150. Which of the following is not included in M2?

(a) M1
(b) Time liabilities portion of saving deposits with bank
(c) Certificate of deposits issued by banks
(d) Term deposits with banks with maturity over one year

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151. The value of $3^3 + 4^3 + 5^3 + \ldots\ldots\ldots\ldots + 11^3$

(a) 4356 (b) 4348
(c) 4347 (d) 4374

152. The sum of two numbers is 75 and their difference is 20. Find the difference of their squares.

(a) 1500 (b) 1600
(c) 1550 (d) None of these

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153. The sum of two numbers is 13 and the sum of their squares is 85. Find the numbers.

(a) 7, 6 (b) 8, 10
(c) 5, 4 (d) None of these

154. The difference between the squares of two consecutive numbers is 37. Find the numbers.

(a) 19, 18 (b) 20, 19
(c) 10, 9 (d) None of these

155. The denominator of a fraction is 3 more than its numerator. If the numerator is increased by 7 and the denominator is decreased by 2, we obtain 2. The fraction is –

(a) $\frac{3}{8}$ (b) $\frac{5}{8}$
(c) $\frac{7}{8}$ (d) None of these

156. If $\log_x \sqrt{3} = \frac{1}{6}$ find the value of x

(a) 9 (b) 27
(c) 18 (d) None of these

157. The value of $a^{\log_a x}$ is

(a) x (b) $\log_a x$
(c) x^2 (d) None of these

158. The value of $3^{2-\log_3 6}$ is

(a) $\frac{9}{5}$ (b) $\frac{3}{2}$
(c) $\frac{9}{4}$ (d) None of these

159. If log 2 = 0.3010, log 3 = 0.04771 and log 5 = 0.6990, there log 30

(a) 2.5717 (b) 2.4771
(c) 1.4771 (d) None of these

160. If $\log_{10}$ 12.45 = 1.0952 and $\log_{10}$ 3.79 = 0.5786, find the value of $\log_{10}$ 124.5 + $\log_{10}$ 379.

(a) 5.3782 (b) 4.6738
(c) 2.6738 (d) None of these

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161. **If ${}^{n}p_5 : {}^{n}p_3 = 2:1$; then the value of n is**

(a) 4 (b) 5
(c) 10 (d) None of these

162. **A room has 10 doors. In how many ways can a man enter the room by one door and come out by a different door.**

(a) 90 (b) 100
(c) 50 (d) None of these

163. **How many numbers greater than 1000 can be formed with the digits of the number 23416; if the digits are not repeated in the same number.**

(a) 120 (b) 200
(c) 240 (d) None of these

164. **How many numbers can be formed with the digits of the number 112321 that are greater than one lakh?**

(a) 60 (b) 80
(c) 70 (d) None of these

165. **In how many different ways can 17 billiard balls be arranged, if 7 of them are black, 6 red and 4 white.**

(a) 408408 (b) 4084080
(c) 4004080 (d) None of these

166. **Evaluate** $\int \frac{xe^x}{(x+1)^2} dx$

(a) $\frac{1}{(x+1)^2} ex + c$ (b) $\frac{1}{x+1} e^x + c$

(c) $\frac{2x}{(x+1)^2} e^{2x} + c$ (d) None of these

167. **Evaluate** $\int e^x \frac{x-1}{(x+1)^3} dx$

(a) $\frac{e^{2x}}{(x+1)^3} + c$ (b) $\frac{e^x}{(x+1)^3} + c$

(c) $\frac{e^x}{(x+1)^2}$ (d) None of these

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168. **Evaluate** $\int_0^2 \frac{x^2 dx}{x^2+(2-x)^2}$

(a) 1 (b) 0

(c) 2 (d) None of these

169. **Evaluate:** $\int \frac{dx}{x^2-a^2}$

(a) $\frac{1}{2a}\log\left|\frac{x-a}{x+a}\right|+c$ (b) $\frac{1}{2a}\log\left|\frac{x+a}{x-a}\right|+c$

(c) $-\frac{1}{2a}\log\left|\frac{x-a}{x+a}\right|+c$ (d) None of these

170. **Evaluate:** $\int \frac{1}{a^2-x^2}dx$

(a) $\frac{1}{2a}\log\left|\frac{a+x}{a-x}\right|+c$ (b) $\frac{-1}{2a}\log\left|\frac{a-x}{a+x}\right|+c$

(c) $\frac{1}{2a}\log\left|\frac{x-a}{x+a}\right|$ (d) None of these

171. **If e^{x-y} + log xy + xy = 0, then $\frac{dy}{dx}$ is**

(a) $\frac{y}{x}$ (b) $\frac{-y}{x}$

(c) $\frac{-x}{y}$ (d) None of these

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172. **if $y = x^{\log(\log x)}$; then $\frac{dy}{dx}$ is**

(a) $\frac{y}{x}\left[\log(\log x)+1\right]$ (b) $\frac{x}{y}\left[\log(\log x)+1\right]$

(c) $-\frac{x}{y}\left[\log(\log x)+1\right]$ (d) None of these

173. **If $y = \frac{x+\frac{1}{x}}{x+\frac{1}{x}}$, then $\frac{dy}{dx}$ is**

(a) $\frac{x^4+x^2+2}{(x^2+1)^2}$ (b) $\frac{x^4+x^2+2}{x^2+1}$

(c) $\frac{(x^4+x^2+2)^2}{x^2+1}$ (d) None of these

174. **If $\sqrt{\frac{y}{x}}+\sqrt{\frac{x}{y}}=6$, then $\frac{dy}{dx}$ is**

(a) $\frac{x+17y}{17x+y}$ (b) $\frac{x-17y}{17x+y}$

(c) $\frac{x-17y}{17x-y}$ (d) None of these

175. **Evaluate : $^{47}c_4+\sum_{j=0}^{3}50-jc_3$**

(a) 249900 (b) 24990
(c) 249000 (d) None of these

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176. The first term of an A.P. is 100 and the sum of whose first 6 terms is 5 times the sum of the next 6 terms, then the c.d. is –

(a) –10 (b) 10
(c) 5 (d) None of these

177. The sum of n terms of an A.P. is $3n^2+n$; then its pth term is

(a) 6P + 2 (b) 6P – 2
(d) 6P – 1 (d) None of these

178. The sum of first m terms of an A.P. is same as the sum of first n terms, where m^1 n; then the sum of first (m+n) terms is:

(a) 0 (b) 1
(c) –1 (d) None of these

179. Which term of the sequence, $\frac{-9}{4}, -2, \frac{-7}{4}$, ... is zero.

(a) 9^{th} term (b) 10^{th} term
(c) 12^{th} term (d) None of these

180. If 6 times of 6^{th} term of an A.P. is equal to 15 times the 15^{th} term, then its 21^{st} term.

(a) 1 (b) –1
(c) 0 (d) None of these

181. The average of n numbers is x. If each of the numbers is multiplied by (n+1); then the average of new set of numbers is

(a) x (b) $\frac{x}{n+1}$
(c) (n + 1).x (d) None of these

182. The average weight of 8 person increases by 1.5 kg, if a person weighing 65 kg replaced by a new person, what would be the weight of the new person?

(a) 76 kg (b) 80 kg
(c) 77 kg (d) None of these

183. The average of marks obtained by 120 students in a certain examination is 135. If the average marks of passed students is 39 and that of the failed students is 15; what is the number of students who passed in the examination?

(a) 100 (b) 150
(c) 200 (d) None of these

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184. The average of 17 numbers is 45. The average of first 9 of these numbers is 51 and the last 9 of these numbers is 36. Find the 9th number?

(a) 5 (b) 14
(c) 18 (d) None of these

185. The average of 11 results is 30, that of the first five is 25 and that of the last five is 28. Find the value of the 6th number?

(a) 60 (b) 65
(d) 75 (d) None of these

186. There are ……. Tests for Index Number

(a) Four (b) Three
(c) Five (d) None of these

187. Laspeyre's & Paasche's Index Number satisfy the time reversal test.

(a) True (b) False
(c) Either (a) or (b) (d) None of these

188. If one card is drawn at random from a pack of playing cards; find the probability it is neither a hearts nor a club:

(a) $\frac{1}{2}$ (b) $\frac{3}{4}$

(c) $\frac{1}{8}$ (d) None of these

189. Three balls are drawn at random from a bag containing 6 blue and 4 red balls. What is the chance that 2 balls are blue and 1 is red?

(a) $\frac{1}{4}$ (b) $\frac{3}{4}$

(c) $\frac{1}{2}$ (d) None of these

190. Find the probability of 53 Mondays in a leap year?

(a) $\frac{2}{7}$ (b) $\frac{3}{7}$

(c) $\frac{4}{7}$ (d) None of these

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191. If A & B are independent events and P(A) = $\frac{1}{3}$ & P(B) = $\frac{3}{4}$; then P(AUB) is

(a) $\frac{2}{6}$ (b) $\frac{5}{6}$

(c) $\frac{1}{6}$ (d) None of these

192. Two letters are drawn at random from the word "HOME" Find the probability that both the letters are vowel?

(a) $\frac{1}{6}$ (b) $\frac{5}{6}$

(c) $\frac{2}{3}$ (d) None of these

193. Two letters are drawn at random from the word "HOME" Find the probability that at least one is vowel?

(a) $\frac{5}{6}$ (b) $\frac{1}{6}$

(c) $\frac{1}{3}$ (d) None of these

194. Two letters are drawn at random from the word "HOME" Find the probability that one of the letters selected should be M.

(a) $\frac{1}{4}$ (b) $\frac{1}{2}$

(c) $\frac{3}{4}$ (d) None of these

195. A and B are two mutually exclusive events of an experiments. If P ('not A') = 0.65, P (AUB) = 0.65 and P(B) = p. Then the value of p is

(a) 0.35 (b) 0.60
(c) 0.3 (d) None of these

196. Find the n^{th} term of the given series 1/2, $5/2^2$, $17/2^3$, ...

(a) 2^n-n-1 (b) $1-2^{-n}$
(c) $n+2^{-n}-1$ (d) 2^{n-1}

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197. Let f(x) be a polynomial function of second degree and a_1, a_2, a_3 are in A.P. $f'(a_1)$, $f'(a_2)$ and $f'(a_3)$ are in

(a) A.P. (b) G.P.
(c) Either A.P. or G.P. (d) None of these

198. A man borrows Rs. 20,000 at interest rate 4% per annum compounded annually and agrees to pay both the principal and the interest in 10 equal instalments at the end of each year. Find the value of each instalment (approx.) (Given log 104 = 2.0170 and log 6761 = 3.8300).

(a) Rs. 2,470 (b) Rs. 3,470
(d) Rs. 5,470 (d) None of these

199. Two regression coefficient bxy and byx are 1.2 and –0.5. This is

(a) True (b) False
(c) Either (a) or (b) (d) None of these

200. The mean of Poisson distribution is 1.6 and variance is 2. This is

(a) True (b) False
(c) Either (a) or (b) (d) None of these

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 1

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(d)**	2.	**(d)**	3.	**(b)**	4.	**(a)**	5.	**(d)**
6.	**(c)**	7.	**(b)**	8.	**(a)**	9.	**(c)**	10.	**(b)**
11.	**(c)**	12.	**(a)**	13.	**(d)**	14.	**(b)**	15.	**(a)**
16.	**(d)**	17.	**(b)**	18.	**(a)**	19.	**(b)**	20.	**(d)**
21.	**(c)**	22.	**(c)**	23.	**(b)**	24.	**(c)**	25.	**(a)**
26.	**(b)**	27.	**(b)**	28.	**(d)**	29.	**(b)**	30.	**(c)**
31.	**(b)**	32.	**(c)**	33.	**(a)**	34.	**(a)**	35.	**(c)**
36.	**(d)**	37.	**(a)**	38.	**(c)**	39.	**(b)**	40.	**(a)**
41.	**(b)**	42.	**(b)**	43.	**(c)**	44.	**(a)**	45.	**(c)**
46.	**(b)**	47.	**(d)**	48.	**(a)**	49.	**(c)**	50.	**(b)**
51.	**(c)**	52.	**(a)**	53.	**(b)**	54.	**(a)**	55.	**(b)**
56.	**(d)**	57.	**(a)**	58.	**(c)**	59.	**(d)**	60.	**(b)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(c)**	62.	**(d)**	63.	**(a)**	64.	**(b)**	65.	**(a)**
66.	**(a)**	67.	**(d)**	68.	**(c)**	69.	**(c)**	70.	**(b)**
71.	**(a)**	72.	**(a)**	73.	**(b)**	74.	**(b)**	75.	**(a)**
76.	**(c)**	77.	**(d)**	78.	**(c)**	79.	**(b)**	80.	**(b)**
81.	**(a)**	82.	**(a)**	83.	**(c)**	84.	**(d)**	85.	**(b)**
86.	**(a)**	87.	**(b)**	88.	**(b)**	89.	**(a)**	90.	**(a)**
91.	**(a)**	92.	**(d)**	93.	**(b)**	94.	**(b)**	95.	**(b)**
96.	**(b)**	97.	**(c)**	98.	**(d)**	99.	**(b)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 1

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(b)**	111	**(d)**	121	**(b)**	131	**(c)**	141	**(b)**
102	**(a)**	112	**(d)**	122	**(a)**	132	**(b)**	142	**(c)**
103	**(c)**	113	**(a)**	123	**(c)**	133	**(d)**	143	**(b)**
104	**(a)**	114	**(c)**	124	**(d)**	134	**(c)**	144	**(a)**
105	**(a)**	115	**(b)**	125	**(b)**	135	**(b)**	145	**(b)**
106	**(b)**	116	**(c)**	126	**(c)**	136	**(a)**	146	**(b)**
107	**(c)**	117	**(b)**	127	**(b)**	137	**(b)**	147	**(d)**
108	**(a)**	118	**(a)**	128	**(d)**	138	**(c)**	148	**(b)**
109	**(d)**	119	**(b)**	129	**(c)**	139	**(b)**	149	**(a)**
110	**(b)**	120	**(c)**	130	**(c)**	140	**(c)**	150	**(d)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(a)**	152.	**(c)**	153.	**(d)**	154.	**(b)**	155.	**(a)**
156.	**(a)**	157.	**(c)**	158.	**(a)**	159.	**(b)**	160.	**(c)**
161.	**(b)**	162.	**(d)**	163.	**(b)**	164.	**(a)**	165.	**(a)**
166.	**(b)**	167.	**(c)**	168.	**(a)**	169.	**(c)**	170.	**(b)**
171.	**(c)**	172.	**(a)**	173.	**(c)**	174.	**(a)**	175.	**(b)**
176.	**(a)**	177.	**(c)**	178.	**(d)**	179.	**(b)**	180.	**(a)**
181.	**(a)**	182.	**(c)**	183.	**(b)**	184.	**(a)**	185.	**(a)**
186.	**(a)**	187.	**(b)**	188.	**(a)**	189.	**(b)**	190.	**(a)**
191.	**(b)**	192.	**(a)**	193.	**(b)**	194.	**(c)**	195.	**(b)**
196.	**(b)**	197.	**(a)**	198.	**(b)**	199.	**(a)**	200.	**(c)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 2

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(c)**	2.	**(d)**	3.	**(a)**	4.	**(a)**	5.	**(c)**
6.	**(a)**	7.	**(c)**	8.	**(b)**	9.	**(a)**	10.	**(c)**
11.	**(b)**	12.	**(d)**	13.	**(c)**	14.	**(b)**	15.	**(c)**
16.	**(a)**	17.	**(a)**	18.	**(c)**	19.	**(b)**	20.	**(b)**
21.	**(c)**	22.	**(d)**	23.	**(d)**	24.	**(a)**	25.	**(c)**
26.	**(b)**	27.	**(c)**	28.	**(a)**	29.	**(d)**	30.	**(b)**
31.	**(c)**	32.	**(a)**	33.	**(b)**	34.	**(a)**	35.	**(b)**
36.	**(b)**	37.	**(c)**	38.	**(d)**	39.	**(c)**	40.	**(a)**
41.	**(a)**	42.	**(b)**	43.	**(d)**	44.	**(c)**	45.	**(a)**
46.	**(c)**	47.	**(a)**	48.	**(a)**	49.	**(b)**	50.	**(a)**
51.	**(c)**	52.	**(a)**	53.	**(d)**	54.	**(b)**	55.	**(c)**
56.	**(a)**	57.	**(b)**	58.	**(d)**	59.	**(a)**	60.	**(c)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(a)**	62.	**(b)**	63.	**(a)**	64.	**(a)**	65.	**(b)**
66.	**(a)**	67.	**(c)**	68.	**(d)**	69.	**(d)**	70.	**(c)**
71.	**(a)**	72.	**(d)**	73.	**(c)**	74.	**(a)**	75.	**(c)**
76.	**(c)**	77.	**(c)**	78.	**(c)**	79.	**(c)**	80.	**(b)**
81.	**(a)**	82.	**(a)**	83.	**(b)**	84.	**(b)**	85.	**(a)**
86.	**(c)**	87.	**(d)**	88.	**(a)**	89.	**(b)**	90.	**(c)**
91.	**(a)**	92.	**(a)**	93.	**(d)**	94.	**(a)**	95.	**(c)**
96.	**(a)**	97.	**(d)**	98.	**(a)**	99.	**(c)**	100.	**(c)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 2

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(a)**	111	**(b)**	121	**(a)**	131	**(b)**	141	**(a)**
102	**(c)**	112	**(d)**	122	**(b)**	132	**(c)**	142	**(c)**
103	**(c)**	113	**(b)**	123	**(d)**	133	**(a)**	143	**(d)**
104	**(d)**	114	**(b)**	124	**(d)**	134	**(c)**	144	**(a)**
105	**(b)**	115	**(a)**	125	**(c)**	135	**(a)**	145	**(c)**
106	**(c)**	116	**(d)**	126	**(d)**	136	**(d)**	146	**(c)**
107	**(d)**	117	**(c)**	127	**(a)**	137	**(a)**	147	**(d)**
108	**(d)**	118	**(d)**	128	**(b)**	138	**(b)**	148	**(b)**
109	**(d)**	119	**(b)**	129	**(a)**	139	**(d)**	149	**(d)**
110	**(d)**	120	**(a)**	130	**(b)**	140	**(a)**	150	**(a)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(a)**	152.	**(b)**	153.	**(a)**	154.	**(a)**	155.	**(c)**
156.	**()**	157.	**(c)**	158.	**(b)**	159.	**(a)**	160.	**(c)**
161.	**(a)**	162.	**(b)**	163.	**(b)**	164.	**(a)**	165.	**(b)**
166.	**(b)**	167.	**(b)**	168.	**(c)**	169.	**(b)**	170.	**(b)**
171.	**(c)**	172.	**(a)**	173.	**(c)**	174.	**(d)**	175.	**(b)**
176.	**(a)**	177.	**(a)**	178.	**(b)**	179.	**(a)**	180.	**(a)**
181.	**(b)**	182.	**(b)**	183.	**(a)**	184.	**(c)**	185.	**(b)**
186.	**(b)**	187.	**(a)**	188.	**(c)**	189.	**(a)**	190.	**(b)**
191.	**(b)**	192.	**(a)**	193.	**(a)**	194.	**(b)**	195.	**(c)**
196.	**(a)**	197.	**(b)**	198.	**(a)**	199.	**(c)**	200.	**(b)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 3

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(a)**	2.	**(c)**	3.	**(c)**	4.	**(d)**	5.	**(a)**
6.	**(a)**	7.	**(b)**	8.	**(b)**	9.	**(a)**	10.	**(b)**
11.	**(d)**	12.	**(d)**	13.	**(d)**	14.	**(c)**	15.	**(a)**
16.	**(a)**	17.	**(a)**	18.	**(a)**	19.	**(a)**	20.	**(c)**
21.	**(b)**	22.	**(a)**	23.	**(c)**	24.	**(d)**	25.	**(a)**
26.	**(c)**	27.	**(a)**	28.	**(d)**	29.	**(b)**	30.	**(b)**
31.	**(b)**	32.	**(a)**	33.	**(c)**	34.	**(d)**	35.	**(a)**
36.	**(d)**	37.	**(d)**	38.	**(a)**	39.	**(c)**	40.	**(a)**
41.	**(b)**	42.	**(c)**	43.	**(c)**	44.	**(c)**	45.	**(c)**
46.	**(b)**	47.	**(a)**	48.	**(c)**	49.	**(d)**	50.	**(b)**
51.	**(b)**	52.	**(a)**	53.	**(b)**	54.	**(b)**	55.	**(d)**
56.	**(b)**	57.	**(d)**	58.	**(a)**	59.	**(b)**	60.	**(c)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(c)**	62.	**(d)**	63.	**(d)**	64.	**(d)**	65.	**(c)**
66.	**(b)**	67.	**(d)**	68.	**(a)**	69.	**(c)**	70.	**(a)**
71.	**(a)**	72.	**(c)**	73.	**(c)**	74.	**(d)**	75.	**(a)**
76.	**(a)**	77.	**(b)**	78.	**(a)**	79.	**(b)**	80.	**(c)**
81.	**(b)**	82.	**(a)**	83.	**(b)**	84.	**(c)**	85.	**(c)**
86.	**(c)**	87.	**(a)**	88.	**(c)**	89.	**(d)**	90.	**(b)**
91.	**(b)**	92.	**(a)**	93.	**(c)**	94.	**(c)**	95.	**(c)**
96.	**(a)**	97.	**(a)**	98.	**(b)**	99.	**(b)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 3

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(d)**	111	**(a)**	121	**(d)**	131	**(d)**	141	**(b)**
102	**(b)**	112	**(d)**	122	**(c)**	132	**(a)**	142	**(d)**
103	**(b)**	113	**(c)**	123	**(b)**	133	**(c)**	143	**(d)**
104	**(c)**	114	**(c)**	124	**(c)**	134	**(a)**	144	**(a)**
105	**(c)**	115	**(b)**	125	**(a)**	135	**(d)**	145	**(b)**
106	**(a)**	116	**(d)**	126	**(c)**	136	**(a)**	146	**(c)**
107	**(b)**	117	**(a)**	127	**(a)**	137	**(a)**	147	**(b)**
108	**(b)**	118	**(c)**	128	**(d)**	138	**(b)**	148	**(d)**
109	**(c)**	119	**(a)**	129	**(c)**	139	**(d)**	149	**(b)**
110	**(d)**	120	**(d)**	130	**(b)**	140	**(c)**	150	**(c)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(b)**	152.	**(c)**	153.	**(a)**	154.	**(b)**	155.	**(c)**
156.	**(c)**	157.	**(a)**	158.	**(b)**	159.	**(b)**	160.	**(c)**
161.	**(b)**	162.	**(a)**	163.	**(b)**	164.	**(a)**	165.	**(b)**
166.	**(c)**	167.	**(b)**	168.	**(c)**	169.	**(a)**	170.	**(b)**
171.	**(d)**	172.	**(a)**	173.	**(c)**	174.	**(b)**	175.	**(a)**
176.	**(a)**	177.	**(c)**	178.	**(a)**	179.	**(c)**	180.	**(a)**
181.	**(a)**	182.	**(a)**	183.	**(a)**	184.	**(d)**	185.	**(c)**
186.	**(b)**	187.	**(a)**	188.	**(c)**	189.	**(a)**	190.	**(a)**
191.	**(c)**	192.	**(b)**	193.	**(a)**	194.	**(b)**	195.	**(a)**
196.	**(a)**	197.	**(c)**	198.	**(b)**	199.	**(a)**	200.	**(c)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 4

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(b)**	2.	**(d)**	3.	**(b)**	4.	**(c)**	5.	**(d)**
6.	**(b)**	7.	**(d)**	8.	**(d)**	9.	**(a)**	10.	**(a)**
11.	**(c)**	12.	**(d)**	13.	**(d)**	14.	**(b)**	15.	**(c)**
16.	**(a)**	17.	**(b)**	18.	**(c)**	19.	**(a)**	20.	**(d)**
21.	**(a)**	22.	**(d)**	23.	**(c)**	24.	**(a)**	25.	**(c)**
26.	**(a)**	27.	**(d)**	28.	**(b)**	29.	**(b)**	30.	**(d)**
31.	**(c)**	32.	**(c)**	33.	**(c)**	34.	**(a)**	35.	**(d)**
36.	**(a)**	37.	**(d)**	38.	**(c)**	39.	**(b)**	40.	**(c)**
41.	**(a)**	42.	**(c)**	43.	**(a)**	44.	**(a)**	45.	**(c)**
46.	**(b)**	47.	**(b)**	48.	**(b)**	49.	**(b)**	50.	**(b)**
51.	**(a)**	52.	**(c)**	53.	**(b)**	54.	**(b)**	55.	**(b)**
56.	**(b)**	57.	**(b)**	58.	**(d)**	59.	**(a)**	60.	**(b)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(d)**	62.	**(c)**	63.	**(a)**	64.	**(c)**	65.	**(c)**
66.	**(a)**	67.	**(d)**	68.	**(d)**	69.	**(b)**	70.	**(c)**
71.	**(b)**	72.	**(d)**	73.	**(c)**	74.	**(c)**	75.	**(b)**
76.	**(b)**	77.	**(b)**	78.	**(a)**	79.	**(c)**	80.	**(d)**
81.	**(c)**	82.	**(b)**	83.	**(c)**	84.	**(b)**	85.	**(b)**
86.	**(a)**	87.	**(c)**	88.	**(b)**	89.	**(b)**	90.	**(a)**
91.	**(c)**	92.	**(b)**	93.	**(b)**	94.	**(a)**	95.	**(c)**
96.	**(d)**	97.	**(b)**	98.	**(a)**	99.	**(b)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 4

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(c)**	111	**(d)**	121	**(d)**	131	**(a)**	141	**(a)**
102	**(c)**	112	**(c)**	122	**(c)**	132	**(a)**	142	**(c)**
103	**(a)**	113	**(c)**	123	**(b)**	133	**(b)**	143	**(b)**
104	**(c)**	114	**(d)**	124	**(a)**	134	**(a)**	144	**(c)**
105	**(c)**	115	**(d)**	125	**(c)**	135	**(b)**	145	**(b)**
106	**(c)**	116	**(a)**	126	**(b)**	136	**(d)**	146	**(c)**
107	**(d)**	117	**(b)**	127	**(d)**	137	**(b)**	147	**(b)**
108	**(a)**	118	**(b)**	128	**(d)**	138	**(c)**	148	**(a)**
109	**(a)**	119	**(d)**	129	**(b)**	139	**(c)**	149	**(a)**
110	**(d)**	120	**(a)**	130	**(a)**	140	**(b)**	150	**(c)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(a)**	152.	**(c)**	153.	**(a)**	154.	**(c)**	155.	**(c)**
156.	**(b)**	157.	**(a)**	158.	**(a)**	159.	**(b)**	160.	**(a)**
161.	**(a)**	162.	**(b)**	163.	**(a)**	164.	**(a)**	165.	**(a)**
166.	**(a)**	167.	**(d)**	168.	**(d)**	169.	**(a)**	170.	**(b)**
171.	**(b)**	172.	**(b)**	173.	**(a)**	174.	**(b)**	175.	**(a)**
176.	**(c)**	177.	**(a)**	178.	**(c)**	179.	**(a)**	180.	**(b)**
181.	**(c)**	182.	**(a)**	183.	**(a)**	184.	**(a)**	185.	**(b)**
186.	**(a)**	187.	**(b)**	188.	**(c)**	189.	**(a)**	190.	**(b)**
191.	**(a)**	192.	**(a)**	193.	**(b)**	194.	**(a)**	195.	**(b)**
196.	**(a)**	197.	**(a)**	198.	**(b)**	199.	**(b)**	200.	**(b)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 5

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(a)**	2.	**(d)**	3.	**(c)**	4.	**(d)**	5.	**(b)**
6.	**(a)**	7.	**(d)**	8.	**(a)**	9.	**(c)**	10.	**(b)**
11.	**(d)**	12.	**(b)**	13.	**(a)**	14.	**(c)**	15.	**(d)**
16.	**(a)**	17.	**(d)**	18.	**(c)**	19.	**(c)**	20.	**(d)**
21.	**(a)**	22.	**(b)**	23.	**(c)**	24.	**(b)**	25.	**(a)**
26.	**(c)**	27.	**(d)**	28.	**(a)**	29.	**(a)**	30.	**(b)**
31.	**(c)**	32.	**(a)**	33.	**(d)**	34.	**(d)**	35.	**(a)**
36.	**(c)**	37.	**(b)**	38.	**(c)**	39.	**(c)**	40.	**(b)**
41.	**(b)**	42.	**(d)**	43.	**(a)**	44.	**(a)**	45.	**(d)**
46.	**(c)**	47.	**(a)**	48.	**(b)**	49.	**(c)**	50.	**(b)**
51.	**(a)**	52.	**(d)**	53.	**(a)**	54.	**(b)**	55.	**(c)**
56.	**(c)**	57.	**(b)**	58.	**(b)**	59.	**(b)**	60.	**(d)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(a)**	62.	**(b)**	63.	**(d)**	64.	**(d)**	65.	**(a)**
66.	**(b)**	67.	**(b)**	68.	**(d)**	69.	**(c)**	70.	**(b)**
71.	**(a)**	72.	**(c)**	73.	**(a)**	74.	**(b)**	75.	**(b)**
76.	**(d)**	77.	**(a)**	78.	**(c)**	79.	**(d)**	80.	**(b)**
81.	**(a)**	82.	**(c)**	83.	**(a)**	84.	**(c)**	85.	**(a)**
86.	**(a)**	87.	**(c)**	88.	**(b)**	89.	**(c)**	90.	**(b)**
91.	**(b)**	92.	**(d)**	93.	**(d)**	94.	**(c)**	95.	**(a)**
96.	**(a)**	97.	**(a)**	98.	**(b)**	99.	**(b)**	100.	**(b)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 5

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(b)**	111	**(b)**	121	**(c)**	131	**(b)**	141	**(d)**
102	**(c)**	112	**(b)**	122	**(a)**	132	**(a)**	142	**(a)**
103	**(d)**	113	**(d)**	123	**(a)**	133	**(a)**	143	**(a)**
104	**(c)**	114	**(b)**	124	**(a)**	134	**(b)**	144	**(d)**
105	**(d)**	115	**(c)**	125	**(c)**	135	**(a)**	145	**(c)**
106	**(a)**	116	**(a)**	126	**(c)**	136	**(b)**	146	**(c)**
107	**(b)**	117	**(b)**	127	**(b)**	137	**(b)**	147	**(a)**
108	**(a)**	118	**(b)**	128	**(a)**	138	**(a)**	148	**(b)**
109	**(b)**	119	**(b)**	129	**(d)**	139	**(d)**	149	**(b)**
110	**(d)**	120	**(a)**	130	**(d)**	140	**(a)**	150	**(d)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(c)**	152.	**(a)**	153.	**(b)**	154.	**(a)**	155.	**(b)**
156.	**(b)**	157.	**(b)**	158.	**(c)**	159.	**(a)**	160.	**(b)**
161.	**(a)**	162.	**(d)**	163.	**(a)**	164.	**(a)**	165.	**(a)**
166.	**(b)**	167.	**(b)**	168.	**(a)**	169.	**(c)**	170.	**(c)**
171.	**(a)**	172.	**(c)**	173.	**(a)**	174.	**(b)**	175.	**(c)**
176.	**(a)**	177.	**(b)**	178.	**(a)**	179.	**(c)**	180.	**(a)**
181.	**(a)**	182.	**(b)**	183.	**(b)**	184.	**(a)**	185.	**(d)**
186.	**(c)**	187.	**(c)**	188.	**(b)**	189.	**(a)**	190.	**(b)**
191.	**(a)**	192.	**(a)**	193.	**(b)**	194.	**(b)**	195.	**(c)**
196.	**(c)**	197.	**(b)**	198.	**(b)**	199.	**(b)**	200.	**(b)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 6

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(d)**	2.	**(b)**	3.	**(a)**	4.	**(c)**	5.	**(b)**
6.	**(a)**	7.	**(a)**	8.	**(a)**	9.	**(a)**	10.	**(c)**
11.	**(a)**	12.	**(d)**	13.	**(c)**	14.	**(b)**	15.	**(d)**
16.	**(b)**	17.	**(c)**	18.	**(b)**	19.	**(c)**	20.	**(a)**
21.	**(a)**	22.	**(b)**	23.	**(d)**	24.	**(a)**	25.	**(a)**
26.	**(b)**	27.	**(c)**	28.	**(a)**	29.	**(a)**	30.	**(b)**
31.	**(a)**	32.	**(d)**	33.	**(c)**	34.	**(b)**	35.	**(c)**
36.	**(a)**	37.	**(b)**	38.	**(a)**	39.	**(c)**	40.	**(d)**
41.	**(b)**	42.	**(a)**	43.	**(c)**	44.	**(a)**	45.	**(d)**
46.	**(c)**	47.	**(c)**	48.	**(b)**	49.	**(a)**	50.	**(a)**
51.	**(c)**	52.	**(a)**	53.	**(b)**	54.	**(a)**	55.	**(a)**
56.	**(d)**	57.	**(d)**	58.	**(a)**	59.	**(c)**	60.	**(a)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(b)**	62.	**(d)**	63.	**(d)**	64.	**(b)**	65.	**(a)**
66.	**(d)**	67.	**(d)**	68.	**(d)**	69.	**(a)**	70.	**(d)**
71.	**(b)**	72.	**(b)**	73.	**(d)**	74.	**(a)**	75.	**(a)**
76.	**(a)**	77.	**(c)**	78.	**(b)**	79.	**(b)**	80.	**(a)**
81.	**(a)**	82.	**(c)**	83.	**(b)**	84.	**(a)**	85.	**(d)**
86.	**(c)**	87.	**(a)**	88.	**(c)**	89.	**(c)**	90.	**(c)**
91.	**(b)**	92.	**(c)**	93.	**(c)**	94.	**(a)**	95.	**(a)**
96.	**(b)**	97.	**(b)**	98.	**(b)**	99.	**(b)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 6

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(d)**	111	**(c)**	121	**(d)**	131	**(b)**	141	**(a)**
102	**(a)**	112	**(a)**	122	**(a)**	132	**(c)**	142	**(d)**
103	**(c)**	113	**(d)**	123	**(a)**	133	**(d)**	143	**(a)**
104	**(c)**	114	**(d)**	124	**(c)**	134	**(c)**	144	**(b)**
105	**(d)**	115	**(a)**	125	**(b)**	135	**(b)**	145	**(a)**
106	**(b)**	116	**(c)**	126	**(d)**	136	**(c)**	146	**(b)**
107	**(b)**	117	**(b)**	127	**(d)**	137	**(c)**	147	**(b)**
108	**(a)**	118	**(c)**	128	**(b)**	138	**(a)**	148	**(d)**
109	**(b)**	119	**(c)**	129	**(b)**	139	**(b)**	149	**(c)**
110	**(a)**	120	**(d)**	130	**(c)**	140	**(b)**	150	**(a)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(b)**	152.	**(b)**	153.	**(d)**	154.	**(a)**	155.	**(a)**
156.	**(a)**	157.	**(b)**	158.	**(a)**	159.	**(a)**	160.	**(a)**
161.	**(b)**	162.	**(c)**	163.	**(a)**	164.	**()**	165.	**(b)**
166.	**(c)**	167.	**(a)**	168.	**(a)**	169.	**(b)**	170.	**(a)**
171.	**(c)**	172.	**(a)**	173.	**(a)**	174.	**(b)**	175.	**(c)**
176.	**(b)**	177.	**(c)**	178.	**(a)**	179.	**(c)**	180.	**(b)**
181.	**(b)**	182.	**(a)**	183.	**(c)**	184.	**(c)**	185.	**(c)**
186.	**(c)**	187.	**(b)**	188.	**(b)**	189.	**(b)**	190.	**(b)**
191.	**(b)**	192.	**(a)**	193.	**(b)**	194.	**(a)**	195.	**(b)**
196.	**(a)**	197.	**(c)**	198.	**(c)**	199.	**(c)**	200.	**(c)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 7

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(d)**	2.	**(a)**	3.	**(a)**	4.	**(d)**	5.	**(c)**
6.	**(c)**	7.	**(a)**	8.	**(c)**	9.	**(c)**	10.	**(a)**
11.	**(b)**	12.	**(a)**	13.	**(b)**	14.	**(d)**	15.	**(d)**
16.	**(c)**	17.	**(a)**	18.	**(c)**	19.	**(a)**	20.	**(d)**
21.	**(b)**	22.	**(b)**	23.	**(a)**	24.	**(c)**	25.	**(d)**
26.	**(a)**	27.	**(c)**	28.	**(d)**	29.	**(c)**	30.	**(d)**
31.	**(b)**	32.	**(d)**	33.	**(b)**	34.	**(a)**	35.	**(a)**
36.	**(a)**	37.	**(c)**	38.	**(d)**	39.	**(b)**	40.	**(b)**
41.	**(d)**	42.	**(c)**	43.	**(d)**	44.	**(b)**	45.	**(a)**
46.	**(c)**	47.	**(c)**	48.	**(a)**	49.	**(b)**	50.	**(c)**
51.	**(b)**	52.	**(c)**	53.	**(c)**	54.	**(d)**	55.	**(b)**
56.	**(b)**	57.	**(d)**	58.	**(a)**	59.	**(c)**	60.	**(d)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(a)**	62.	**(c)**	63.	**(d)**	64.	**(a)**	65.	**(c)**
66.	**(d)**	67.	**(d)**	68.	**(c)**	69.	**(b)**	70.	**(a)**
71.	**(d)**	72.	**(d)**	73.	**(c)**	74.	**(c)**	75.	**(b)**
76.	**(c)**	77.	**(b)**	78.	**(d)**	79.	**(c)**	80.	**(a)**
81.	**(d)**	82.	**(a)**	83.	**(c)**	84.	**(c)**	85.	**(a)**
86.	**(d)**	87.	**(d)**	88.	**(a)**	89.	**(a)**	90.	**(d)**
91.	**(c)**	92.	**(b)**	93.	**(b)**	94.	**(c)**	95.	**(b)**
96.	**(d)**	97.	**(a)**	98.	**(b)**	99.	**(d)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 7

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(d)**	111	**(c)**	121	**(a)**	131	**(c)**	141	**(b)**
102	**(a)**	112	**(b)**	122	**(b)**	132	**(c)**	142	**(a)**
103	**(b)**	113	**(b)**	123	**(d)**	133	**(c)**	143	**(c)**
104	**(d)**	114	**(c)**	124	**(a)**	134	**(d)**	144	**(d)**
105	**(a)**	115	**(a)**	125	**(a)**	135	**(c)**	145	**(d)**
106	**(b)**	116	**(b)**	126	**(c)**	136	**(b)**	146	**(d)**
107	**(c)**	117	**(d)**	127	**(a)**	137	**(c)**	147	**(a)**
108	**(d)**	118	**(b)**	128	**(d)**	138	**(a)**	148	**(b)**
109	**(c)**	119	**(b)**	129	**(d)**	139	**(d)**	149	**(a)**
110	**(d)**	120	**(d)**	130	**(b)**	140	**(a)**	150	**(b)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(c)**	152.	**(a)**	153.	**(d)**	154.	**(a)**	155.	**(d)**
156.	**(a)**	157.	**(a)**	158.	**(a)**	159.	**(b)**	160.	**(c)**
161.	**(b)**	162.	**(c)**	163.	**(c)**	164.	**(b)**	165.	**(a)**
166.	**(c)**	167.	**(a)**	168.	**(b)**	169.	**(b)**	170.	**(c)**
171.	**(a)**	172.	**(a)**	173.	**(b)**	174.	**(c)**	175.	**(a)**
176.	**(b)**	177.	**(b)**	178.	**(a)**	179.	**(b)**	180.	**(a)**
181.	**(c)**	182.	**(a)**	183.	**(c)**	184.	**(b)**	185.	**(c)**
186.	**(a)**	187.	**(b)**	188.	**(c)**	189.	**(b)**	190.	**(a)**
191.	**(a)**	192.	**(a)**	193.	**(b)**	194.	**(a)**	195.	**(c)**
196.	**(d)**	197.	**(b)**	198.	**(b)**	199.	**(a)**	200.	**(c)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 8

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(d)**	2.	**(a)**	3.	**(d)**	4.	**(c)**	5.	**(b)**
6.	**(a)**	7.	**(a)**	8.	**(b)**	9.	**(a)**	10.	**(d)**
11.	**(a)**	12.	**(d)**	13.	**(c)**	14.	**(a)**	15.	**(c)**
16.	**(a)**	17.	**(a)**	18.	**(a)**	19.	**(c)**	20.	**(a)**
21.	**(c)**	22.	**(d)**	23.	**(c)**	24.	**(a)**	25.	**(a)**
26.	**(b)**	27.	**(a)**	28.	**(d)**	29.	**(c)**	30.	**(d)**
31.	**(b)**	32.	**(d)**	33.	**(c)**	34.	**(a)**	35.	**(b)**
36.	**(c)**	37.	**(d)**	38.	**(a)**	39.	**(c)**	40.	**(d)**
41.	**(b)**	42.	**(c)**	43.	**(c)**	44.	**(d)**	45.	**(c)**
46.	**(b)**	47.	**(c)**	48.	**(a)**	49.	**(c)**	50.	**(b)**
51.	**(d)**	52.	**(c)**	53.	**(b)**	54.	**(c)**	55.	**(a)**
56.	**(d)**	57.	**(b)**	58.	**(a)**	59.	**(a**	60.	**(b)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(d)**	62.	**(a)**	63.	**(c)**	64.	**(b)**	65.	**(c)**
66.	**(d)**	67.	**(c)**	68.	**(d)**	69.	**(d)**	70.	**(a)**
71.	**(d)**	72.	**(b)**	73.	**(c)**	74.	**(b)**	75.	**(b)**
76.	**(a)**	77.	**(b)**	78.	**(a)**	79.	**(d)**	80.	**(c)**
81.	**(d)**	82.	**(c)**	83.	**(b)**	84.	**(b)**	85.	**(d)**
86.	**(c)**	87.	**(a)**	88.	**(c)**	89.	**(a)**	90.	**(a)**
91.	**(a)**	92.	**(c)**	93.	**(d)**	94.	**(d)**	95.	**(c)**
96.	**(a)**	97.	**(b)**	98.	**(a)**	99.	**(c)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 8

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(b)**	111	**(c)**	121	**(b)**	131	**(a)**	141	**(c)**
102	**(b)**	112	**(a)**	122	**(b)**	132	**(b)**	142	**(c)**
103	**(a)**	113	**(d)**	123	**(c)**	133	**(a)**	143	**(c)**
104	**(a)**	114	**(d)**	124	**(a)**	134	**(d)**	144	**(d)**
105	**(a)**	115	**(a)**	125	**(a)**	135	**(b)**	145	**(d)**
106	**(b)**	116	**(d)**	126	**(a)**	136	**(c)**	146	**(d)**
107	**(a)**	117	**(b)**	127	**(b)**	137	**(b)**	147	**(d)**
108	**(b)**	118	**(b)**	128	**(d)**	138	**(b)**	148	**(a)**
109	**(c)**	119	**(d)**	129	**(c)**	139	**(d)**	149	**(a)**
110	**(d)**	120	**(a)**	130	**(c)**	140	**(d)**	150	**(d)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(b)**	152.	**(a)**	153.	**(b)**	154.	**(c)**	155.	**(a)**
156.	**(c)**	157.	**(c)**	158.	**(c)**	159.	**(a)**	160.	**(b)**
161.	**(b)**	162.	**(c)**	163.	**(c)**	164.	**(a)**	165.	**(b)**
166.	**(b)**	167.	**(c)**	168.	**(a)**	169.	**(a)**	170.	**(b)**
171.	**(b)**	172.	**(a)**	173.	**(b)**	174.	**(d)**	175.	**(a)**
176.	**(a)**	177.	**(c)**	178.	**(b)**	179.	**(b)**	180.	**(b)**
181.	**(a)**	182.	**(c)**	183.	**(a)**	184.	**(b)**	185.	**(a)**
186.	**(c)**	187.	**(a)**	188.	**(c)**	189.	**(d)**	190.	**(b)**
191.	**(a)**	192.	**(a)**	193.	**(a)**	194.	**(c)**	195.	**(a)**
196.	**(a)**	197.	**(d)**	198.	**(b)**	199.	**(a)**	200.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 9

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(b)**	2.	**(c)**	3.	**(a)**	4.	**(a)**	5.	**(a)**
6.	**(b)**	7.	**(c)**	8.	**(b)**	9.	**(b)**	10.	**(c)**
11.	**(d)**	12.	**(c)**	13.	**(a)**	14.	**(b)**	15.	**(b)**
16.	**(d)**	17.	**(a)**	18.	**(b)**	19.	**(b)**	20.	**(c)**
21.	**(c)**	22.	**(a)**	23.	**(b)**	24.	**(a)**	25.	**(b)**
26.	**(c)**	27.	**(c)**	28.	**(a)**	29.	**(c)**	30.	**(d)**
31.	**(b)**	32.	**(b)**	33.	**(c)**	34.	**(d)**	35.	**(b)**
36.	**(c)**	37.	**(c)**	38.	**(a)**	39.	**(a)**	40.	**(b)**
41.	**(b)**	42.	**(b)**	43.	**(c)**	44.	**(d)**	45.	**(b)**
46.	**(a)**	47.	**(a)**	48.	**(b)**	49.	**(c)**	50.	**(c)**
51.	**(a)**	52.	**(d)**	53.	**(b)**	54.	**(d)**	55.	**(b)**
56.	**(a)**	57.	**(c)**	58.	**(d)**	59.	**(d)**	60.	**(c)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(b)**	62.	**(c)**	63.	**(d)**	64.	**(c)**	65.	**(c)**
66.	**(d)**	67.	**(d)**	68.	**(b)**	69.	**(c)**	70.	**(a)**
71.	**(c)**	72.	**(b)**	73.	**(b)**	74.	**(a)**	75.	**(c)**
76.	**(c)**	77.	**(d)**	78.	**(d)**	79.	**(b)**	80.	**(b)**
81.	**(d)**	82.	**(c)**	83.	**(c)**	84.	**(a)**	85.	**(b)**
86.	**(a)**	87.	**(a)**	88.	**(d)**	89.	**(d)**	90.	**(d)**
91.	**(b)**	92.	**(d)**	93.	**(d)**	94.	**(d)**	95.	**(d)**
96.	**(a)**	97.	**(b)**	98.	**(a)**	99.	**(a)**	100.	**(a)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 9

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(b)**	111	**(b)**	121	**(b)**	131	**(a)**	141	**(a)**
102	**(c)**	112	**(a)**	122	**(a)**	132	**(c)**	142	**(b)**
103	**(b)**	113	**(a)**	123	**(c)**	133	**(a)**	143	**(c)**
104	**(d)**	114	**(c)**	124	**(b)**	134	**(d)**	144	**(b)**
105	**(c)**	115	**(b)**	125	**(c)**	135	**(b)**	145	**(d)**
106	**(a)**	116	**(c)**	126	**(a)**	136	**(b)**	146	**(c)**
107	**(a)**	117	**(d)**	127	**(a)**	137	**(a)**	147	**(a)**
108	**(c)**	118	**(d)**	128	**(c)**	138	**(d)**	148	**(b)**
109	**(a)**	119	**(a)**	129	**(d)**	139	**(c)**	149	**(d)**
110	**(a)**	120	**(a)**	130	**(d)**	140	**(d)**	150	**(b)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(c)**	152.	**(a)**	153.	**(a)**	154.	**(b)**	155.	**(a)**
156.	**(a)**	157.	**(c)**	158.	**(a)**	159.	**(b)**	160.	**(c)**
161.	**(a)**	162.	**(b)**	163.	**(a)**	164.	**(b)**	165.	**(a)**
166.	**(a)**	167.	**(c)**	168.	**(b)**	169.	**(a)**	170.	**(c)**
171.	**(a)**	172.	**(c)**	173.	**(a)**	174.	**(b)**	175.	**(b)**
176.	**(a)**	177.	**(c)**	178.	**(a)**	179.	**(a)**	180.	**(a)**
181.	**(a)**	182.	**(b)**	183.	**(a)**	184.	**(a)**	185.	**(c)**
186.	**(b)**	187.	**(a)**	188.	**(b)**	189.	**(c)**	190.	**(a)**
191.	**(a)**	192.	**(a)**	193.	**(c)**	194.	**(b)**	195.	**(b)**
196.	**(a)**	197.	**(b)**	198.	**(b)**	199.	**(a)**	200.	**(b)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 10

SECTION – A : FUNDAMENTALS OF ACCOUNTING

1.	**(a)**	2.	**(d)**	3.	**(b)**	4.	**(a)**	5.	**(b)**
6.	**(c)**	7.	**(b)**	8.	**(a)**	9.	**(b)**	10.	**(d)**
11.	**(a)**	12.	**(d)**	13.	**(d)**	14.	**(c)**	15.	**(a)**
16.	**(b)**	17.	**(c)**	18.	**(c)**	19.	**(a)**	20.	**(c)**
21.	**(b)**	22.	**(c)**	23.	**(c)**	24.	**(d)**	25.	**(b)**
26.	**(b)**	27.	**(a)**	28.	**(c)**	29.	**(a)**	30.	**(b)**
31.	**(c)**	32.	**(b)**	33.	**(c)**	34.	**(c)**	35.	**(b)**
36.	**(c)**	37.	**(c)**	38.	**(b)**	39.	**(c)**	40.	**(b)**
41.	**(d)**	42.	**(a)**	43.	**(a)**	44.	**(a)**	45.	**(b)**
46.	**(c)**	47.	**(c)**	48.	**(b)**	49.	**(a)**	50.	**(b)**
51.	**(a)**	52.	**(c)**	53.	**(a)**	54.	**(b)**	55.	**(b)**
56.	**(c)**	57.	**(a)**	58.	**(b)**	59.	**(a)**	60.	**(d)**

SECTION – B : MERCANTILE LAWS (40 MARKS)

61.	**(a)**	62.	**(d)**	63.	**(d)**	64.	**(d)**	65.	**(d)**
66.	**(d)**	67.	**(c)**	68.	**(b)**	69.	**(b)**	70.	**(b)**
71.	**(c)**	72.	**(a)**	73.	**(d)**	74.	**(b)**	75.	**(d)**
76.	**(c)**	77.	**(a)**	78.	**(a)**	79.	**(a)**	80.	**(b)**
81.	**(a)**	82.	**(d)**	83.	**(a)**	84.	**(b)**	85.	**(a)**
86.	**(a)**	87.	**(b)**	88.	**(c)**	89.	**(d)**	90.	**(d)**
91.	**(d)**	92.	**(d)**	93.	**(c)**	94.	**(a)**	95.	**(c)**
96.	**(d)**	97.	**(a)**	98.	**(d)**	99.	**(a)**	100.	**(c)**

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Answer of Model Test Papers

Model Test Paper – BOS/CPT – 10

SECTION – C : GENERAL ECONOMICS (50 MARKS)

101	**(a)**	111	**(a)**	121	**(c)**	131	**(c)**	141	**(c)**
102	**(d)**	112	**(d)**	122	**(a)**	132	**(d)**	142	**(a)**
103	**(a)**	113	**(b)**	123	**(c)**	133	**(a)**	143	**(d)**
104	**(c)**	114	**(a)**	124	**(d)**	134	**(c)**	144	**(a)**
105	**(c)**	115	**(b)**	125	**(a)**	135	**(b)**	145	**(b)**
106	**(d)**	116	**(c)**	126	**(b)**	136	**(c)**	146	**(a)**
107	**(c)**	117	**(c)**	127	**(a)**	137	**(c)**	147	**(a)**
108	**(d)**	118	**(a)**	128	**(a)**	138	**(d)**	148	**(b)**
109	**(b)**	119	**(c)**	129	**(b)**	139	**(a)**	149	**(c)**
110	**(d)**	120	**(a)**	130	**(a)**	140	**(d)**	150	**(d)**

SECTION – D : QUANTITATIVE APTITUDE (50 MARKS)

151.	**(c)**	152.	**(a)**	153.	**(a)**	154.	**(a)**	155.	**(b)**
156.	**(b)**	157.	**(a)**	158.	**(b)**	159.	**(c)**	160.	**(b)**
161.	**(b)**	162.	**(a)**	163.	**(c)**	164.	**(a)**	165.	**(b)**
166.	**(b)**	167.	**(c)**	168.	**(a)**	169.	**(a)**	170.	**(b)**
171.	**(d)**	172.	**(a)**	173.	**(a)**	174.	**(c)**	175.	**(a)**
176.	**(a)**	177.	**(b)**	178.	**(a)**	179.	**(b)**	180.	**(c)**
181.	**(c)**	182.	**(c)**	183.	**(a)**	184.	**(c)**	185.	**(b)**
186.	**(a)**	187.	**(b)**	188.	**(a)**	189.	**(c)**	190.	**(a)**
191.	**(b)**	192.	**(a)**	193.	**(a)**	194.	**(b)**	195.	**(c)**
196.	**(c)**	197.	**(a)**	198.	**(a)**	199.	**(b)**	200.	**(b)**

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SECTION – D : QUANTITATIVE APTITUDE

Suggested Answers/ Hints

Model Test Paper – BOS/CPT – 1

151. $\left(\frac{1}{64}\right)^0 + (64)^{-1/2} + (-32)^{\frac{4}{5}} = 1 + \frac{1}{\sqrt{64}} + (-1)^{\frac{4}{5}}(32)^{\frac{4}{5}}$

$= 1 + \frac{1}{8} + \left(2^5\right)^{\frac{4}{5}}$

$= 1 + \frac{1}{8} + 2^4$

$= 1 + \frac{1}{8} + 16 = \frac{8+1+128}{8} = \frac{137}{8}$

$= 17\frac{1}{8}$

$\therefore$ Ans (a) $= 17\frac{1}{8}$

152. Given $a^2 + b^2 = 45 \rightarrow (1)$

$ab = 18 \rightarrow (2)$

(2) $a = \frac{18}{b} \rightarrow (3)$

Substitute $a = \frac{18}{b}$ in (1)

$\left(\frac{18}{b}\right)^2 + b^2 = 45$

$\frac{324}{b^2} + b^2 = 45$

$324 + b^4 = 45b^2$

$b^4 - 45b^2 + 324 = 0$

Let $b^2 = x$

$x^2 - 45x + 324 = 0$

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$(x-36)(x-9)=0$

$x=36,\ x=9$

When $x=36,\ b=6$

When $x=9,\ b=3$

When, $b=6, (3) \Rightarrow a=\frac{18}{6}=3$

When $b=3, (3) \Rightarrow a=\frac{18}{3}=6$

When $a=3, b=6$

$\therefore \quad \frac{1}{a}+\frac{1}{b}=\frac{1}{3}+\frac{1}{6}=\frac{2+1}{6}=\frac{3}{6}=\frac{1}{2}$

When $a=6, b=3 \Rightarrow \frac{1}{a}+\frac{1}{b}=\frac{1}{6}+\frac{1}{3}=\frac{1}{2}$

$\therefore$ Ans (c) $=\frac{1}{2}$

153. Given $\frac{a^{\frac{1}{2}}+a^{\frac{-1}{2}}}{1-a}+\frac{1-a^{\frac{-1}{2}}}{1+\sqrt{a}}$

$$= \frac{\sqrt{a}+\frac{1}{\sqrt{a}}}{1-a}+\frac{1-\frac{1}{\sqrt{a}}}{1+\sqrt{a}}$$

$$= \frac{a+1}{\sqrt{a}(1-a)}+\frac{\sqrt{a}-1}{\sqrt{a}\left(1+\sqrt{a}\right)}$$

$$= \frac{1}{\sqrt{a}}\left[\frac{(a+1)\left(1+\sqrt{a}\right)+\left(\sqrt{a}-1\right)(1-a)}{(1-a)\left(1+\sqrt{a}\right)}\right]$$

$$= \frac{1}{\sqrt{a}}\left[\frac{a+a\sqrt{a}+1+\sqrt{a}+\sqrt{a}-a\sqrt{a}-1+a}{(1-a)\left(1+\sqrt{a}\right)}\right]$$

$$= \frac{1}{\sqrt{a}}\left[\frac{2a+2\sqrt{a}}{(1-a)\left(1+\sqrt{a}\right)}\right]$$

$$= \frac{2\sqrt{a}\left(\sqrt{a}+1\right)}{\sqrt{a}(1-a)\left(1+\sqrt{a}\right)}$$

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$= \quad \frac{2}{1-a}$

Ans.(d)

154. The given equation may be written as

$$\frac{\log_2}{\log e}\frac{\log 5^4}{\log x} = \frac{\log 2^4}{\log 10}\cdot\frac{\log 10}{\log e}$$

or, $\frac{\log 2\,(4\log 5)}{4\log 2} = \log x$

or, $\log 5 = \log x$

$\therefore x = 5$

Ans.(b)

155. Let the total score = x. Given the condition

highest score = $\frac{2}{9}x$

The next highest = $\frac{2}{9}\left(x-\frac{2}{9}x\right)$ According the third condition of the problem

$$\frac{2x}{9}-\frac{2}{9}\left(x-\frac{2}{9}x\right)=8$$

$$\frac{2x}{9}-\frac{2}{9}x+\frac{4}{81}x = 8$$

$x = \frac{8x81}{4} = 162$

Ans. (a)

156. Let three proportionals are a, b, c

Then the third proportional = c = $\frac{b^2}{a}\left[\because b=\sqrt{ac}\right]$

$\therefore \quad c = \frac{20^2}{15} = \frac{400}{15} = \frac{80}{3}$

Ans. (a)

157. Let a, b, c be the three proportional then the mean proportional = b = $\sqrt{ac}$

i.e. b = $\sqrt{9\times25}$ = 3 × 5

$= \quad 15$

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Ans. (c)

158. Let the boys Ratio 2x

and the girls ratio 5x

Given $2x + 5x = 280$

$7x = 280$

$x = \frac{280}{7} = 40$

$\therefore$ Boys Ratio $= 2 \times 40 = 80$

Girls Ratio $= 5 \times 40 = 200$

Ans. (a)

159. Let x be the number of coins available in a bag

Given $x + \frac{1}{2}x + \frac{1}{4}x = 35$

$\frac{4x + 2x + x}{4} = 35$

$7x = 35 \times 4$

$x = \frac{35 \times 4}{7} = 20$

Ans. (b)

160. Let the number be x. Then according to the given condition of the problem.

$\frac{x}{3} = \frac{x+1}{4} + 1$

$\frac{x}{3} - \frac{(x+1)}{4} = 1$

$\frac{4x - 3x - 3}{12} = 1$

$x - 3 = 12$

$x = 15$

Ans. (c)

161. Let $\log_3 \left(\frac{1}{81}\right) = x$

i.e. $3^x = \frac{1}{81}$

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$= \quad \frac{1}{(3)^4}$

$3^x = 3^{-4}$

$\therefore x = -4$

Ans. (b)

162. Let $\log_{2\sqrt{2}} \left(\frac{1}{256}\right) = x$

i.e. $\left(2\sqrt{2}\right)^x = \frac{1}{256}$

$\left(2 \times 2^{1/2}\right)^x = \frac{1}{2^8}$

$\left(2^{3/2}\right)^x = 2^{-8}$

$2^{\frac{3}{2}x} = 2^{-8}$

$\therefore \frac{3}{2}x = -8$

$x = \frac{-16}{3}$

Ans. (d)

163. Given $\log_x \sqrt[3]{2} = \frac{1}{15}$

i.e. $x^{\frac{1}{15}} = \sqrt[3]{2}$

$x^{\frac{1}{15}} = (2)^{\frac{1}{3}}$

Taking power 15 on both sides

$\left(x^{\frac{1}{15}}\right)^{15} = \left(2^{\frac{1}{3}}\right)^{15}$

$x = 2^5$

$x = 32$

Ans. (b)

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164. Given $\log_3[\log_4 (\log_2 x)] = 0$

i.e. $3^\circ = \log_4 (\log_2 x)$

$1 = \log_4 (\log_2 x)$

$4^1 = \log_2 x$

$\log_2 x = 4$

$2^4 = x$

$16 = x$

Ans. (a)

165. Given $\log_x (0.00001) = -5$

i.e. $x^{-5} = 0.00001$

$$\frac{1}{x^5} = 0.00001$$

$$\frac{1}{0.00001} = x5$$

i.e. $x^5 = 100000$

$x^5 = (10)^5$

$\therefore x = 10$

Ans. (a)

166. Suppose the x and y baskets were loaded in the first two trucks.

Total number of baskets = 1230

$\therefore$ Number of baskets initially loaded in the third basket = $1230-(x+y)$

According to the question,

$x-5; y-10; 1230-(x+y)-15 = 3:4:5$

$$\therefore \quad \frac{x-5}{1230-(x+y)-15} = \frac{3}{5}$$

$\Rightarrow \quad 5x - 25 = 3690 - 3x - 3y - 45$

$\Rightarrow \quad 8x + 3y = 3670 \quad \rightarrow (1)$

and $$\frac{y-10}{1230-(x+y)-15} = \frac{4}{5}$$

$\Rightarrow \quad 5y - 50 = 4920 - 4x - 4y - 60$

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$\Rightarrow$ $4x + 9y = 4910 \quad \rightarrow (2)$

Multiply equation (1) by 3,

$24x + 9y = 11010 \quad \rightarrow (3)$

Subtracting equation (2) from equation (3), we get

$20x = 6100$

$\Rightarrow \quad x = \frac{6100}{20} = 305$

$(1) \Rightarrow \quad 8(305) + 3y = 3670$

$\Rightarrow \quad 2440 + 3y = 3670$

$3y = 3670 - 2440 = 1230$

$y = \frac{1230}{3} = 410$

Hence number of baskets loaded in first truck = 305.

Number of baskets loaded in Second Truck = 410 and the number of baskets loaded in third truck.

$= 1230 - (x+y)$

$= 1230 - (305 + 410)$

$= 1230 - 715$

$= 515$

Ans. (b)

167. The given equations are:

$2x + 3y - 5z = 0$

$-3x + 2y + 7z = 0$

By Gross-multiplication method, we have

$$\frac{x}{21+10} = \frac{y}{15-14} = \frac{x}{4+9}$$

$\Rightarrow \quad \frac{x}{31} = \frac{y}{1} = \frac{z}{13}$

$\Rightarrow \quad x : y : z = 31 : 1 : 13$

Ans. (c)

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168. $\log_{a} \sqrt[n]{A} = \log_{a} (A^{1/n})$

$= \frac{1}{n}\log_{a} A$

ans. (a)

169. $\frac{\log_{10} 4}{\log_{10} 8} = \frac{\log_{10} 2^2}{\log_{10} 2^3}$

$= \frac{2\log_{10} 2}{3\log_{10} 2}$

$= \frac{2}{3}$

Ans. (c)

170. $\log_{10} 124.5 + \log_{10} 379 = \log_{10} (12.45\times10) + \log_{10} (3.79\times100)$

$= \log_{10} 12.45 + \log_{10} 10 + \log_{10} 3.79 + \log_{10} 100$

$= 1.0952 + 0.5786 + 2 + 1$

$\log_{10} 124.5 + \log_{10} 379 = 4.6738$

Ans. (b)

171. No. of ways to fill unit place = 2

No. of ways to fill to the place = 4

No. of ways to fill 100 th place = 3

$\therefore$ Total no. of 3 digit even Nose $2 \times 4 \times 3 = 24$

If 10th comes at 100th place then 3 digit no. ${}_{3}P_{3} = 3$

Total Nos. greater than 100 = 24−(3+1)

Ans. (c) 20

172. Total no. of 3 digits nos. are = ${}_{6}P_{3} = 120$

Nos. of 3 digit if 0 comes at hundredth place = ${}_{5}P_{3} = 20$

$\therefore$ Total nos. greater than 100 and less than 1000 by using (2, 3, 4, 0, 8, 9) are

$= 120 - 20$

$= 100$

Ans. (a) 100

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173. No. of ways to arrange consonants = 4!

No. of ways to arrange vowels = $\frac{3!}{2!}$

$\therefore$ Total no. of words without changing order of vowels

= $\frac{4! \times 3!}{2!} = 72$ words.

Ans. (c) 72 words

174. No. of ways in which vowels can be arranged = $\frac{4!}{2!} = 12$

No. of ways in which 4 vowels taken as together 6 consonants are arranged = 7!

$\therefore$ Total no. of words in which 4 vowels and 6 consonants are arranged = 7! × 12 = 60480

Ans. (a) 60480

175. Total words without any restriction = $\frac{8!}{2!}$

= 20160

Total words if vowels comes together = $\frac{6! \times 3!}{2!}$

= 2160

$\therefore$ Total words if vowels never

Come together = 20160 – 2160

= 18000

Ans. (b) 18000

176. $f(x) = ax + b \qquad 3 < x < 3$

$f(3) = 1$

$\therefore a.3 + b = 1 \Rightarrow 3a + b = 1$

$f(5) = 7$

$a.5 + b = 7 \Rightarrow 5a + b = 7$

$\therefore a = 3, b = -8$

Ans. (a) $a = 3, \quad b = -8$

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177. $\lim\limits_{x\to3}\left[\frac{x}{x-3}-\frac{9}{x(x-3)}\right]=\lim\limits_{x\to3}\frac{(x^2-9)}{x(x-3)}$

$=\lim\limits_{x\to3}\frac{x+3}{x}$ App lt. $\Rightarrow\frac{3+3}{3}=2$

Ans. (c) =2

178. $\lim\limits_{x\to2}\frac{f(2)-f(x)}{x-2}\Rightarrow\frac{0-(4-x^2)}{x-2}\Rightarrow\frac{x^2-4}{x-2}$

$\lim\limits_{x\to2}(x+2)$ App lt.

$= 2+2 = 4$

Ans. (d) 4

179. $y=\frac{\sqrt{1-x}}{\sqrt{1+x}}\Rightarrow\frac{dy}{dx}=\frac{\sqrt{1+x}\frac{d}{dx}\sqrt{1-x}-\sqrt{1-x}\frac{d}{dx}\sqrt{1+x}}{(1+x)}$

$\Rightarrow\frac{\sqrt{1+x}\frac{1}{2\sqrt{1-x}}(-1)-\sqrt{1-x}-\frac{1}{2\sqrt{1+x}}}{(1+x)}\Rightarrow\frac{-1-x-1+x}{2\sqrt{1-x^2}.(1+x)}$

$\Rightarrow\frac{-1}{(1+x)\sqrt{1-x^2}}$

Ans. (b) $\frac{-1}{(1+x)\sqrt{1-x^2}}$

180. $y=\frac{10^x+\log x}{\sqrt{x}}\Rightarrow\frac{dy}{dx}=\frac{\sqrt{x}\frac{d}{dx}(10^x+\log x)-(10^x+\log x)\frac{d}{dx}\sqrt{x}}{x}$

$\Rightarrow\frac{\sqrt{x}\left(10^x\log e^{10}+\frac{1}{x}\right)-\left(10^x+\log x\right)\frac{1}{2\sqrt{x}}}{x}$

$\frac{10^x.\log10.2x+2-10^x-\log x}{\frac{2\sqrt{x}}{x}}\Rightarrow\frac{10^x(2x\log10-1)+2-\log x}{2x\sqrt{x}}$

Ans. (a)

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181. Here, considering x^2 as the first function as 2^x as the second function and applying the method of integration by parts, we may write

$$\int 2^x\ x^2\ dx = \frac{x^2.2^x}{\log 2} - \int 2x\ .\frac{2^x}{\log 2}\ dx$$

$$= \frac{2^x\ x^2}{\log 2} - \frac{2}{\log 2}\int x2^x\ dx$$

$$= \frac{2^x\ x^2}{\log 2} - \frac{2}{\log 2}\left(\frac{x.2^x}{\log 2} - \int\frac{2^x}{\log 2}\ dx\right)$$

$$= \frac{2^x\ x^2}{\log 2} - \frac{2}{\log 2}\left(\frac{x.2^x}{\log 2} - \frac{1}{\log 2}\cdot\frac{2x}{\log 2}\right)$$

$$= \frac{2^x\ x^2}{2} - \frac{x.2^{x+1}}{(\log 2)^2} + \frac{2^{x+1}}{(\log 2)^3} + c$$

Ans. (a)

182. let $\log\ \sqrt{x} = z$

$$\frac{1}{2}\log\ x = z$$

$$\frac{1}{2}.\frac{1}{x}dx = dz$$

$$\therefore\ I = \int\frac{\log\sqrt{x}}{3x}dx = \frac{2}{3}\int\frac{\log\sqrt{x}}{2x}\ dx$$

$$= \frac{2}{3}\int z\ dz$$

$$= \frac{2}{3}\left(\frac{z^2}{2}\right) = \frac{z^2}{3} = \frac{1}{3}\left(\log\sqrt{x}\right)^2 + c$$

Ans. (c)

183. $$\int\frac{\log\ x}{x^2}\ dx = \int\log\ x\ .\ \frac{1}{x^2}\ dx$$

Using Integrating by parts

(Note: here (log x) is to be taken as first function and $\left(\frac{1}{x^2}\right)$ as second function)

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$\therefore \quad \int \log x.\frac{1}{x^2}dx = \log x\left(-\frac{1}{x}\right) - \int\frac{1}{x}\left(-\frac{1}{x}\right)dx$

$= \quad -\frac{1}{x}\log x + \int\frac{1}{x^2}dx$

$= \quad -\frac{1}{x}\log x - \frac{1}{x} + c$

$= \quad -\frac{1}{x}(1+\log x) + c$

Ans. (b)

184. $\int e^x.\frac{x^2+1}{(x+1)^2}dx. = \int e^x\left[\frac{x^2-1+2}{(x+1)^2}\right]dx$

$= \quad \int e^x\left[\frac{x^2-1}{(x+1)^2} + \frac{2}{(x+1)^2}\right]dx$

$= \quad \int e^x\left[\frac{x-1}{(x+1)} + \frac{2}{(x+1)^2}\right]dx$

$= \quad \int e^x\left[f(x) + f'(x)\right]dx$

Where $f(x) = \frac{x-1}{x+1}$

$= \quad e^x.f(x) + c$

$= \quad e^x\left(\frac{x-1}{x+1}\right) + c$

Ans. (a)

185. Let $I = \int\frac{xe^x}{(1+x)^2}dx$

$\therefore I = \int\frac{1+x-1}{(1+x)^2}e^x\,dx$

$= \quad \int\left(\frac{1}{1+x} - \frac{1}{(1+x)^2}\right)e^x\,dx$

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$= \int \frac{1}{1+x} e^x \, dx - \int \frac{1}{(1+x)^2} e^x \, dx$

$= \left[\frac{1}{1+x} e^x - \int (-1)(1+X)^{-2} (1) \left(e^X\right) dx \right] - \int \frac{1}{(1+x)^2} e^x \, dx$

$= \frac{e^x}{1+x} + \int \frac{1}{(1+x)^2} e^x \, dx - \int \frac{1}{(1+x)^2} e^x \, dx$

$I = \frac{e^x}{1+x} + c$

Ans : (a)

186. Given $y = \sqrt{x} + \frac{1}{\sqrt{x}}$

$$\frac{dy}{dx} = \frac{1}{2\sqrt{x}} + \left[\frac{\left(\sqrt{x}\right)(0) - 1 \ \frac{1}{2\sqrt{x}}}{\left(\sqrt{x}\right)^2} \right]$$

$= \frac{1}{2\sqrt{x}} - \frac{1}{2x\sqrt{x}}$

$= \frac{1}{2\sqrt{x}} \left[1 - \frac{1}{x} \right]$

$\frac{dy}{dx} = \frac{1}{2\sqrt{x}} \left[\frac{x-1}{x} \right]$

$\therefore \quad 2x \frac{dy}{dx} = 2x \left[\frac{1}{2x\sqrt{x}} (x-1) \right]$

$= \frac{x}{\sqrt{x}} - \frac{1}{\sqrt{x}}$

$= \sqrt{x} - \frac{1}{\sqrt{x}}$

Ans : (a)

187. Given $y = \frac{\sqrt{x^2+1} + \sqrt{x^2-1}}{\sqrt{x^2+1} - \sqrt{x^2-1}}$

Multiply Reciprocal of R.H.S. to R.H.S.

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i.e. $y = \frac{\sqrt{x^2+1}+\sqrt{x^2-1}}{\sqrt{x^2+1}-\sqrt{x^2-1}} \times \frac{\sqrt{x^2+1}+\sqrt{x^2-1}}{\sqrt{x^2+1}-\sqrt{x^2-1}}$

$= \frac{\left(\sqrt{x^2+1}+\sqrt{x^2-1}\right)^2}{\left(x^2+1\right)-\left(x^2-1\right)}$ $\left[\because (a+b)(a-b)=a^2-b^2\right]$

$= \frac{\left(x^2+1\right)+\left(x^2-1\right)+2\sqrt{x^2+1}\sqrt{x^2-1}}{2}$

$= \frac{1}{2}\left[2x^2+2\sqrt{x^2+1}\sqrt{x^2-1}\right]$

$= x^2+\sqrt{\left(x^2+1\right)\left(x^2-1\right)}$

Differentiate on both sides.

$\frac{dy}{dx} = 2x + \frac{1}{2\sqrt{\left(x^2+1\right)\left(x^2-1\right)}}\left[\left(x^2+1\right)(2x)+\left(x^2-1\right)(2x)\right]$

$= 2x + \frac{1}{2\sqrt{x^4-1}}\left[2x^3+2x+2x^3-2x\right]$

$= 2x + \frac{4x^3}{2\sqrt{x^4-1}}$

$\frac{dy}{dx} = 2x + \frac{2x^3}{\sqrt{x^4-1}}$

Ans. (b)

188. Given $y = \log\left[e^x\left(\frac{x-2}{x+2}\right)^{\frac{3}{4}}\right]$

$\frac{dy}{dx} = \frac{1}{e^x\left(\frac{x-2}{x+2}\right)^{\frac{3}{4}}}\left[e^x\frac{3}{4}\left(\frac{x-2}{(x+2)}\right)^{\frac{3}{4}-1}\left(\frac{(x+2)(1)-(x-2)(1)}{(x+2)^2}\right)\right.$

$\left. + \left(\frac{x-2}{x+2}\right)^{\frac{3}{4}} e^x\right]$

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$$= \frac{e^x\left[\frac{3}{4}\left(\frac{x-2}{x+2}\right)^{\frac{-1}{4}}\left(\frac{x+2-x+2}{(x+2)^2}\right)+\left(\frac{x-2}{x+2}\right)^{\frac{3}{4}}\right]}{e^x\left(\frac{x-2}{x+2}\right)^{\frac{3}{4}}}$$

$$= \frac{\frac{3}{4}\left(\frac{x-2}{x+2}\right)^{-\frac{1}{4}}\left[\frac{4}{(x+2)^2}\right]+\left(\frac{x-2}{x+2}\right)^{\frac{3}{4}}}{\left(\frac{x-2}{x+2}\right)^{\frac{3}{4}}}$$

$$= \frac{3}{(x+2)^2}\left[\frac{x-2}{x+2}\right]^{-\frac{1}{4}-\frac{3}{4}}+1$$

$$= \frac{3}{(x+2)^2}\left(\frac{x-2}{x+2}\right)^{-1}+1$$

$$= \frac{3}{(x+2)^2}\left(\frac{x+2}{x-2}\right)+1$$

$$= \frac{3}{x^2-4}+1$$

$$= \frac{3+x^2-4}{x^2-4}=\frac{x^2-1}{x^2-4}$$

Ans. (a)

189. Given $y = x^x$

Taking log on both sides.

$$\log y = \log\left(x^x\right)$$

$$\log y = x.\log x$$

Differenciate on both sides.

$$\frac{1}{y}\frac{dy}{dx} = x.\frac{1}{x}+\log x.1$$

$$\frac{dy}{dx} = y\left[1+\log x\right] \qquad [\because \log e = 1]$$

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= y [log e + log x] [log m + log n = log (mn)]

= y [log ex]

= x^x [log ex]

Ans. (b)

190. Given $y = x^{e^{-x2}}$

taking log on both sides

$\log y = \log \left(x^{e^{-x2}}\right)$

$\log y = e^{-x^2} \log x$

differenciate on both sides

$$\frac{1}{y}\frac{dy}{dx} = e^{-x^2}\left(\frac{1}{x}\right) + \log x\left(e^{-x^2}\right)(-2x)$$

$$= e^{-x^2}\left[\frac{1}{x} - 2x\log x\right]$$

$$\frac{dy}{dx} = y.e^{-x^2}\left[\frac{1-2x^2\log x}{x}\right]$$

$$\frac{dy}{dx} = x^{e^{-x^2}}.e^{-x^2}\left(\frac{1-2x^2\log x}{x}\right)$$

Ans : (a)

191. $Sn = \frac{n}{2}[2a+(n-1)d]$

$0 = \frac{n}{2}[20+(n-1)d]$

$2a = (1-n)d \Rightarrow d = \frac{2a}{(1-n)}$

$Sn = \frac{m}{2}[2(a+nd)+(m-1)d]$

$$\frac{m}{2}\left[2a + 2n.\frac{2a}{1-n} + (m-1)\frac{2a}{1-n}\right]$$

$$Sm = ma\left[\frac{1-n+2n+m-1}{1-n}\right]$$

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$= \quad ma\ \frac{(m+n)}{1-n}$

$Sm = \frac{-ma(m+n)}{(n-1)}$

Ans. (b) $-\frac{ma(m+n)}{(n-1)}$

192. $a = m \qquad d = n-m \qquad Tl = 2m$

$2m = m+(N-1)d$

$\Rightarrow 2m-m = (N-1)(n-m) \Rightarrow \frac{m}{n-m} = N-1$

$\therefore N = \frac{m}{n-m} + 1 + \frac{n+m-m}{n-m}$

$N = \frac{n}{n-m}$

$\therefore s = \frac{N}{2}[a+l] \Rightarrow \frac{n}{n-m}[m+2m]$

$S = \frac{3mn}{n-m}$

Ans. (a) $\frac{3mn}{n-m}$

193. $a = -29$

$a + 4d = -15$

$4d = -15 + 29 \Rightarrow d = 14/4 = 7/2$

Let n th term be 0

$0 = a+(n-1)d$

$0 = -29 + (n-1)\,7/2 \Rightarrow 58/7 = n-1$

$\therefore n = 9.28$ (not possible)

$\therefore$ 10th term will be positive

$\therefore$ Sum of remaining 31 terms.

$S_{31} = \frac{31}{2}\left[2\times\left(-29+9\times\frac{7}{2}\right)+(31-1)\frac{7}{2}\right]$

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$= \frac{31}{2}[5+105]$

$= \frac{31}{2}\times 110 = 1705$

S_{31} = 1705 (Sum of all positive nos.)

Ans. (b) 1705

194. Tn = a + (n–1) d

$\therefore \frac{1}{n} = a + (m-1)d$ ...(i)

$\frac{1}{m} = a + (n-1)d$ ...(ii)

by solving eg. (i) and e.g. (ii)

$a = \frac{1}{mn}, d = \frac{1}{mn}$

$\therefore S_{mn} = \frac{mn}{2}\left[2\times\frac{1}{mn} + (mn-1)\frac{1}{mn}\right]$

$= \frac{mn}{2}\times\left[1+\frac{1}{mn}\right] \Rightarrow \frac{mn}{2}\left[\frac{mn+1}{mn}\right]$

$Smn = \left[\frac{mn+1}{2}\right]$

Ans. (c) $\frac{1}{2}(mn+1)$

195. $\frac{S_n}{S'n} = \frac{n/2[12A+(n-1)D]}{n/2[2a+(n-1)d]}$

$\frac{7n+1}{3n+2} = \frac{\left[2(A+\left(\frac{n-1}{2}\right)d\right]}{2\left[a+\left(\frac{n-1}{2}\right)d\right]}$

Put n = 25

$\frac{7\times 25+1}{3\times 25+2} = \frac{A+12D}{a+12d}$

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$\therefore \frac{T_{13}}{t_{13}} = \frac{176}{77} = \frac{16}{7} \Rightarrow 16:7$

Ans. (b) 16:7

196. $A1 = \frac{a+b}{2}$ a, G_1, G_2, b

$\therefore b = a(r)^3 \quad \therefore r = \left(\frac{b}{a}\right)^{\frac{1}{3}}$

$\therefore G_1^3 + G_2^3 \Rightarrow \left[a\left(\frac{b}{a}^{1/3}\right)\right]^3 + \left[a\left(\frac{b}{a}^{2/3}\right)\right]^3$

$= a^3.\left(\frac{b}{a}\right) + a^3\left(\frac{b}{a}\right)^2 \Rightarrow a^3\left(\frac{b}{a}\right)\left[1+\frac{b}{a}\right]$

$= a^2b\left(\frac{a+b}{a}\right) = a\left(\frac{b}{a}\right)^{1/3}.a\left(\frac{b}{a}\right)^{2/3}.2\left(\frac{a+b}{2}\right)$

$= G_1 . G_2 . 2A = 2A\, G_1\, G_2$

Ans. (b) $2A\, G_1\, G_2$

Let the number be x and y

198 Since AM in between x and y

$\therefore$ x, A, y forms and A.P

$\Rightarrow$ A- x = y - A

$\Rightarrow$ 2A = x+y .....(i)

Since G_1, G_2 are two G.M's between x and y.

$\therefore$ x, G_1, G_2, y forms a G.P.

Now x , G_1, G_2, are in GP.

$\frac{G_1}{x} = \frac{G_2}{G_1} \Rightarrow G_1^2 = x.G_2 \Rightarrow G_1^3 = x\, G_1\, G_2$ .....(ii)

and G_1, G_2, y are in G.P.

$\Rightarrow \frac{G_2}{a_1} = \frac{y}{G_2} \Rightarrow G_2^2 = G, y = G_2^3 = G_1\, G_2 y$ .....(ii)

Adding (ii) and (iii)

$G_1^3 + G_2^3 = xG_1\, G_2 + G_1G_2y$

$= G_1G_2(x+y)$

$= 2AG_1G_2$ C ($\therefore$ (i), x + y = 2A)

Ans : (b)

197. $\sqrt{ab} = \frac{a^{m+1}+b^{m+1}}{a^m+b^m} \Rightarrow a^{m+1/2}.b^{1/2} + a^{1/2}.b^{m+1/2} = a^{m+1} + b^{m+1}$

$a^{m+1} - a^{m+1/2}.b^{1/2} = a^{1/2}b^{m+1/2} - b^{m+1}$

$\Rightarrow \quad a^{m+1/2}\left[a^{1/2} - b^{1/2}\right] = b^{m+1/2}\left[a^{1/2} - b^{1/2}\right]$

$\therefore \quad \frac{a^{m+1/2}}{b^{m+1/2}} = 1 \quad \therefore m+1/2 = 0 \quad \therefore m = -1/2$

Ans. (a) $-1/2$

198. Ans. (b)

199. Value of $1.\overline{4}$

x = 1.444...

10x = 14.444...

$\therefore$ 9x = 13.00 $\quad \therefore$ x = 13/9

Ans. (a) 13/9

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200. $x = 0.\overline{356}$

$\therefore\ 10x = 3.565656...$

$1000x = 356.5656...$

$\therefore\ 990x = 353.0 \quad \Rightarrow \quad x = \frac{353}{990}$

Ans. (c) $\frac{353}{990}$

Model Test Paper – BOS/CPT – 2

151. $T_{P+1} = 2.T_q + 1 \Rightarrow a + (P+ 1-1)\ d = 2\ [a+qd]$

$\Rightarrow a + pd = 2a + 2qd$

$a = d\ (P-2q)$

$\therefore\ \frac{T_{p+q+1}}{T_{3p+1}} = \frac{a+(P+q)d}{a+3Pd} = \frac{(P-2q)d+(P+q)d}{(P-2q)d+3Pd}$

$= \quad \frac{(2P-q)d}{2(2P-q)d} = \frac{1}{2} \Rightarrow 1:2$

Ans. (a) 1:2

152. $d = a \ \therefore\ \frac{Tm}{Tn} = \frac{a+(m-1)d}{a+(n-1)d} = \frac{d+(m-1)d}{d+(n-1)d}$

$= \quad \frac{d+(1+m-1)d}{d+(1+n-1)d} = \frac{m}{n} \Rightarrow m:n$

Ans. (b) m:n

153. $\frac{1}{n} = a + (m-1)d \quad \& \quad \frac{1}{m} = a+ (n-1)d$

$\therefore \quad a = \frac{1}{mn},\ d = \frac{1}{mn}$

$\therefore \quad T_{mn} = a+ (mn-1)d \Rightarrow \frac{1}{mn} + (mn-1)\ \frac{1}{mn}$

$T_{mn} = 1$

Ans. (a) 1

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154. $\frac{1}{2.5}+\frac{1}{5.8}+\frac{1}{8.11}$.....n terms

$T_n = \frac{1}{[2+(n-1)^3][5+(n-1)^3]} = \frac{1}{(3n-1)(3n+2)}$

$T_n = \frac{1}{3}\left[\frac{1}{3n-1}-\frac{1}{3n+2}\right]$

$\therefore S_n = \sum(Tn) \Rightarrow \frac{1}{3}\left[\frac{1}{2}-\frac{1}{3n+2}\right]$

$\Rightarrow \frac{1}{3}\left[\frac{3n+2-2}{2(3n+2)}\right]$

$S_n \Rightarrow \frac{1}{3}\frac{3n}{2(3n+2)} = \frac{n}{2(3n+2)}$

Ans. $\Rightarrow$ (a) $\frac{n}{2(3n+2)}$

155. 0.004 + 0.02 + 0.1 + ... is 12.5

$\therefore$ a = 0.004 r = $\frac{0.02}{0.004} = 5$

$\therefore$ 12.5 = 0.004 (5) $^{n-1} \Rightarrow \frac{12.500}{0.004} = (5)^{n-1}$

$3125 = (5)^{n-1} \Rightarrow 5^5 = 5^{n-1}$

$\therefore n-1 = 5 \Rightarrow n = 6$

Ans. (c) 6

157. C I = $2000 \left[(1+0.0125)^{10}-1\right]$

CI = $2000 \left[(1.0125)^{10}-1\right]$ (Solved by taking log)

CI = Rs. 260

Ans. (c)

158. $9P = P\left(1+\frac{r}{100}\right)^2$

$(3)^2 = \left(1+\frac{r}{100}\right)^2 \Rightarrow 3 = 1+\frac{r}{100}$

$\therefore$ r = 200%

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Ans. (b) 200%

159. $101.50 = P[(1+0.03)^2 - 1]$

$P = \frac{101.50}{0.0609} = 1667$

$P = 1667$

$\therefore SI = 1667 \times \frac{3}{100} \times 2 = 100$ (Approx)

Ans. (a) Rs. 100

160. $CI = P\left[(1+0.05)^2 - 1\right]$

$CI = 0.1025\ P$

$SI = P \times \frac{5}{100} \times 2 = 0.1P$

$CI - SI = 1.50$

$0.1025P - 0.10P = 1.50$

$\therefore 0.0025P = 1.50$

$\therefore P = 600$

Ans. (c) Rs. 600

161. Let average is x

$\therefore x = \frac{16(x-3)+85}{17}$

$\Rightarrow 17x = 16x - 48 + 85$

$x = 37$

Ans. (a) 37

162. Time from A to B = $\frac{d}{20}$ hrs

Time from B to A = $\frac{d}{30}$ hrs.

$\Rightarrow$ Average speed = $\frac{d+d}{\frac{d}{20}+\frac{d}{30}} = \frac{2d}{50d} \times 600$

Average speed = 24 km/hr

Ans. (b) 24 km/hr

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163. Average speed = $\dfrac{d+d+d}{\frac{d}{40}+\frac{d}{30}+\frac{d}{15}}$

Av. Speed = $\dfrac{3d}{15d}\times 120 = 24\ km/H$

Ans (b) 24 km/H

164. Time to cover 12 km = $\dfrac{12}{3}$ = 4 hrs.

Time to cover 18 km = 18/9 = 2 hrs.

Time to cover 24 km = 24/4 = 6 hrs.

$\therefore$ Av. speed = $\dfrac{12+18+24}{4+2+6} = \dfrac{54}{12}$ = 4.5 km/H

Ans. (a) 4.5 km/H

165. Av. speed = $\dfrac{\frac{d}{5}+\frac{d}{2}+\frac{3d}{10}}{\frac{d}{10}+\frac{d}{6}+\frac{3d}{10}} = \dfrac{d}{17\,d}\times 30$

$\therefore$ Av. speed = $\dfrac{30}{17}\,km/H$

Ans. (b) $\dfrac{30}{17}\,km/H$

166. $\bar{x} = \dfrac{\Sigma x}{n}$

$\Sigma x = 100 \times 50 = 5000$

Corrected $\Sigma x = (5000 - 50 + 40) = 4990$

$\therefore$ Corrected $\bar{x} = \dfrac{4990}{100}$ = 49.90

Ans. (b) 49.90

167. $\bar{x} = \dfrac{n_1x_1+n_2x_2+n_3x_3}{n_1+n_2+n_3}$

$12 = \dfrac{2\times 3+3\times 3+5x_3}{2+3+5}$

$120 = 15 + 5x_3$

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$\therefore x_3 = \frac{105}{5} = 21$

Mean of third group = 21

Ans. (b) 21

168. Made is most frequent value

Ans. (c) Most Frequent Value.

169. $AM = \frac{a+b}{2}$

$10 = \frac{a+b}{2} \Rightarrow a + b = 20$ … (i)

$am = \sqrt{ab}$

$8 = \sqrt{ab} \Rightarrow ab = 64$

$\therefore a(20 - a) = 64$

$\Rightarrow a^2 - 20a + 64 = 0$

$(a - 16)(a - 4) = 0$

$\therefore a = 16, b = 4$

Ans. (b) 16, 4

170. A frequency distribution can be presented graphically by a Histogram.

Ans. (b) Histogram.

171. Ans. (c) Refer Properties

172. Ans. (a) Refer Properties.

173. Since x and y are connected by the linear relation:

$2x + 3y = 4$

$\Rightarrow y = -2/3\, x + 4/3 \rightarrow (1)$

There is perfect correlation between x and y i.e. $r = \pm 1$

(1) $\Rightarrow$ x increases, y decreases

Hence, there is perfect negative correlation between x and y

$\therefore r = -1.$

Ans. (c)

174. Ans. (d) Refer Properties

175. Ans. (b) Refer Properties

176. Ans. (a) Refer Properties

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177. Ans. (a) Refer Properties

178. Ans. (b) Refer Properties

179. Ans. (a) Refer Properties

180. Ans. (a) Refer Properties

181. Let A be the number which is multiply 3 with in 1 to 20

A = {3, 6, 9, 12, 15, 18}

Probability of A =P(A) = $\frac{6}{20} = \frac{3}{10}$

Let B be the number which is multiply 7 with in 1 to 20

B = {7, 14}

P(B) = $\frac{2}{20} = \frac{1}{10}$

$\therefore$ Probability of number which is multiple of 3 or 7

P(AUB) = P (A) + P (B) = 3/10 + 1/10 = 4/10 = 2/5

Ans. (b)

182. Let A be the Card drawn King from the pack

P(A) = 4/52

Let B be the card drawn heart from the pack

P(B) = 13/52

P(King and Heart) = P (A $\cap$ B) = 1/5

Here, A and B are non−mutually exclusive

$\therefore$ P (King or Heart) = P(A $\cup$ B) = P(A) + P(B) − P(A $\cap$ B)

= $\frac{4}{52} + \frac{13}{52} - \frac{1}{52}$

= $\frac{16}{52}$

= $\frac{4}{13}$

But P (neither a king nor a heart) = 1 − P (A $\cup$ B)

= 1 − 4/13 = $\frac{13-4}{13} = \frac{9}{13}$

Ans. (b)

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183. Total number of balls = 3 Red + 5 yellow + 4 green. Since 3 balls are drawn at Random, total number of possible outcomes = $12\,C_3$

Probability of balls drawn contain exactly two green balls.

$= \dfrac{4C_2 . 8C_1}{12C_3}$

(Since out of Four green balls two green exactly taken ${}^4C_2$ and the remaining one balls from total number of other two colours).

$= \dfrac{6 \times 8}{220} = \dfrac{48}{220} = \dfrac{12}{55}$

Ans. (a)

184. Let A = event that Husband is selected.

B = event that wife is selected

$\therefore$ P(A) = 3/5 and P(B) = 1/5

$\Rightarrow$ $P(\bar{A}) = 1 - P(A) = 1 - 3/5 = 2/5$

$P(\bar{B}) = 1 - P(B) = 1 - 1/5 = 4/5$

Now $A\bar{B}$ = The event that only Husband is selected.

$\bar{A}B$ = the event that only wife is selected.

$\therefore$ $A\bar{B} \cup \bar{A}B$ = the event that only one of them is selected.

Now $A\bar{B}$ and $\bar{A}B$ are mutually exclusive events.

$\therefore$ By Addition thereon $P\left(A\bar{B} \cup \bar{A}B\right) = P(A\bar{B}) + P(\bar{A}B)$

Also, the interviews of husband and wife are independent experiments.

$\therefore$ $P(A\bar{B}) = P(A) \cdot P(\bar{B}) = 3/5 \times 4/5 = 12/25$

and $P(\bar{A}B) = P(\bar{A})\,P(B)$

$= 2/5 * 1/5 = 2/25$

$\therefore$ P (only one is selected)

$= P\left(A\bar{B} \cup \bar{A}B\right)$

$= P(A\bar{B}) + P(\bar{A}B)$

$= \dfrac{12}{25} + \dfrac{2}{25} = \dfrac{14}{25}$

Ans. (c)

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185. Balls in first bag = 4 White + 2 Black

Balls in Second bag = 3 White + 5 Black.

The draws from bags are independent.

∴ Required probability = (w1B2 or B1W2)

= $(PW_1).\ P(B_2) + P(B_1)\ P(W_2)$

= $\frac{4}{6}.\frac{5}{8}+\frac{2}{6}.\frac{3}{8}$

= $\frac{26}{48}$

= $\frac{13}{24}$

Ans. (b)

186. Ans. (b) … Refer Properties

187. Ans. (a) … Refer Properties

188. Ans. (c) … Refer Properties

189. Ans. (a) … Refer Properties

190. Ans. (b) … Refer Properties

191. Ans. (b)

192. Probability to get red ball case I

= $\left(\frac{5}{9}\right)\times\left(\frac{4}{11}\right)$ (Red ball from 1st bag and also from 2nd)

= $\frac{20}{99}$

Case II If Red ball from 1st bag not drawn but from 2nd bag Red ball drawn

= $\left(\frac{4}{9}\right)\times\left(\frac{3}{11}\right)=\frac{12}{99}$

∴ Total probability = $\frac{20}{99}+\frac{12}{99}=\frac{32}{99}$ Ans. (a) $\frac{32}{99}$

193. Ans. (a)

194. Ans. (b)

195. Ans. (c)

196. Six boys & five girls may sit in such manner

(B) G (B) G (B) G (B)G (B)G (B)

∴ Total No. of ways to sit the girls = 5 !

191. Ans. (b)

We are given that $X\sim N(\mu, \sigma^2)$

Where $\mu=3$ and $\sigma^2=16$, $\sigma=4$

$P[3\le x\le t]=0.4772$

$$\Rightarrow p\left[\frac{3-3}{4}<\frac{x-3}{4}<\frac{t-3}{4}\right]=0.4772$$

$$\Rightarrow P\left[0<z<\frac{t-3}{4}\right]=0.4772$$

$$\Rightarrow \phi\left(\frac{t-3}{4}\right)-\phi(0)=0.4772$$

$$\Rightarrow \phi\left(\frac{t-3}{4}\right)-0.50=0.4772$$

$$\Rightarrow \phi\left(\frac{t-3}{4}\right)-0.50=0.4772$$

$$\Rightarrow \phi\left(\frac{t-3}{4}\right)-0.50=0.4772$$

$$\Rightarrow \phi\left(\frac{t-3}{4}\right)=0.4772+0.50=0.9772$$

$$\Rightarrow \phi\left(\frac{t-3}{4}\right)=\phi(2)$$

$$\Rightarrow \frac{t-3}{4}=2$$

$$\Rightarrow t=8+3=11$$

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Total No. of ways to sit the boys = $6P_6 = 6!$

$\therefore$ Total No. of way that they sit

(No. 2 Girls and Boys sit together = $5! \times 6! = 120 \times 720$

= 86400

Ans. (a) 86400

197. If sum of two dice throw is odd

= { (1,2), (1,4) (1,6), (2,1), (2,3) (2,5), (3,2)
(3,4) (4,1), (4,3), (4,5), (5,2), (5,4), (5,6)
(6,1), (6,3), (6,5)}

$\therefore$ Probability to get sum as odd

$$P = \frac{16}{(6)^2} = \frac{16}{36} = \frac{4}{9}$$

$\therefore$ Probability to get sum as even nos.

$$= 1 - P(E) = 1 - \frac{4}{9} = \frac{5}{9}$$

Ans. (b) $\frac{5}{9}$

198. If 0 is not selected then total no.of expectation to select two digits

$$P(E) = \left(\frac{9}{10}\right) \times \left(\frac{8}{9}\right)$$

$$P(E) = \frac{72}{90}$$

$\therefore$ Probability to get one digit as 0 so product will be zero

$$= 1 - P(E) = 1 - \frac{72}{90}$$

$$= \frac{18}{90} = \frac{1}{5}$$

Ans. (a) $\frac{1}{5}$

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199. If $x_n = \frac{195}{4n!} - \frac{n+^3 P_3}{(n+1)!}$

$x_n = \frac{195}{4n!} - \frac{(n+1)}{(n+1)!} \Rightarrow \frac{195}{4n!} - \frac{1}{n!}$

After solving we get 4 term will be positive

Ans. (c) 4

200. $\frac{1}{x+y}, \frac{1}{2y}, \frac{1}{y+z}$ in AP

$\therefore \frac{1}{2y} = \frac{\frac{1}{x+y} + \frac{1}{y+z}}{2}$

$\frac{1}{2y} = \frac{y+2+x+y}{(x+y)(y+z)2}$

$\Rightarrow$ $xy + y^2 + xz + yz = 2y^2 + yz + xy$

$xz = y^2$

$\therefore$ $\frac{y}{x} = \frac{z}{y}$

$\therefore$ x, y, z in GP

Ans. (b) G.P.

Model Test Paper – BOS/CPT – 3

151. Let the two numbers are x and y

Given $x + y : x - y = 7 : 1$

i.e. $x + y = 7 \rightarrow (1)$

$x - y = 1 \rightarrow (2)$

$(1) + (2) \Rightarrow 2x = 8$

$x = 4$

$\therefore (1) \Rightarrow 4+y = 7$

$y = 7 - 4 = 3$

$\therefore$ $x : y = 4 : 3$

Ans. (b)

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152. Let the unit's digit of the num ber be x and the ten's digits by y.

Then the number = 10y + x

Reversing the order of digits of the given number

Unit's digit becomes y

and ten's digit becomes x

$\therefore$ New number = 10x + y

According to the given condition of the problem

$(10x+y)-(10y+x)=54$

$9x - 9y = 54$

$x - y = 6$

i.e. The differences of the digit is 6.

Ans. (c)

153. Let the fraction be x/y

According to the first condition of the problem,

$x = y - 4$

$x - y = -4$ .....(i)

According to the second condition of the problem,

$y+1 = 8(x-2)$

$y+1 = 8x-16$

$\Rightarrow 8x - y = 1+16$

$\Rightarrow 8x-y=17$ .....(ii)

subtraction 1 from 2, we get

$7x = 21$

$x = \frac{21}{7} = 3$

(i) $\Rightarrow 3 - y = -4$

$y = 3 + 4 = 7$

Hence, the required fraction is 3/7

Ans. (a)

154. Let the present ages of father and his son be x and y years respectively. According to the first condition of the problem,

$x = 6y$

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$x - 6y = 0$ .....(i)

Four years hence

Age of father = (x+4) years

Age of son = (y+4) years

According to the second condition of the problem

$x+4 = 4(y+4)$

$x+4 = 4y+16$

$x - 4y = 16 - 4$

$x - 4y = 12$ ..... (ii)

(ii) – (i) $\Rightarrow 2y = 12$

$y = 12/2 = 6$

(i) $\Rightarrow x - 6(6) = 0$

$x = 36$

Hence, present age of father = 36 years

and present age of son = 6 years

$\therefore$ Ans.(b)

155. Sum of n natural number = $\frac{n(n+1)}{2}$

$= \frac{105(105+1)}{2}$

$= 5565$

$\therefore$ Ans.(c)

156. $\log \frac{0.03}{0.7} = \log \left(\frac{3}{100} \times \frac{10}{7}\right)$

$= \log \left(\frac{3}{70}\right)$

$= \log 3 - \log 70$

$= \log 3 - (\log 7 + \log 10)$

$= 0.48 - (0.84 + 1)$

$= -1.36$

Ans. (c)

157. let $x = \sqrt[4]{0.5173}$

$= (0.5173)^{1/4}$

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Taking log on both sides

$\log x = \log [0.5173)^{1/4}$

$\log x = 1/4 \log (0.5173)$

$= 1/4 (\bar{1}.7138)$ (from the table)

$= 1/4 (-1 + 0.7138)$

$= 1/4 (-1-3+3+0.7138)$

$= 1/4 (-4 + 3.7138)$

$= -1 + 0.9284$

$= \bar{1}.9284$

$\therefore$ x = Anti log $(\bar{1}.9284) = 0.8480$

Ans. (a)

158. Let $x = \sqrt[3]{\frac{0.7214 \times 20.37}{69.8}}$

Taking log on both sides

$\log x = 1/3 (\log 0.7214 + \log 20.37 - \log 69.8)$

$= 1/3 (\bar{1}.8581 + 1.3090 - 1.8439)$

$= 1/3 (\bar{1}.3232)$

$= 1/3 (\bar{3} + 2.3232)$

$= \bar{1} + 0.7744$

$= \bar{1}.7744$

$\therefore$ x = Antilog $(\bar{1}.7744) = 0.5948$

Ans. (b)

159. Here P(O) = 4000

i = 0.06

P(n) = 5353

and we are required to find n.

Since $p(n) = (1+i)^n \times P(0)$

$\Rightarrow 5353 = (1+0.06)^n \times 4000$

$\frac{5353}{4000} = (1+0.06)^n$

(or) $1.3382 = (1.06)^n$

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Taking log on both sides.

log (1.3382) = n log (1.06)

0.1265 = n (0.0253)

$n = \frac{0.1265}{0.0253} = 5$

Hence, the required number of years is 5

Ans. (b)

160. Given $\log_2 x + \log_8 x + \log_{32} x = \frac{23}{15}$

$$\frac{1}{\log_x 2} + \frac{1}{\log_x 8} + \frac{1}{\log_x 32} = \frac{23}{15}$$

$$\frac{1}{\log_x 2} + \frac{1}{\log_x 2^3} + \frac{1}{\log_x 25} = \frac{23}{15}$$

$$\frac{1}{\log_x 2} + \frac{1}{3\log_x 2} + \frac{1}{5\log_x 2} = \frac{23}{15}$$

$$\log_x 2\left(1 + \frac{1}{3} + \frac{1}{5}\right) = \frac{23}{15}$$

$$\frac{1}{\log_x 2}\left[\frac{15+5+3}{15}\right] = \frac{23}{15}$$

$$\frac{1}{\log_x 2}\left(\frac{23}{15}\right) = \frac{23}{15}$$

$$\frac{1}{\log_x 2} = 1$$

$\log_{2^x} = 1$

$\therefore$ The value of x = 2

Ans. (c)

161. The no. of ways to arrange n different books if two are always together = (n–1) ! × 2!

(Because two books taken together as 1 book)

Ans. (b) (n–1)! ×2!

162. No. of ways to arrange two books (each 3 copies) and 5 book (each 2 copies) = 7!

= 5040

Ans. (a) 5040

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ANSWERS

163. Total No. of words by letters (P, A, R, A, L, L, E, L)

$= \frac{8!}{2!\,3!} = 3360$

No. of words if all 'L comes together = $\frac{6!}{2!} = 360$

$\therefore$ Total words if 'L' does not come together

$= 3360 - 360 = 3000$

Ans. (b) 3000

164. Total no. of 4 digit by (1, 3, 3, 0) = $\frac{4!}{2!} = 12$

If 0 comes at thousandth place

then total Nos. = $\frac{3!}{2!} = 3$

$\therefore$ Net 4 digit Nos. by (1, 3, 3, 0) = $12 - 3 = 9$

(1, 3, 3, 0) each comes at Unit, tenth, hundredth place 2! times.

and 1, 3, 3, each comes at thousandth place 3 times

$\therefore$ Sumof digit = 1+3+3+0 = 7

$\therefore$ Total sum = $7 \times 2\,[10^0 + 10^1 + 10^2) + 7 \times 3[10^3]$

$= 14 \times 111 + 21 \times 1000$

Total sum = 22554

Ans. (a) 22554

165. Ans. (b)

166. Let $I = \int x^3 \sqrt{3 + 5x^4}\, dx$

Put $3 + 5x^4 = t$

$20x^3\, dx = dt$

$x^3 dx = \frac{1}{20} dt$

$\therefore I = \int \sqrt{3 + 5x^4}\; x^3 dx = \int \sqrt{t} \cdot \frac{1}{20} dt$

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$= \frac{1}{20}\int t^{1/2}\ dt = \frac{1}{20}\frac{t^{3/2}}{3/2} + c$

$= \frac{1}{30}t^{3/2} + c$

$\int x^3\sqrt{3+5x^4 dy} = \frac{1}{30}\left(3+5x^4\right)^{3/2} + c$

Ans.(c)

167. Let $I = \int\frac{2x+1}{x(x+1)}dx$

$= \int\frac{2x+1}{x^2+x}dx$

$= \log(x^2+x)+c$

Ans. (b)

168. Put $\sqrt{x} = t$

$\therefore x = t^2$

$dx = 2t\,dt$

$\therefore \int\frac{dx}{x+\sqrt{x}} = \int\frac{2t\,dt}{t^2+t} = 2\int\frac{dt}{t+1}$

$= 2\log(t+1) + c$

$2\log\left(\sqrt{x}+1\right)+c$

Ans. (c)

169. Let $z = \log\sqrt{x}$

$= \log(x)^{1/2}$

$z = \frac{1}{2}\log x$

$dz = \frac{1}{2}.\frac{1}{x}dx$

$\therefore \int\frac{\log\sqrt{x}}{3x}\ dx = \frac{2}{3}\int\frac{\log\sqrt{x}}{2x}\ dx$

$= \frac{2}{3}\int z\ dz$

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$= \frac{2}{3}\left[\frac{z^2}{z}\right]+c$

$= \frac{z^2}{3}+c$

$\int \frac{\log\sqrt{x}}{3x}\,dx = \frac{1}{3}\left(\log\sqrt{x}\right)^2 + c$

Ans.(a)

170. Let $I = \int x^2 e^{2x}\,dx$

Integrating by parts

$I = \frac{x^2e^{2x}}{2} - \int \frac{2x}{2} e^{2x}\,dx$

$I = \frac{x^2e^{2x}}{2} - \int xe^{2x}dx$ ..... (i)

consider $\int xe^{2x}dx$

Integrating by parts,

$= \frac{xe^{2x}}{2} - \int \frac{e^{2x}}{2}dx$

$= \frac{xe^{2x}}{2} - \frac{e^{2x}}{4}$

(i) becomes

$I = \frac{x^2e^{2x}}{2} - \left[\frac{xe^{2x}}{2} - \frac{e^{2x}}{4}\right]$

$I = \frac{x^2e^{2x}}{2} - \frac{xe^{2x}}{2} + \frac{e^{2x}}{4} + c$

Ans.(b)

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