

XAT PAPER: (08-01-2012)

QUANTITATIVE ABILITY

26. A medical practitioner has created different potencies of a commonly used medicine by dissolving tablets in water and using the resultant solution.

Potency 1 solution: When 1 tablet is dissolved in 50 ml, the entire 50 ml is equivalent to one dose.

Potency 2 solution: When 2 tablets are dissolved in 50 ml, the entire 50 ml of this solution is equivalent to 2 doses.

...and so on.

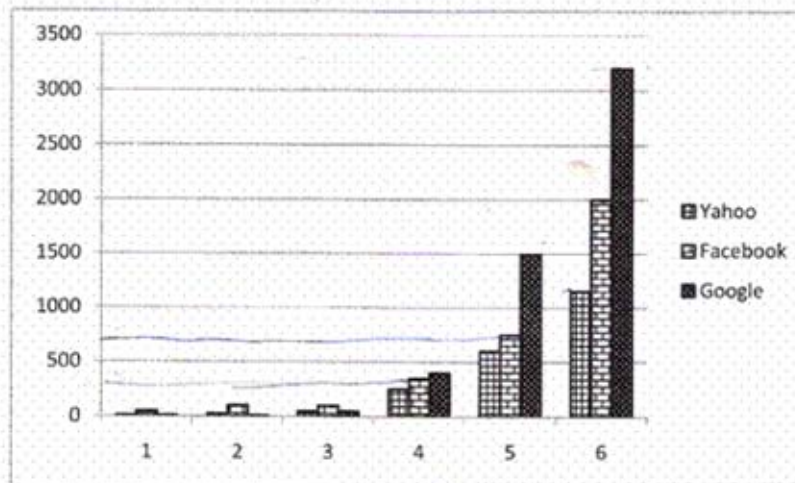
This way he can give fractions of tablets based on the intensity of infection and the age of the patient.

For a particular patient, he administers 10 ml of potency 1, 15 ml of potency 2 and 30 ml of potency 4. The dosage administered to the patient is equivalent to

- A. > 2 and ≤ 3 tablets
 B. > 3 and ≤ 3.25 tablets
 C. > 3.25 and ≤ 3.5 tablets
 D. > 3.5 and ≤ 3.75 tablets
 E. > 3.75 and ≤ 4 tablets
27. A computer program was tested 300 times before its release. The testing was done in three stages of 100 tests each. The software failed 15 times in Stage I, 12 times in Stage II, 8 times in Stage III, 6 times in both Stage I and Stage II, 7 times in both Stage II and Stage III, 4 times in both Stage I and Stage III, and 4 times in all the three stages. How many times the software failed in a single stage only?
- A. 10
 B. 13
 C. 15
 D. 17
 E. 35

Answer question nos. 28 – 30 based on the following information TCYonline.com

The following graph shows the revenue (in \$ million) of three companies in their initial six years of operations, in an economy which is characterised by a persistent inflation.



28. In 2010, which could be a valid statement about the revenues (adjusted for inflation) of these three companies?
- A. Revenues of all three companies were equal.
 - B. Revenues of all three companies could be equal.
 - C. Revenue of Yahoo was definitely less than Facebook which was definitely less than Google.
 - D. Total of Yahoo and Facebook was definitely higher than than of Google.
 - E. None of the above.
29. The difference in the average percentage increase in revenues, from 4th to 6th year, of Yahoo and Facebook is:
- A. 35%
 - B. 40%
 - C. 45%
 - D. 50%
 - E. 55%
30. What would have been Facebook's revenue (in \$ million) in its sixth year of operation if the company had matched Google's percentage growth in revenues from the fifth to the sixth year? Choose the option that is nearest to the answer. TCYonline.com
- A. 1600
 - B. 1700
 - C. 1900
 - D. 2100
 - E. None of the above.
31. Three Vice Presidents (VP) regularly visit the plant on different days. Due to labour unrest, VP (HR) regularly visits the plant after a gap of 2 days. VP (Operations) regularly visits the plant after a gap of 3 days. VP (Sales) regularly visits the plant after a gap of 5 days. The VPs do not deviate from their individual schedules. CEO of the company meets the VPs when all the three VPs come to the plant together. CEO is on leave from January 5th to January 28th, 2012. Last time CEO met the VPs on January 3, 2012. When is the next time CEO will meet all the VPs?
- A. February 6, 2012
 - B. February 7, 2012
 - C. February 8, 2012
 - D. February 9, 2012
 - E. None of the above.
32. Ramesh analysed the monthly salary figures of five vice presidents of his company. All the salary figures are integers. The mean and the median salary figures are ₹ 5 lakh, and the only mode is ₹ 8 lakh. Which of the options below is the sum (in ₹ lakh) of the highest and the lowest salaries?
- A. 9
 - B. 10
 - C. 11
 - D. 12
 - E. None of the above.
33. Lionel and Ronaldo had a discussion on the ages of Jose's sons. Ronaldo made following statements about Jose's sons:
- i) Jose has three sons.
 - ii) The sum of the ages of Jose's sons is 13.

- iii) The product of the ages of the sons is the same as the age of Lionel.
 iv) Jose's eldest son, Zizou weighs 32 kilos.
 v) The sum of the ages of the younger sons of Jose is 4.
 vi) Jose has fathered a twin.
 vii) Jose is not the father of a triplet.
 viii) The LCM of the ages of Jose's sons is more than the sum of their ages.

Which of the following combination gives information sufficient to determine the ages of Jose's sons?

- A. i), ii), iii) and iv)
 B. i), ii), iv) and vi)
 C. i), ii), iii) and v)
 D. i), ii), v) and vii)
 E. i), ii), v) and vi)
34. Gopal sells fruit juice mixture using orange juice and pineapple juice. Gopal prepares this mixture by drawing out a jug of orange juice from a 10 litre container filled with orange juice, and replacing it with pineapple juice. If Gopal draws out another jug of the resultant mixture and replaces it with pineapple juice, the container will have equal volumes of orange juice and pineapple juice. The volume of the jug, in litres, is TCYonline.com
- A. 2
 B. > 2 and ≤ 2.5
 C. 2.5
 D. > 2.5 and ≤ 3
 E. 3
35. Carpenter Rajesh has a circular piece of plywood of diameter 30 feet. He has cut out two disks of diameter 20 feet and 10 feet. What is the diameter of the largest disk that can be cut out from the remaining portion of the plywood piece?
- A. > 8.00 feet and ≤ 8.20 feet
 B. > 8.21 feet and ≤ 8.40 feet
 C. > 8.41 feet and ≤ 8.60 feet
 D. > 8.61 feet and ≤ 8.80 feet
 E. > 8.81 feet and ≤ 9.00 feet
36. Suresh, who runs a bakery, uses a conical shaped equipment to write decorative labels (e.g., Happy Birthday etc.) using cream. The height of this equipment is 7 cm and the diameter of the base is 5 mm. A full charge of the equipment will write 330 words on an average. How many words can be written using three fifth of a litre of cream?
- A. 45090
 B. 45100
 C. 46000
 D. 43200
 E. None of the above
37. Tina, Mina, Gina, Lina, and Bina are 5 sisters, aged in that order, with Tina being the eldest. Each of them had to carry a bucket of water from a well to their house. Their buckets' capacities were proportional to their ages. While returning, equal amount of water got splashed out of their buckets. Who lost maximum amount of water as a percentage of the bucket capacity?
- A. Tina
 B. Mina

- C. Gina
D. Lina
 E. Bina
38. Ram, a farmer, managed to grow shaped-watermelons inside glass cases of different shapes. The shapes he used were: a perfect cube, hemi-spherical, cuboid, cylindrical along with the normal spherical shaped watermelons. Thickness of the skin was same for all the shapes. Each of the glass cases was so designed that the total volume and the weight of the all the water-melons would be equal irrespective of the shape.
- A customer wants to buy water-melon for making juice, for which the skin of the water-melon has to be peeled off, and therefore is a waste. Which shape should the customer buy?
- A. Cube
B. Hemi-sphere
C. Cuboid
D. Cylinder
 E. Normal spherical
39. A man borrows ₹ 6000 at 5% interest, on reducing balance, at the start of the year. If he repays ₹ 1200 at the end of each year, find the amount of loan outstanding, in ₹, at the beginning of the third year. TCYonline.com
- A. 3162.75
B. 4125.00
 C. 4155.00
D. 5100.00
E. 5355.00
40. A spherical metal of radius 70 cm is molten and made into 1000 smaller spheres of equal sizes. In this process the surface area of the metal is increased by:
- A. 1000 times
B. 100 times
 C. 10 times
D. No change
E. None of the above.
41. A potter asked his two sons to sell some pots in the market. The amount received for each pot was same as the number of pots sold. The two brothers spent the entire amount on some packets of potato chips and one packet of banana chips. One brother had the packet of banana chips along with some packets of potato chips, while the other brother just had potato chips. Each packet of potato chips costs ₹10/- and the packet of banana chips costs less than ₹10/-. The packets of chips were divided between the two brothers so each brother received equal number of packets. How much money should one brother give to the other to make the division financially equitable?
- A. 1
 B. 2
C. 4
D. 5
E. 7
42. Nikhil's mother asks him to buy 100 pieces of sweets worth ₹ 100/-. The sweet shop has 3 kinds of sweets, *kajubarfi*, *gulabjamun* and *sandesh*. *Kajubarfi* costs ₹ 10/- per piece, *gulabjamun* costs ₹ 3/- per piece and *sandesh* costs 50 paise per piece. If Nikhil decides to buy at least one sweet of each type, how many *gulabjamuns* should he buy?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

Answer question 43 and 44 based on the following information. TCYonline.com

Ramya, based in Shanpur, took her car for a 400 km trip to Rampur. She maintained a log of the odometer readings and the amount of petrol she purchased at different petrol pumps at different prices (given below). Her car already had 10 litres of petrol at the start of the journey, and she first purchased petrol at the start of the journey, as given in table below, and she had 5 litres remaining at the end of the journey.

	Odometer Reading (Km)	Petrol purchased (Litre)	Rate of Petrol (₹/ litre)
Start of journey	400	20	30
	600	15	35
	650	10	40
End of journey	800		

43. What has been the mileage (in kilometres per litre) of her car over the entire trip?

- A. 8.00
- B. 8.50
- C. 9.00
- D. 9.50
- E. None of the above.

44. Her car's tank capacity is 35 litres. Petrol costs ₹ 45/ litre in Rampur. What is the minimum amount of money she would need for purchasing petrol for the return trip from Rampur to Shanpur, using the same route? Assume that the mileage of the car remains unchanged throughout the route, and she did not use her car to travel around in Rampur.

- A. 1714
- B. 1724
- C. 1734
- D. 1744
- E. Data insufficient to answer.

45. A city has a park shaped as a right angled triangle. The length of the longest side of this park is 80 m. The Mayor of the city wants to construct three paths from the corner point opposite to the longest side such that these three paths divide the longest side into four equal segments. Determine the sum of the squares of the lengths of the three paths.

- A. 4000 m
- B. 4800 m
- C. 5600 m
- D. 6400 m
- E. 7200 m

46. Ram prepares solutions of alcohol in water according to customers' needs. This morning Ram has prepared 27 litres of a 12% alcohol solution and kept it ready in a 27 litre delivery container to be shipped to the customer. Just before delivery, he finds out that the customer had asked for 27 litres of 21% alcohol solution. To prepare what the customer wants, Ram replaces a portion of 12% solution by 39% solution. How many litres of 12% solution are replaced?

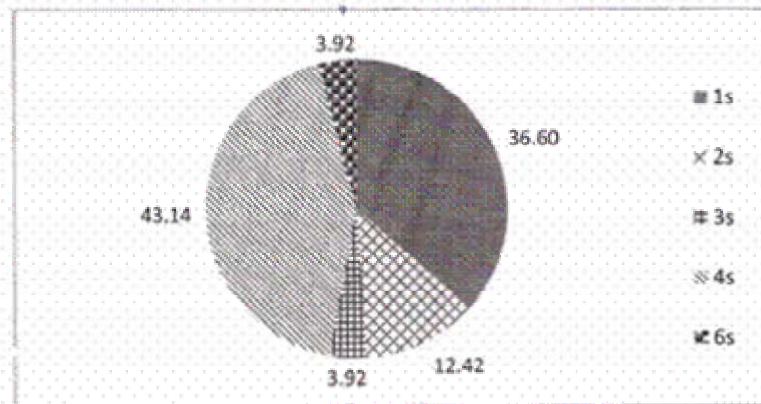
- A. 5
- B. 9

- C. 10
D. 12
E. 15
47. City Bus Corporation runs two buses from terminus A to terminus B, each bus making 5 round trips in a day. There are no stops in between. These buses ply back and forth on the same route at different but uniform speeds. Each morning the buses start at 7 AM from the respective terminuses. They meet for the first time at a distance of 7 km from terminus A. Their next meeting is at a distance of 4 km from terminus B, while travelling in opposite directions. Assuming that the time taken by the buses at the terminuses is negligibly small, and the cost of running a bus is ₹ 20 per km, find the daily cost of running the buses (in ₹).
- A. 3200
B. 4000
C. 6400
 D. 6800
E. None of the above.
48. Shyam, a fertilizer salesman, sells directly to farmers. He visits two villages A and B. Shyam starts from A, and travels 50 metres to the East, then 50 metres North-East at exactly 45° to his earlier direction, and then another 50 metres East to reach village B. If the shortest distance between villages A and B is in the form of $a\sqrt{b} + \sqrt{c}$ metres, find the value of $a+b+c$.
- A. 52
B. 54
C. 58
D. 59
 E. None of the above.
49. Three truck drivers, Aman, Akbar and Anthony stop at a road side eating joint. Aman orders 10 rotis, 4 plates of *ladka*, and a cup of tea. Akbar orders 7 rotis, 3 plates of *ladka*, and a cup of tea. Aman pays ₹ 80 for the meal and Akbar pays ₹ 60. Meanwhile, Anthony orders 5 rotis, 5 plates of *ladka* and 5 cups of tea. How much (in ₹) will Anthony pay?
- A. 75
B. 80
C. 95
 D. 100
E. None of the above.
50. A property dealer bought a rectangular piece of land at ₹1000/sq ft. The length of the plot is less than twice its breadth. Due to its size, there were no buyers for the full plot. Hence he decided to sell it in smaller sized pieces as given below. TCYonline.com
- The largest square from one end was sold at ₹ 1200/sqft. From the remaining rectangle the largest square was sold at ₹ 1150/sqft.
- Due to crash in the property prices, the dealer found it difficult to make profit from the sale of the remaining part of the land. If the ratio of the perimeter of the remaining land to the perimeter of the original land is 3:8, at what price (in ₹) the remaining part of the land is to be sold such that the dealer makes an overall profit of 10%?
- A. 500/sqft
 B. 550/sqft
C. 600/sqft
D. 650/sqft

E. None of the above.

Answer question nos. 51 – 52 based on the following information

The following pie chart shows the percentage distribution of runs scored by a batsman in a test innings.



51. If the batsman has scored a total of 306 runs, how many 4s and 6s did he hit? TCYonline.com

- A. 31 and 3 respectively
 B. 32 and 2 respectively
 C. 32 and 3 respectively
 D. 33 and 1 respectively
 E. 33 and 2 respectively

52. If 5 of the dot balls had been hit for 4s, and if two of the shots for which the batsman scored 3 runs each had fetched him one run instead, what would have been the central angle of the sector corresponding to the percentage of runs scored in 4s?

- A. 160
 B. 163
 C. 165
 D. 167
 E. 170

53. Ram and Shyam form a partnership (with Shyam as working partner) and start a business by investing ₹ 4000 and ₹ 6000 respectively. The conditions of partnership were as follows:

- in case of profits till ₹ 200,000 per annum, profits would be shared in the ratio of the invested capital.
- Profits from ₹ 200,001 till ₹ 400,000 Shyam would take 20% out of the profit, before the division of remaining profits, which will then be based on ratio of invested capital.
- Profits in excess of ₹ 400,000, Shyam would take 35% out of the profits beyond ₹ 400,000, before the division of remaining profits, which will then be based on ratio of invested capital.

If Shyam's share in a particular year was ₹ 367000, which option indicates the total business profit (in ₹) for that year?

- A. 520,000
 B. 530,000
 C. 540,000
 D. 550,000
 E. None of the above.