USN									Course Code	2	1	A	D	A	5	8	0

Fifth Semester B.E. Degree Examinations, September / October 2024
ADVANCED APTITUDE

Duration: 2 hrs   **Max. Marks: 100**

Instructions to the Candidates:
- *All questions are compulsory*
- *Each question carries 1 mark*
- *Use only black ball point pen*
- *Darkening two circles for the same question makes the answer invalid*
- *Damaging/overwriting, using whiteners on the OMR are strictly prohibited.*

1. If the difference between two numbers is 20% of the greater number. If the smaller number is 12, find the greater number?

(A) 15   (B) 16   (C) 18   (D) 20

2. By selling an article at Rs. 4800, a person incurred 20% loss. Find the cost price of the article?

(A) Rs.4000   (B) Rs.5400   (C) Rs.6000   (D) Rs.6300

3. The denominator of a fraction is 3 more than the numerator. If the numerator as well as the denominator is increased by 4, the fraction becomes 4/5. What was the original fraction?

(A) 8/11   (B) 5/8   (C) 10/13   (D) 7/10

4. The present ages of two persons differ by 16 years. If six years ago, the elder one was thrice as old as younger one, find their present ages?

(A) 16, 32   (B) 18, 34   (C) 14, 30   (D) 17, 33

5. In an examination, a student scores 4 marks for every correct answer and losses 1 mark for every wrong answer. If he attempts all 80 questions and secures 120 marks. Find the number of questions he did correctly?

(A) 35   (B) 38   (C) 42   (D) 40

6. A certain number of chocolates are to be distributed among some children. If one chocolate is given to each child, then 8 chocolates will be left over. If two chocolates are given to each child, then one child won't get any chocolate. Find the number of chocolates distributed?

(A) 20   (B) 18   (C) 16   (D) 14

7. How many numbers are there in between 500 and 800, which are exactly divisible by 13?

(A) 21   (B) 22   (C) 23   (D) 24

8. Find the unit digit in the product $2346 \times 5267 \times 3281 \times 6764$?

(A) 4   (B) 2   (C) 6   (D) 8

9. What is the least possible value must to assigned in the place of #, if 1357#2 is exactly divisible of 9?

(A) 0   (B) 1   (C) 2   (D) 9

10. What is the number should be subtracted from the number 19047 to make it as a perfect square?

(A) 1   (B) 2   (C) 3   (D) 4

11. What is highest power of 3 in 120! (Factorial)

(A) 58   (B) 40   (C) 24   (D) 29

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI– Performance Indicator)

12. Three numbers are in the ratio of 3: 4: 5 and their L.C.M. is 2400. Find their H.C.F?

  (A) 40   (B) 80   (C) 120   (D) 200

13. The least number which when diminished by 7, is exactly divisible by 12, 16, 18, 21 and 28 is:

  (A) 1008   (B) 1032   (C) 1015   (D) 1022

14. A bag contains Rs. 600 in the form of one-rupee, 50 paise and 25 paise coins are in the ratio 3: 4: 12. Find the amount of 25 paise coins?

  (A) Rs. 225   (B) Rs. 300   (C) Rs. 195   (D) Rs. 230

15. A garrison of 1200 men has provisions for 36 days. After 6 days, 400 men left. How long will the provisions last now?

  (A) 35   (B) 45   (C) 40   (D) 30

16. What is the angle between the two hands of clock, if clock shows 40 minutes past 5'o clock?

  (A) 50^0 (B) 95^0 (C) 60^0 (D) 70^0

17. At what time in between 9 to 10'o clock, the two hands of a clock are opposite with each other?

  (A) 16 4/11 min past 9   (B) 27 3/11 min past 9

  (C) 43 7/11 min past 9   (D) 54 6/11 min past 9

18. What was the day of the week on 16th July 2013?

  (A) Sunday   (B) Monday   (C) Tuesday   (D) Friday

19. On what dates Thursday will fall in the month of September 2027?

  (A) 1, 8, 15, 22, 29   (B) 2, 9, 16, 23, 30   (C) 3, 10, 17, 24, 31   (D) None of these

20. How many times in a day, the two hands of a clock are straight only?

  (A) 22 times   (B) 24 times   (C) 48 times   (D) 44 times

21. In a farewell party, everybody gives his/her address to his/her friends. Finally in the party 156 addresses were exchanged. Find the number of Addresses given by each person?

  (A) 1   (B) 13   (C) 12   (D) 15

22. Rs.312 is distributed in between male and female of a family a total of 100 members. Each male gets Rs.3.60 and each female gets Rs. 2.40. Find the number of females in the family?

  (A) 60   (B) 40   (C) 50   (D) 25

23. Find the number of diagonals in a 15- sided polygon?

  (A) 180   (B) 120   (C) 90   (D) 60

24. There are 45 professors are available in BITM. In how many ways one as a Principal and other as a Vice-Principal can be selected among them?

  (A) 1980   (B) 1640   (C) 2025   (D) 1890

25. What is the value of 20% of 240 + 75% of 160 – 66 2/3% of 210?

  (A) 8   (B) 18   (C) 24   (D) 28

26. A mixture contains milk and water in the ratio 8: 3. On adding 3 liters of water, the ratio becomes 2: 1. Find the quantity of milk in the mixture?

  (A) 24 liters   (B) 22 liters   (C) 26 liters   (D) 20 liters

27. If 4(A's Capital) = 6(B's Capital) = 10(C's Capital), the out of a total profit of Rs.4650, find the share of C?

  (A) Rs.465   (B) Rs.900   (C) Rs.1550   (D) Rs.2250

28. A man spends 10% of his income on food, 80% of the remaining income on clothing and if still has a balance of Rs.1800. What is his income?

  (A) Rs.4000   (B) Rs.8000   (C) Rs.10000   (D) Rs.7500

29. In an examination, a student secures 40% of maximum marks and fails by 10 marks. If he scored 50% of the maximum marks in the same exam, he would pass by 15 marks. Find the minimum marks required to pass the exam?

(A) 250   (B) 100   (C) 110   (D) 125

30. In an election, there were two candidates. A candidate secured 46% of the total votes polled and was defeated by 4800 votes. Find the number of votes got by the looser?

(A) 60,000   (B) 56,000   (C) 64,000   (D) 27,600

31. A reduction of 10% in the price of sugar enables Anu to buy 2.5Kg more for Rs.225. What is the original price of a sugar per Kg?

(A) Rs.9   (B) Rs.10   (C) Rs.8.25   (D) Rs.7.50

32. If the length of rectangle is decreased by 25%, then by what % the width of the rectangle to be increased to remains the same area?

(A) 20%   (B) 33 1/3%   (C) 12 ½%   (D) 8 1/3%

33. A person sold two flats for Rs.50 Lakhs each. By selling of first flat he gets 15% profit and on the other 15% loss. Find whether the person is in profit or loss overall by what %?

(A) 15% loss   (B) 2.25% profit   (C) No loss, No profit (D) 2.25% loss

34. If a merchant estimates 20% loss on his selling price. Find the actual loss Percent?

(A) 13 1/3%   (B) 12 ½%   (C) 16 2/3%   (D) 20%

35. Successive discounts of 10%, 20% and 40% are equivalent to a single discount of _____.

(A) 43.2%   (B) 56.8%   (C) 65.8%   (D) 49.6%

36. A and B together can finish a piece of work in 10 days. B is thrice as fast as A; how long B alone take to finish the work?

(A) 20/3 days   (B) 45/4 days   (C) 33/2 days   (D) None of these

37. A, B and C can do a work in 7, 14 and 21 days respectively. They completed the work together and got Rs.242. What is the share of C?

(A) Rs.55   (B) Rs.44   (C) Rs.66   (D) Rs.77

38. 9 men and 12 boys finish a job in 12 days. 12 men and 12 boys finish it in 10 days. Find in how many days 10 men and 10 boys shall finish it?

(A) 8   (B) 10   (C) 12   (D) 14

39. Two pipes A and B can separately fill a tank in 10 minutes and 15 minutes respectively. If both the pipes are opened simultaneously, how much time will be taken to fill $2/3^{rd}$ of the tank?

(A) 1 min   (B) 2 min   (C) 3 min   (D) 4 min

40. 12 men completes a work in 9 days. After they worked for 6 days, 6 more men are joined with them. In how many days the remaining work finished by them?

(A) 1 day   (B) 2 days   (C) 3 days   (D) 4 days

41. A monkey climbing up a greased pole ascends 12 meters and slips down 3 meters in alternate minute. If the pole is 63 meters high, how long will it take him to touch the top?

(A) 12 min   (B) 11 min   (C) 12 ¾ min   (D) 11 ¾ min

42. Rajan is travelling on his cycle and has calculated to reach a point at 2 p.m., if he travels at 10 kmph. He would reach there by 12 noon if he travels at 15 kmph. At what speed must he travel to reach the same same place at 1 p.m.?

(A) 12 kmph   (B) 14 kmph   (C) 15 kmph   (D) 13 kmph

43. A man can row at 9 kmph in still water. He takes 4 ½ hours to row from P to Q and back. What is the distance between P and Q, if the speed of the stream is 1 kmph?

(A) 32 km   (B) 28 km   (C) 20 km   (D) 24 km

44. Excluding stoppages, the speed of the train is 45 kmph and including stoppages it is 36 kmph. Of how many minutes does the train stop per hour?

(A) 10 min   (B) 11 min   (C) 12 min   (D) 13 min

45. Two trains running in the same direction at 40 kmph and 22 kmph completely pass one another in 60 seconds. If the length of the first train is 125 meters, then find the length of the second train?

(A) 125 m   (B) 175 m   (3) 240 m   (D) 190 m

46. In a 1-kilometer race, A beats B by 100 meters and C by 150 meters. Find in a 2700 meters race, by how many meters does B beat C?

(A) 100 m   (B) 120 m   (C) 150 m   (D) 180 m

47. The average age of a 6-member family is 22 years. If the age of youngest member now is 7 years, find the average age of the family at the time of birth of youngest member?

(A) 20 years   (B) unchanged   (C) 19 years   (D) 18 years

48. The average weight of 15 students in a class is increased by 300 grams, when one of the boy whose weight is 30 kg is replaced by new boy. What is the weight of the new boy?

(A) 25 kg   (B) 25.5 kg   (C) 34.5 kg   (D) 35 kg

49. A sum of Rs. 13240 is borrowed at 10% per annum in Compounded annually and paid back in 3 equal annual installments. Find the value of each installment?

(A) Rs. 5234   (B) Rs. 5324   (C) Rs. 4352   (D) Rs. 5432

50. The compound interest on a certain sum for 2 years is Rs. 1664 and the simple interest on the same sum for the same period is Rs. 1600. Find Principle and Rate of Interest?

(A) Rs.8000, 4%   (B) Rs.12000, 6%   (C) Rs.10000, 8%   (D) Rs.9000, 5%

51. In what ratio should rice costing Rs.20 per Kg be mixed with another variety of rice costing Rs.30 per Kg so that the resultant mixture can be sold for Rs.35 per Kg at a profit of 25%?

(A) 1 : 4   (B) 4 : 1   (C) 2 : 3   (D) 1 : 3

52. How many circles that can be drawn through three non collinear points?

(A) 0   (B) 1   (C) 2   (D) 3

53. A brick of dimensions 5 * 3 * 4 is used to fill the cubical shaped room of side 30 meters. Find the number of bricks required?

(A) 400   (B) 300   (C) 450   (D) 500

54. If the letters of the word "MOTHER" are arranged as in dictionary. Find the rank of the word?

(A) 309   (B) 226   (C) 153   (D) 209

55. How many odd numbers less than 1000 can be formed using the digits 0, 2, 5, 7, repetition of digits is allowed?

(A) 24   (B) 32   (C) 42   (D) 52

56. In how many ways can a cricket team of 11 players be selected out of 16 players, if two particular players are always to be included?

(A) 2006   (B) 2008   (C) 2004   (D) 2002

57. How many lines can be drawn through 21 points on a circle?

(A) 310   (B) 210   (C) 410   (D) 420

58. Two cards are drawn at random from a pack of 52 cards. What is the probability that either both are black or both are queens?

(A) 55/221   (B) 45/221   (C) 35/221   (D) None of these

59. A box contains 8 red and 6 blue balls. Find the probability that the drawn two balls to be blue?

(A) 12/90   (B) 20/91   (C) 15/91   (D) 13/91

60. The probability of hitting a target by three shooters is ½, 1/3 and ¼ respectively, then find the probability that one and only one of them will hit the target when they fire simultaneously?

(A) 9/24   (B) 7/24   (C) 11/24   (D) 9/23

61. In a certain code language, ÁBHIJIT' is coded as ÇEJLLLV'. How is 'BROTHER' written in that code?

(A) DUQWJTH   (B) DUQWTSH   (C) DUQTWSH   (D) DUQWJHT

62. In a certain code language, if 'SCRATCH'= 56 and ÇOMPUTER'= 72, then what is the code for "SOUTH'?

(A) 25   (B) 30   (C) 35   (D) 40

63. In a certain code language, '479'means 'fruit is sweet', '248' means 'very sweet voice' and '637' means ''eat fruit daily'. Which digit stands for 'IS' in that code?

(A) 9   (B) 7   (C) 4   (D) 8

64. PQ, PK, RS, OL, TU, NM, ____

(A) WX   (B) WY   (C) VW   (D) XY

65. GHD, JEG, MBJ, _____

(A) QZM   (B) PYM   (C) PZM   (D) PYN

66. DARWIN: EVOLUTION:: ARCHIMEDES : _____

(A) FRICTION   (B) LUBRICATION   (C) BUOYANCY   (D) LIQUIDS

67. 47, 65, 61, 37, -------

(A) 58   (B) 71   (C) 72   (D) 84

68. 2, 4, 12, 48, 240, _____

(A) 960   (B) 1440   (C) 1080   (D) 1920

69. A man started walking towards south. After walking 15 meters he turned to the left and walked 15 meters and he turned to his left walked 15 meters. How far is he from his original position in which direction?

(A) 15 m in North   (B) 15 m in South   (C) 15 m in East   (D) 15 m in West

70. One morning after sunrise, Mahender and Devender were standing in a Chowk with their backs towards each other. If Mahender's shadow fell exactly towards his left-hand side. Which direction was Devender facing?

(A) East   (B) West   (C) South   (D) North

71. A X B means A is the mother of B

     A – B means A is the brother of B

     A + B means A is the sister of B

     A $ B means A is the father of B

Which of the following means F is the paternal grandfather of H"?

(A) F – J $ H   (B) F $ J – H   (C) F $ J $ H   (D) H $ J $ F

72. A and B are brothers. C is a sister of B. D is a sister of E. E is a son of A. Who is D's uncle?

(A) E   (B) B   (C) C   (D) A

I. Directions for Q.No: (73 – 75)

Five persons K, L, M, N and O are sitting around a dining table. K is the mother of M, who is wife of O. N is the brother of K and L is the husband of K.

73. How is L related to O?

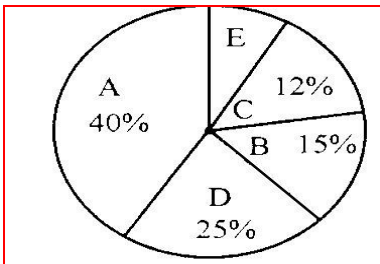   (A) Father   (B) Mother-in-law   (C) Bother-in-law   (D) Father-in-law

74. How is N related to L?

   (A) Son   (B) Cousin   (C) Brother   (D) Brother-in-law

75. How is M related to L?

   (A) Aunt   (B) Niece   (C) Daughter   (D) Daughter-in-law

II. Directions for questions 76 to 80:

A: SALARIES, B: CANTEEN, C: MEDICAL EXPENSES, D: INSURANCE AND SOCIAL SECURITY, E: MISCLLAENOUS

The above diagram shows the heads of expenditure under various categories in percentages in a budget of Rs.2880 lakhs of an industry

76. How much money, in lakhs of rupees is marked towards the salaries for the employees?

   (A) 1152   (B) 1252   (C) 1100   (D) 1052

77. How much amount, in lakhs of rupees, is saved if miscellaneous allocation is not utilized and 10% of the canteen budget is over spent?

   (A) 197.2   (B) 187.2   (C) 273.6   (D) 207.6

78. If the insurance premium during the year amount to 15% of the insurance and social security budget, then how much money, in lakhs of rupees, is left for spending on social security?

   (A) 108   (B) 720   (C) 612   (D) 288

79. If the total budget is rs.8640 lakhs, then how much amount will be increased on canteen budget, in lakh of rupees?

   (A) 764   (B) 1152   (C) 1296   (D) 864

80. From the budget, if the canteen and insurance & social security heads are reduced by 5% and 10% respectively, then what saving could be achieved, in lakh of rupees?

   (A) 93.6   (B) 28.8   (C) 57.6   (D) 43.2

III. Directions for questions 81 to 85:

In a survey of 150 readers, it has been found that 75 read newspaper A, 90 read newspaper B and 70 read newspaper C. 40 read A and B; 35 read B and C; 30 read A and C and 10 read all the three.

81. How many respondents read none of the newspapers?

   (A) 10   (B) 20   (C) 15   (D) 8

82. How many read exactly two newspapers?

   (A) 50   (B) 65   (C) 75   (D) 80

83. How many read exactly one newspaper?

(A) 35　　　　　(B) 45　　　　　(C) 75　　　　　(D) 55

84. How many read neither A nor B?

(A) 25　　　　　(B) 15　　　　　(C) 5　　　　　(D) 20

85. How many read at most one newspaper?

(A) 55　　　　　(B) 65　　　　　(C) 45　　　　　(D) 40

IV. Directions (Q.86-90): Read the following information carefully and answer the questions given below:

These are six members in a family. Amrendra is the only male in that family. One of the members is an engineer. A person came to Amrendra's home to gather some information related to census. When the census officer came in, he saw all the six members of the family were taking their lunch around a table. The census officer came to know that

(i) The persons taking their lunch are: the teacher, Sheela, Kamini, the author, the nurse and Priti.
(ii) Kamini is neither the doctor nor the professor.
(iii) Neither Amrendra nor Punam is the nurse.
(iv) Amrendra is not the teacher.

When the census officer was to return. Sheela, Rita and the doctor also wanted to go with him to help him in his work.

86. What is the profession of the only male member in the group?

(A) Doctor　　　(B) Professor　　　(C) Teacher　　　(D) Author

87. Which of the following is the profession of Rita?

(A) Doctor　　　(B) Nurse　　　(C) Teacher　　　(D) Author

88. Who is an Engineer?

(A) Kamini　　　　(B) Sheela　　　　(C) Rita　　　　(D) Punam

89. Which of the following combinations is not correct?

(A) Kamini – Engineer　(B) Punam – Teacher　(C) Priti – Nurse　　(D) Sheela – Professor

90. Which of the following combinations is correct?

(A) Sheela – Engineer　(B) Rita – Nurse　　(C) Priti – Teacher　　(D) Punam – Professor

91. No elections are fair

Some expensive things are fair

(A) No elections are expensive　　　　(B) Some elections are expensive

(C) All expensive things are elections　　(D) Some expensive things are not elections

92. All toffees are chocolates

Some toffees are not good for health

(A) Some chocolates are not good for health　　(B) Some toffees are good for health

(C) No toffees are good for health　　　　　　(D) Both (A) and (B)

93. Some tables are chairs.

Some chairs are stools.

No stool is black.

I. Some chairs are not black.　　　　　　II. All chairs are not black.

III. Some chairs are black.　　　　　　　IV. Some tables black.

(A) Only I follows　　　　　　(B) Only I and IV follow

(C) Only I, III and IV follow　　(D) Either II or III follow

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI– Performance Indicator)

94. Find odd man out.

    (A) 4^2+1 (B) 3^2+1 (C) 2^2+1 (D) 1^2+1

95. 6, 15, 35, 77, 143, _____

    (A) 230   (B) 225   (C) 119   (D) 221

V. Directions for the questions 96 to 100

    The questions based on the data given below.

    If only Data 1 is sufficient to solve then Ans (1)

    If only Data 2 is sufficient to solve then Ans (2)

    If both Data 1 and Data2 are required then Ans (3)

    If both Data (1) & (2) are not sufficient then Ans (4)

96. If the list price of a new car was Rs.12, 300, what was the cost of the car to the dealer?

  Data 1: The cost to the dealer was equal to 80 % of the list price.

  Data 2: The car was sold for Rs.11, 070, which was 12.5 % more than the cost to the dealer

    (A) 1   (B) 2   (C) 3   (D) 4

97. What was the total compound interest on a sum after 3 years?

    Data 1: The interest after 1 year was Rs 100 and the sum was Rs.1000

    Data 2: The difference between SI and CI on a sum of Rs. 1000 at the end of two years was RS. 10

    (A) 1   (B) 2   (C) 3   (D) 4

98. How many days are required for 12 men and 24 women to do a piece of work?

    Data 1: 8 men and 16 women can do a work in 8 days.

    Data 2: 40 men and 48 women can do the same work in 2 days.

    (A) 1   (B) 2   (C) 3   (D) 4

99. After how many months did B joined in the business?

    Data 1: The investments of A and B are Rs.3000 and Rs.4000 respectively.

    Data 2: The ratio of their profits at the end of the year is 3:2.

    (A) 1   (B) 2   (C) 3   (D) 4

100. In what time will the two trains be clear of each other?

    Data 1: Two trains of lengths 240m and 170m are running at a speed of 51 kmph and 45 kmph respectively.

    Data 2: Two trains are running on parallel tracks towards each other.

    (A) 1   (B) 2   (C) 3   (D) 4

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