ADIDTYA DEGREE COLLEGES

ADAT-2025. MODEL PAPER FOR MATHS STUDENTS

ARITHMETIC

1. $22 - [9 - \{6 - (10 - \overline{4-3})\}]$

   a) 12 b) 14 c) 10 d) 8

2. $10^3 - 3^3 - 2^3/10^2$ =?

   A. 950.5 B. 972.92 C. 961.6 D. 960.4

3. 37.5% of 800 – 6.25% of 1600 =?

   A. 200 B. 250 C. 275 D. 236

4. Solve $5\frac{1}{2} + 6\ \frac{1}{2} - 8\ \frac{1}{4}$

   A. $2\ \frac{3}{4}$ B. $3\frac{3}{4}$ C. $2\frac{1}{4}$ D. None of these

5. What least number must be added to 1056, so that the sum is completely divisible by 23 ?

   A.2 B.3 C.18 D.21

6. The largest 4 digit number exactly divisible by 88 is:

   A.9944 B.9768 C.9988 D.8888

7. What is the unit digit in $\{(6374)^{1793} \times (625)^{317} \times (341^{491})\}$?

   A. 0 B.2 C.3 D. 5

8. The difference of two numbers is 1365. On dividing the larger number by the smaller, we get 6 as quotient and 15 as remainder. What is the smaller number?

   A.240 B.270 C.295 D.360

9. If the number 517*324 is completely divisible by 9, then the smallest whole number in the place of * will be:

   A.0 B.1 C.2 D. None of these.

10. The difference between the local value and the face value of 7 in the numeral 32675149 is

    A.75142 B. 64851 C. 5149 D.69993

11. On dividing a number by 56, we get 36 as remainder. On dividing the same number by 8, what will be the remainder?

    A.4 B.5 C.6 D.7

12. A 3-digit number 4a3 is added to another 3-digit number 984 to give a 4-digit number 13b7, which is divisible by 11. Then, (a + b) = ?

    A.10 B.11 C.12 D.15

13. If A : B = 4 : 7 and B : C = 5 : 9 then A : B : C is :
    a) 20 : 35 : 63 b) 35 : 36 : 63 c) 30 : 35 : 65 d)25 :34: 68
14. Which of the following ratios is greatest ?
    a) 7 :15 b) 15 :23 c) 17 :25 d) 21 :29
15. A mixture of 85 kg contains milk and water in the ratio 27 : 7. How much more water is to be added to get a new mixture containing milk and water in the ratio 3:1?
    a) 5 kg b)6.5 kg c) 7.5 kg d) 8 kg
16. The ages of Raju and Biju are in the ratio 3:1. Fifteen years hence, the ratio will be 2:1. Their present ages are:
    a) 30yrs, 10yrs b) 45 yrs, 15yrs c)21 yrs, 7 yrs d) 60yrs, 20yrs
17. In a company 10% of male staff are same in number as $1/4^{th}$ of the female staff. What is the ratio of male staff to female staff?
    a) 3 : 2 b) 5 : 2 c) 2 : 1 d) 4 : 3
18. The ratio of incomes of two persons P1 and P2 is 5 : 4 and the ratio of their expenditures is 3 : 2. If at the end of the year, each saves Rs.1600, then what is the income of P1?
    a)Rs.800 b) Rs.2400 c)Rs.4000 d)3200
19. The mean proportional between 234 and 104 is :
    a) 12 b) 39 c) 54 d) None of these
20. The seats in an Engineering college for Computer science, electronics and civil are in the ratio of 5 : 7 : 8. There is a proportion to increase these seats by 40%, 50% and 75% respectively. What will be the ratio of increased seats ?
    a) 2 : 3 : 4 b) 6 : 7 : 8 c) 6 : 8 : 9 d) none of these
21. The Price of 357 apples is Rs.2499. What will be the price of 49 dozens of such apples?
    a) Rs.3800 b) Rs.2816 c)Rs.4116 d) Rs.3116
22. One year ago, the ratio of Honey and Piyush ages was 2: 3 respectively. After five years from now, this ratio becomes 4: 5. How old is Piyush now?
    A. 5 years B. 25 years C. 10 years D. 15 years
23. What is the L.C.M. of 25, 30, 35 and 40?
    A. 3800 B. 4200 C. 4400 D. 3200
24. What is the H.C.F. of 4/9, 10/21 and 20/63?
    A. 4/189 B. 6/63 C. 2/63 D. 20/21
25. What is the greatest number which divides 639, 1065 and 1491 exactly?
    A. 193 B. 183 C. 223 D. 213

REASONING

26. Look at this series: 8, 6, 9, 23, 87 , ... What number should come next?
    A. 128 B. 226 C. 324 D. 429
27. Look at this series: 8, 43, 11, 41, __, 39, 17. What number should fill in the blank?
    A. 8 B. 14 C. 43 D. 44
28. Look at this series: 4, 7, 25, 10, __, 20, 16, 19, ... What number should fill the blank?
    A. 13 B. 15 C. 20 D. 28
29. Find the missing number in the series?
    4, 18, ?, 100, 180, 294, 448
    A. 48 B. 50 C. 58 D. 60
30. What should come in place of question mark (?) in the following number series?
    132 156 ? 210 240 272
    A. 196 B. 182 C. 199 D. 204
31. 1, 2, 3, 10, ?, 9802
    A. 99 B. 199 C. 299 D. 999
32. What is the next number of the following sequence ?
    21, 77, 165, 285, ...
    A. 404 B. 415 C. 426 D. 437
33. 8, 15, 28, 53, ?, 199
    A. 101 B. 102 C. 103 D. 104
34. H T 6 # E 7 $ K I L % 3 P @ 2 A J R U 4 * V D
    What will come in place of the question mark(?) in the following series based on the above arrangement ?
    T#6 7K$ L3% ?
    A. @2A B. A@2 C. 2A@ D. None of these
35. ACEG : IKMO :: QSUW : ?
    A. YZCEB. B. YACDC. C. YACED. D. YBCE
36. AEFJ : KOPT :: ? : QUVZ
    A. GKLP B. GLKP C. HKLP D. HKQL
37. 3 : 12 :: 5 : ?
    A. 25 B. 35 C. 30 D. 15
38. If “LESD” is written as “ @ $ & # “ , “NAC” is written as “ % ? * “, how “CANDLES” is coded in the same way?

A) *&%#$&) B) *?%&@$# C) *&^$@() D) ?@$@^%@&

39. In the following, a certain code is given. According to this code, “before West to mailing” is written as “ad mi ja no”, “the West to Himalaya” is written as “ku ja ig ad”. Also “mailing of the layout” is written as “be ku zo mi” and “to should of changes” is written as “be Ii ya ja”.
Then what is the code for “should”?
A) be B) Ii C) ya D) Ii or ya

40. In a certain code, MONKEY is written as XDJMNL. How is TIGER written in that code ?
A) SHFDQ B) HFDSQ C) RSAFD D) QDFHS

41. If Z= 2197 and R= 729. How would J be written in that code?
A) 216 B) 124 C) 512 D) 125

42. If in a code language, COULD is written as BNTKC and MARGIN is written as LZQFHM, how will MOULDING be written in that code ?
A) CHMFINTK B) LNKTCHMF C) LNTKCHMF D) NITKHCMF

43. If wall is called window, window is called door, door is called floor, floor is callled roof and roof is callled ventilator, what will a person stand on ?
A) Window B) Wall C) Floor D) Roof

44. In a certain coding language, iF GO = 32 & SHE = 49 then SOME will be equal to ?
A) 56 B) 58 C) 62 D) 64

45. If E = 5 and READ is coded as 7, then what is the code of 'DEAR' ?
A) 6 B) 7 C) 8 D) 9

46. Pointing to a gentleman, Deepak said, “His only brother is the father of my daughter's father”, How is the gentleman related to Deepak?
A) Grand Father B) Father C) Brother-in-law D) Uncle

47. Which should be the 7th letter to the right of 18th letter from the right, if second half of the alphabet is reversed?
A) X B) W C) L D) V

48. Suresh, the son of Mahesh is married to Sia, whose sister Jia is married to Amar, the brother of Suresh. How is Jia related to Mahesh?
A) Daughter in law B) Cousin C) Sister in law D) Sister

49. A class of boys stands in a single line, One boy is 19th in order from both the ends, How many boys are there in the class ?
A) 37 B) 39 C) 27 D) 38

50. How many 5's are there in the following sequence. Which are immediately followed by 3 But not immediately preceded by 7?
8 9, 5, 3, 2, 5, 3, 8, 5,5, 6, 8, 7, 3, 3, 5, 7,7, 5, 3, ,6,5, 3,3,5,7, 3,8
A) 1 B) 2 C) 3 D) 4

ENGLISH

51. Which of the given below sentences is correct?
A)What is your date of birth?
B)What is your age?
C)What is the date of your birth?
D)all the above are correct
52. The house _____ two bed rooms, a kitchen and a living room
A)consists B)is consisting of C)comprises of D)comprises
53. The Moon _____ at nights
A)raises B)is rising C)rises D)has raised
54. Mr. David ……..live in Africa When he……a child.
A) Must, was B) Can, was C) Used to, has been D) Used to, was
55. If Mr. Anand…….. you, he…….. complete the work.
A) were, can B) Were, would C) Was,would D) Had been, would
56. ……..she was cooking food, they were watching TV that day
A) When B) before C) While D) Beside
57. I ……..meet you, if you come to college tomorrow.
A) shall B) could C) will D) must have
58. She …… hard now and then. Hence, we can say that she is she meticulous.
A) Worked B) working C) works D) will work
59. People …… different food items on and off.
A) eat B) are eating C) eats D) is eating
60. Phillips..... me very well
A) knows B) is known for C) has been known by D) None
61. Rama Said, 'I am very busy now'.
A)Rama said I was very busy now
B)Rama said that he was very busy now
C)Rama said that he was very busy
D)Rama said to be busy then
62. I did not speak in French,……?

A)did I B)didn't I C)don’t I D)do I

63. She never makes mistakes,…….?
A)will she B)doesn’t she C)does she D)is she
64. His boss insisted him --------- completing the work fast
A) for B) to C) on D) at
65. A singer and doctor ----- last night
A) has passed away B) had passed away
C) have passed away D) passed away
66. After she ------ her studies, she ----- to Canada
A) Completed, had moved B) had completed,moved
C) had completed,had moved D) was completing, moved
67. If Ravindra --------- some money, he ---------- more profits
A) invests, would get B) invested, will get
C) invested, would have gotten D) had invested, would have gotten
68. Sruthi always -------- . But today she ---------- silently
A) boosts, sits B) boosted, sitting C) boosts, is sitting D) will boosts, will sit
69. Let's repair the TV set, ----------?
A) Do we B) Should we C) Shall we D) Did we
70. The stranger said to me, who are you?
A) The stranger asked me who I was
B) The stranger asked me that who I was
C) The stranger asked me who was I
D) The stranger asked me whether who was I

Akbar had quarrelled with Birbal over something important and had asked him not to come to the palace again. Akbar started missing Birbal and wanted him back, but could not find out where he was. Akbar hit upon a plan. He sent a message to all the villages that wells have been selected to wed the royal well and so they had to bring the bride to the capital immediately.

The headmen of the various villages were alarmed at the impossible task and came rushing to the capital to apologise for their inability to move their wells. One man, Khaji, however, came to discuss the details of the wedding. Khaji wanted to know whether the marriage ceremony would be conducted in the traditional manner. Akbhar assured him that all the formalities would be observed. Khaji was happy and assured Akbar that he would bring the bride to the gates of the city. Khaji added that according to the tradition, the bridegroom was to meet the bride at the village gates and take her into they city. He also asked Akbar when was the commitment date from the bridegroom so that they could set out with the bridal party.

Akbar was happy to hear all this. He realized that such an intelligent idea could be thought

out only by the fertile ‘brain of Birbal and told Khaji that he did not want the well but the man who gave the idea.

71. Why did Akbar decide to perform the marriage?

A) He wanted to know how marriages are performed.

B) He wanted to increase the water in his well.

C) He wanted to test the intelligence of village headmen.

D) He wanted to find out the whereabouts of Birbal.

72. Which of the following is not true in the context of the passage?

A) Birbal was the most intelligent man in Akbar’s Kingdom

B) Khaji thought of the idea that the marriage of wells should be conducted in traditional manner.

C) Akbar enjoyed Birbal’s company

D) The king’s well was to be the bridegroom

73. Which of the following is true in the context of the passage?

A) Akbar quarrelled with others on small matters

B) Akbar ordered all the village headmen to find out about Birbal.

C) Every village headman did not react to akbar’s proposal in the same way.

D) Khaji was to bring the bridegroom to the village gates.

74. Why did Akbar say that he did not want the well which Khaji was offering?

A) Akbar did not like Khaji’s demands.

B) Akbar’s intention behind his plan to perform the marriage was fulfilled.

C) There was not much water in the well.

D) Akbar knew that Birbal came disguised as Khaji.

75. Why did Khaji come to meet Akbar?

A) He wanted to know whether the marriage would be performed in a traditional manner.

B) He wanted to know whether the bridegroom would come to his village gate to receive the bride.

C) He wanted to know why Akbar thought of a marriage between wells.

D) He wanted to know when the marriage ceremony was to be held.

MATHEMATICS

76. $(1+i)^{2024} + (1-i)^{2024} =$

a) 0 b) 2^{2024} c) 2^{1013} d) 2^{1012}

77. Radius of the circle represented by $x + iy = 3 + 4i$ is

a) 25 b) 3 c) 4 d) 5

78. The Number a pairs of consecutive positive even integers Such that the sum of their squares is 290

a) 0 b) 1 c) 2 d) 3

79. Equation of the locus of the point which is at a distance 5 from (0,0) in xoy plane

a) $x^2+y^2 =5$ b) $x^2+y^2 = 25$ c) $xy =5$ d) $x^2y^2 = 25$

80. If the area of the Triangle formed by the straight lines $x = 0$, $y = 0$ and $3x + 4y = a$ $(a>0)$ is 6 Then a =

a) 6 b) 144 c) 12 d) 25

81. $\lim_{x\to 0} \frac{\sqrt[3]{1+x} - \sqrt[3]{1-x}}{x} =$

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

82. The ratio in which the straight line $2x+ 3y = 5$ Divide the line Joining (0,0) and (-2, 1)

a) 5:6 b) 6:5 c) -5:6 d) 2:1

83. Point of intersection of the lines in the pair of lines equation

$x^2 + 4xy + 3y^2 - 4x - 10y +3 = 0$ is

a) (4,-1) b) (-4,1) c) (-4,-1) d) (4,1)

84. If the d.c.'s of a line are $(\frac{1}{c}, \frac{1}{c}, \frac{1}{c})$ then c^2 =

a) 9 b) 3 c) 1 d) 1

85. If f(x) = log (sec x + tan x) then f^1 (x) =

a) sec x tan x b) Sec x c) Tan x d) 1

86. If $x \in (0,\pi)$ and $y = \text{Tan}^{-1}\sqrt{\frac{1-\cos x}{1+\cos x}}$ then $\frac{dy}{dx}$ =

a) sec2x b) $\frac{1}{1+x}$ c) $\frac{1}{2}$ d) 1

87. If the increase in the side of a Square is 2%. Then the approximate percentage of increase in its area

a) 2 b) 4 c) 8 d) 16

88. Domain of f(x) $=\sqrt{(x-2))(3-x)}$ is

a) (2,3) b) [2,3] c) R-(2,3) d) R – [2,3]

89. Trace of the Matrix $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$ is

a) 6 b) 0 c) 35 d) 9

90. If $\overline{a}$ = i+ 2j-3k, $\overline{b}$ = 3i-j+2k then the angle between $\overline{a} + \overline{b}$ *and* $\overline{a} - \overline{b}$ is

a) $\frac{\pi}{4}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{6}$ d) $\frac{\pi}{2}$

91. Period of the function cos (3x+5)+7 is

a) $\frac{2\pi}{3}$ b) $\frac{2\pi}{5}$ c) $\frac{2\pi}{7}$ d) 2π

92. $\cos^2\frac{\pi}{8} + \cos^2\frac{3\pi}{8} + \cos^2\frac{5\pi}{8} + \cos^2\frac{7\pi}{8}$ =

a) 0 b) 1 c) 2 d) $\frac{3}{2}$

93. $\sin^2(\tan^{-1}\frac{3}{4})$ =

a) $\frac{9}{16}$ b) $\frac{9}{25}$ c) $\frac{\sqrt{3}}{2}$ d) $\frac{\sqrt{7}}{4}$

94. If (4,k) and (2,3) are conjugate points with respect to the circle $x^2+y^2 = 17$ then k =

a) 3 b) 8 c) 11 d) 16

95. $\int e^x \left[\frac{1+x\ logx}{x}\right] dx =$

a) $\frac{e^x \log x}{x}$ b) $\frac{(1+\ log\ x)}{x}\ e^x$ c) $e^x\ \log x$ d) log $(x\ e^x)$

96. $\int_0^{\pi/2} sin^7\ x\ dx\ =$

a) $\frac{8}{35}$ b) $\frac{16}{35}$ c) $\frac{18}{35}$ d) $\frac{8}{7}$

97. If a coin is tossed once what is the probability of getting head ?

a) 0 b) $\frac{1}{2}$ c) 1 d) $\frac{1}{3}$

98. The Number of words that can be formed using the letters of the word VOWEL So

that Vowels remain always together is

a) 60 b) 48 c) 36 d) 45

99. Two dice are rolled. What is the probability that the two dice show up even number on the first die and odd number on the second die

a) $\frac{1}{2}$ b) $\frac{3}{4}$ c) $\frac{1}{36}$ d) $\frac{1}{4}$

100. $\sqrt{42+\sqrt{42+\sqrt{42+...}}}$ =

a) 7 b) -7 c) 5 d) 4