XAT PAPER: (04-01-2015)

Quantitative Ability and Data Interpretation

Section C: Quantitative Ability and Data Interpretation

52. What is the sum of the following series?
- 64, - 66, - 68, ... , - 100

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A. - 1458
B. - 1558
C. - 1568
D. - 1664
E. None of the above

53. Ramesh plans to order a birthday gift for his friend from an online retailer. However, the birthday coincides with the festival season during which there is a huge demand for buying online goods and hence deliveries are often delayed. He estimates that the probability of receiving the gift, in time, from the retailers A, B, C and D would be 0.6, 0.8, 0.9 and 0.5 respectively.

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Playing safe, he orders from all four retailers simultaneously. What would be the probability that his friend would receive the gift in time?

A. 0.004
B. 0.006
C. 0.216
D. 0.994
E. 0.996

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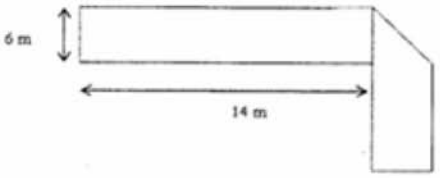
54. The figure below has been obtained by folding a rectangle. The total area of the figure (as visible) is 144 square meters. Had the rectangle not been folded, the current overlapping part would have been a square. What would have been the total area of the original unfolded rectangle?



A. 128 square meters
B. 154 square meters
C. 162 square meters
D. 172 square meters
E. None of the above

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55. The Maximum Retail Price (MRP) of a product is 55% above its manufacturing cost. The product is sold through a retailer, who earns 23% profit on his purchase price. What is the profit percentage

(expressed in nearest integer) for the manufacturer who sells his product to the retailer? The retailer gives 10% discount on MRP.

A. 31%
B. 22%
C. 15%
D. 13%
E. 11%

56. A solid metal cylinder of 10 cm height and 14 cm diameter is melted and re-cast into two cones in the proportion of 3:4 (volume), keeping the height 10 cm. What would be the percentage change in the flat surface area before and after?

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A. 9%
B. 16%
C. 25%
D. 50%
E. None of the above

57. A circular road is constructed outside a square field. The perimeter of the square field is 200 ft. If the width of the road is $7\sqrt{2}$ ft. and cost of construction is Rs. 100 per sq. ft. Find the lowest possible cost to construct 50% of the total road.

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A. Rs. 70,400
B. Rs. 125,400
C. Rs. 140,800
D. Rs. 235,400
E. None of the above

58. Product M is produced by mixing chemical X and chemical Y in the ratio of 5:4. Chemical X is prepared by mixing two raw materials, A and B, in the ratio of 1:3. Chemical Y is prepared by mixing raw materials, B and C, in the ratio of 2:1. Then the final mixture is prepared by mixing 864 units of product M with water. If the concentration of the raw material B in the final mixture is 50%, how much water had been added to product M?

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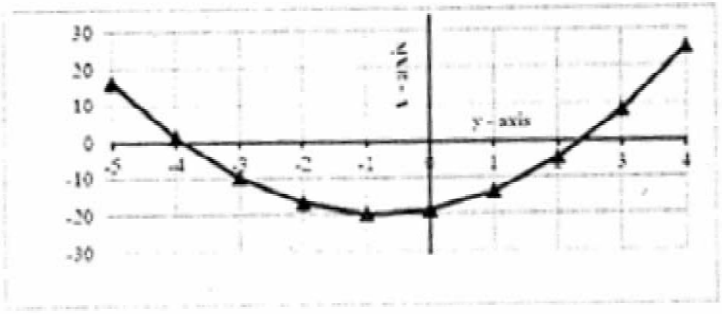
A. 328 units
B. 368 units
C. 392 units
D. 616 units
E. None of the above

59. Find the equation of the graph shown below. TCYonline.com



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A. $y = 3x - 4$
B. $y = 2x^2 - 40$
C. $x = 2y^2 - 40$
D. $y = 2x^2 + 3x - 19$
E. $x = 2y^2 + 3y - 19$

62.

60. Two diagonals of a parallelogram intersect each other at coordinates (17.5, 23.5). Two adjacent points of the parallelogram are (5.5, 7.5) and (13.5, 16). Find the lengths of the diagonals. 6 TCYonline.com

A. 15 and 30
B. 15 and 40
C. 17 and 30
D. 17 and 40
E. Multiple solutions are possible

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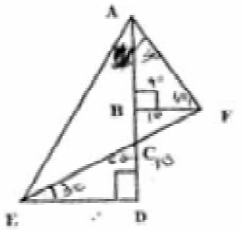
61. In the diagram below, CD = BF = 10 units and ∠CED = ∠BAF = 30°. What would be the area of triangle AED? (Note: Diagram below may not be proportional to scale.) TCYonline.com



A. $100 \times (\sqrt{2}+3)$
B. $100 / (\sqrt{3}+4)$
C. $50 / (\sqrt{3}+4)$
D. $50 \times (\sqrt{3}+4)$
E. None of the above

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62. The tax rates for various income slabs are given below. TCYonline.com

Income Slab (Rs.)	Tax rate
≤ 500	Nil
> 500 to ≤ 2000	5%
> 2000 to ≤ 5000	10%
> 5000 to < 10000	15%

There are 15 persons working in an organization. Out of them, 3 to 5 persons are falling in each of the income slabs mentioned above. Which of the following is the correct tax range of the 15 persons? (E.g. If one is earning Rs. 2000, the tax would be: 500 × 0 + 1500 × 0.05) TCYonline.com

A. 1350 to 7350, both excluded
B. 1350 to 9800, both included
C. 2175 to 7350, both excluded
D. 2175 to 9800, both included
E. None of the above

63. If a, b, c and d are four different positive integers selected from 1 to 25, then the highest possible value of ((a + b) + (c + d)) /((a + b) + (c - d)) would be: TCYonline.com

A. 47
B. 49
C. 51
D. 96
E. None of the above

64. If $f(x^3 - 1) = x^4 - 7x^2 + k_1$ and $f(x^3 - 2) = x^6 - 9x^3 - k_2$, then the value of $(k_2 - k_1)$ is

A. 6
B. 7
C. 8
D. 9
E. None of the above

65. In the beginning of the year 2004, a person invests some amount in a bank. In the beginning of 2007, the accumulated interest is Rs. 10,000 and in the beginning of 2010, the accumulated interest becomes Rs. 25,000. The interest rate is compounded annually and the annual interest rate is fixed. The principal amount is: TCYonline.com

A. Rs. 16,000
B. Rs. 18,000
C. Rs. 20,000
D. Rs. 25,000
E. None of the above

66. Devanand's house is 50 km West of Pradeep's house. On Sunday morning, at 10 a.m., they leav their respective houses.

Under which of the following scenarios, the minimum distance between the two would be 40 km?

Scenario I: Devanand walks East at a constant speed of 3 km per hour and Pradeep walks South a constant speed of 4 km per hour.
Scenario II: Devanand walks South at a constant speed of 3 km per hour and Pradeep walks Ea at a constant speed of 4 km per hour.
Scenario III: Devanand walks West at a constant speed of 4 km per hour and Pradeep walks Ea at a constant speed of 3 km per hour.

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A. Scenario I only
B. Scenario II only
C. Scenario III only
D. Scenario I and II
E. None of the above

67. The median of 11 different positive integers is 15 and seven of those 11 integers are 8, 12, 20, 14, 22, and 13.

Statement I: The difference between the averages of four largest integers and four small integers is 13.25.
Statement II: The average of all the 11 integers is 16.

Which of the following statements would be sufficient to find the largest possible integer of the numbers?

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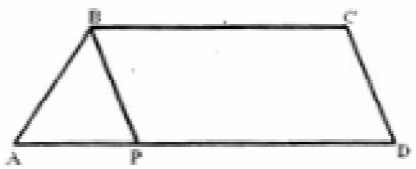
A. Statement I only.
B. Statement II only.
C. Both Statement I and Statement II are required.
D. Neither Statement I nor Statement II is sufficient.
E. Either Statement I or Statement II is sufficient.

68. The parallel sides of a trapezoid ABCD are in the ratio of 4:5. ABCD is divided into an isosce triangle ABP and a parallelogram PBCD (as shown below). ABCD has a perimeter equal to 11 meters and PBCD has a perimeter equal to 1000 meters. Find Sin ∠ABC, given 2∠DAB = ∠BC



A. 4/5
B. 16/25
C. 5/6
D. 24/25
E. A single solution is not possible.

69. An ascending series of numbers satisfies the following conditions:

i. When divided by 3, 4, 5 or 6, the numbers leave a remainder of 2.
ii. When divided by 11, the numbers leave no remainder.

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The 6th number in this series will be:

A. 242
B. 2882
C. 3542
D. 4202
E. None of the above

70. In an examination, two types of questions are asked: one mark questions and two marks questions. For each wrong answer, of one mark question, the deduction is ¼ of a mark and for each wrong answer, of two marks question, the deduction is ⅓ of a mark. Moreover, ½ of a mark is deducted for any unanswered question. The question paper has 10 one mark questions and 10 two marks questions. In the examination, students got all possible marks between 25 and 30 and every student had different marks. What would be the rank of a student, who scores a total of 27.5 marks?

A. 5
B. 6
C. 7
D. 8
E. None of the above

71. For a positive integer x, define f(x) such that f(x + a) = f(a × x), where a is an integer and f(1) = 4. If the value of f(1003) = k, then the value of 'k' will be:

A. 1003
B. 1004
C. 1005
D. 1006
E. None of the above

72. The centre of a circle inside a triangle is at a distance of 625 cm. from each of the vertices of the triangle. If the diameter of the circle is 350 cm. and the circle is touching only two sides of the triangle, find the area of the triangle.

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A. 240000
B. 387072
C. 480000
D. 506447
E. None of the above

73. If the last 6 digits of [(M)! – (N)!] are 999000, which of the following option is *not* possible (M)×(M – N)? TCYonline.com

Both (M) and (N) are positive integers and M > N. (M)! is factorial M.

A. 150
B. 180
C. 200
D. 225
E. 234

74. A person is standing at a distance of 1800 meters facing a giant clock at the top of a tower. At 5.(p.m., he can see the tip of the minute hand of the clock at 30 degree elevation from his eye-leve Immediately, the person starts walking towards the tower. At 5.10 pm., the person noticed that th tip of the minute hand made an angle of 60 degrees with respect to his eye-level. Using three dimensional vision, find the speed at which the person is walking. The length of the minutes han is 200√3 meters (√3 = 1.732). TCYonline.com

A. 7.2 km/hour
B. 7.5 km /hour
C. 7.8 km /hour
D. 8.4 km /hour
E. None of the above

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75. A three-digit number has digits in strictly descending order and divisible by 10. By changing the places of the digits a new three-digit number is constructed in such a way that the new number is also divisible by 10. The difference between the original number and the new number is divisible by 40. How many numbers will satisfy all these conditions? TCYonline.com

A. 5
B. 6
C. 7
D. 8
E. None of the above

76. Three pipes are connected to an inverted cone, with its base at the top. Two inlet pipes, A and B, are connected to the top of the cone and can fill the empty cone individually in 8 hours and 12 hours, respectively. The outlet pipe C, connected to the bottom, can empty a filled cone in 4 hours.

When the cone is completely filled with water, all three pipes are opened. Two of the three pipes remain open for 20 hours continuously and the third pipe remains open for a lesser time. As a result, the height of the water inside the cone comes down to 50%. Which of the following options would be possible? TCYonline.com

A. Pipe A was open for 19 hours.
B. Pipe A was open for 19 hours 30 minutes.
C. Pipe B was open for 19 hours 30 minutes.
D. Pipe C was open for 19 hours 50 minutes.
E. The situation is not possible.

Answer questions 77-80 on the basis of information given below:

Twitter allows its users to post/share and read short messages known as tweets. Tweets can be of three types - Positive Tweets (in support), Negative Tweets (against) and Neutral Tweets. The following table presents the *Number of Votes* and *Tweets* received by certain political parties.

Parties	Number of Votes			Tweets (Year 2010)		
	Year 2000	Year 2005	Year 2010	Total No. of tweets	Positive Tweets (%)	Negative Tweets (%)
A	329,700	343,200	364,450	131,021	33.3%	35.4%
B	133,450	154,000	241,325	108,128	30.4%	29.7%
C	196,250	123,200	162,525	96,620	32.5%	26.6%
D	27,475	48,400	54,175	41,524	30.6%	36.1%
E	-	30,800	49,250	32,724	21.6%	41.0%
Other Parties*	98,125	180,400	113,275	15,000		

* Any party which has secured less than 2% of the total votes falls under 'Other Parties' category. For example, Party E secured less than 2% of total votes, in the year 2000.

Note: If the vote share (%age of total votes) of a party changes from 15% to 40%, gain in vote share would be 25% (= 40% - 15%). TCYonline.com

Which of the following options correctly arranges the political parties in descending order of gain in vote share from the year 2005 to the year 2010?

A. EBDCA
B. EBCDA
C. EBCAD
D. BCEDA
E. BCEAD

78. Which of the following parties received maximum number of "neutral tweets" in the year 2010?

A. Party B
B. Party C
C. Party D
D. Party E
E. One of the parties categorised under 'Other Parties'

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79. Between 2000 and 2010, in terms of gain in vote share which of the following *cannot* be a poss value (approximated to one decimal place) for any party?

A. 2.0%
B. 2.5%
C. 3.5%
D. 4.5%
E. 7.5%

80. In 2010, which of the following options has maximum difference between the vote share and tv share?

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A. Party B
B. Party C
C. Party D
D. Party E
E. Other Parties

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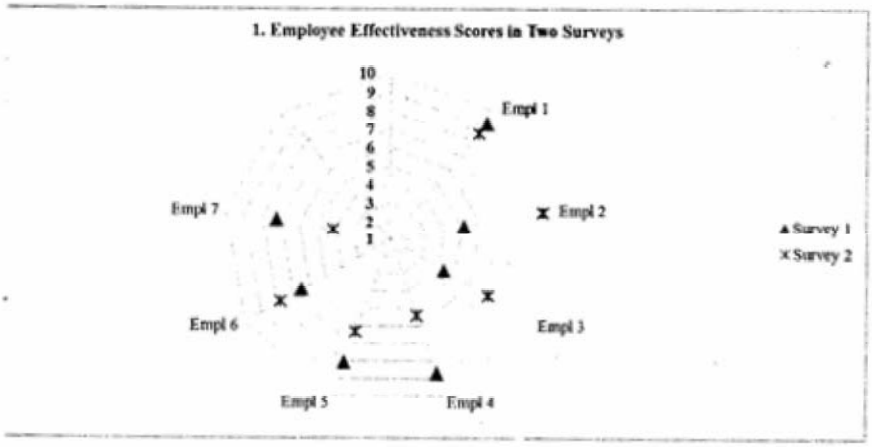
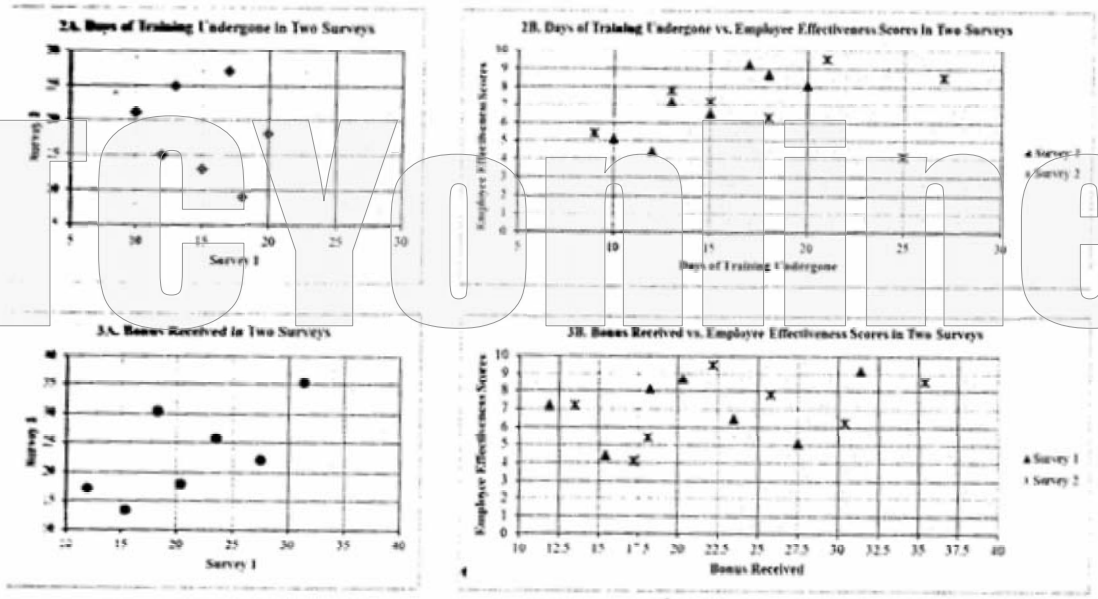
Answer questions 81-84 on the basis of information given below:

As a part of employee improvement programs, every year an organization conducts a survey on three factors: 1. Number of days (in integers) of training undergone, 2. Amount of bonus (in lacs) received by an employee and 3. Employee effectiveness score (on the scale of 1 to 10). Survey results for last two years are given below for the same seven employees. TCYonline.com





81. In Survey 1, what was the average bonus earned by employees who underwent training for more than 17 days? TCYonline.com

A. Between 16 and 17 lacs
B. Between 17 and 18 lacs
C. Between 18 and 19 lacs

D. Between 19 and 20 lacs
E. None of the above

82. Identify the number of employees whose employee effectiveness score was higher than 7 in Survey 1, but whose bonus was lower than 20 lacs in Survey 2. TCYonline.com

A. 2
B. 3
C. 4
D. 5
E. None of the above

83. From Survey 1 to Survey 2, how many employees underwent more days of training but their annual bonus decreased?

A. 1
B. 2
C. 3
D. 4
E. None of the above

84. From Survey 1 to Survey 2: for how many employees training days increased along with an increase of employee effective score by at least 1.0 rating? TCYonline.com

A. 2
B. 3
C. 4
D. 7
E. None of the above

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