Mock Test 10

Quantitative Aptitude Set-10

Question 1.

Let $f\left(x+\frac{1}{x}\right)=x^3+\frac{1}{x^3}\ (x\neq 0)$,, then f(x) = ?

What is the value of the function f(x) for which the graph passes through the origin and has turning points at x = ±1?

A. $f(x) = x^3 - 2x$
B. $f(x) = x + 3x$
C. $f(x) = x^3 + 2x$
D. $f(x) = x^3 - 3x$

Question 2.
The ratio of the monthly incomes of two people is 7:3, while their monthly expenses are in a ratio of 5:2. If both of them save 2000 rupees monthly, find their total monthly income.

Question 3.
Bablu has a farm in the shape of a rhombus. He notes that the area of the farm is 24000 sq. meters, and the sum of the diagonals is 460 meters. If it costs Rs.1200 to fence 1 meter, how much should he spend (in lakhs) to fence all sides?

A. 8.88
B. 8.64
C. 7.92
D. 8.16

Question 4.
Jayantilal invests ₹5 lakhs in two banks. One gives 5% simple interest, and the other 5% compound interest. What is the difference in the total amount he receives from both after 3 years?

A. Rs.3612.5
B. Rs.3712.5
C. Rs.3812.5
D. Rs.3912.5

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Question 5.
On a circular track of 3000 m, Ankit and Sayan run at 36 kmph and 54 kmph respectively. When will they meet for the first time at the starting point while running in the same direction?

A. 300 sec
B. 400 sec
C. 600 sec
D. 800 sec

Question 6.
Find the range of x if $| |x - 4| - 6| > 5$

A. $(-\infty, -7) \cup (3, 5) \cup (15, \infty)$
B. $(-\infty, -8) \cup (2, 5) \cup (15, \infty)$
C. $(-\infty, -7) \cup (2, 5) \cup (15, \infty)$
D. $(-\infty, -7) \cup (3, 5) \cup (16, \infty)$

Question 7.
Find the product of unique roots of x in the equation given below:

$x^{y^2-5y+7} = 27$, where $y = \log_3 x$

Question 8.
Given $f(x) = x^2 + ax + b$ and $g(x) = x^2 + cx + d$ have roots (3,4) and (5,4) respectively. If α and β are roots of $h(x) = f(x) + g(x)$, find $\alpha/(1+\alpha) + \beta/(1+\beta)$

A. -1/2
B. 1
C. 8/5
D. 0

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Question 9.
A locker uses a 4-digit code from 0000 to 9999. The first digit >2, and there's exactly one 8. What's the probability Ankit cracks it on the first try?

A. 3/1963
B. 1/243
C. 1/729
D. 1/2187

Question 10.
Aman's efficiency dropped 40%. The project workload increased 50%. What efficiency must a new person have to meet the deadline?

A. 20% less than Aman's original
B. 10% less than Aman's original
C. 10% more than Aman's original
D. 20% more than Aman's original

Question 11.
Let ABCD be a parallelogram with AD = 10 cm and AC = 14 cm. If angle ADC = 60°, find its area.

A. 80√3 sqcm
B. 70√3 sqcm
C. 60√3 sqcm
D. 90√3 sqcm

Question 12.
Find how many integers <30000 can be formed using 0,1,2,3,4,5 with no repetition.

Question 13.
Ankit and Rahul spend equally. Rahul buys twice as many bottles and 20 fewer glasses. A glass costs ₹50 more than a bottle. Find the minimum total bottles bought.

Question 14.
Two cans A and B have capacities of 40L and 30L. A has 60% alcohol, B has 46.67%. 15L from A and 12L

from B are exchanged. Find final alcohol ratio in A:B.

A. 103/87
B. 124/83
C. 78/63
D. 110/81

Question 15.
Brajesh buys a laptop from Mohan, spends ₹5000 on it, and sells to Sohan at 25% profit. Sohan upgrades it for ₹5000 and sells it for ₹20000 more than Mohan's selling price, with 16.67% profit. What price did Brajesh sell it for?

A. ₹25,000
B. ₹30,000
C. ₹32,000
D. ₹36,000

Question 16.
Machines M1, M2, and M3 produce 35%, 25%, and 40% respectively. Their defect rates are 2%, 1.2%, and x%. Overall defect = y% where x, y are natural numbers and $y < 8$. How many such (x, y) pairs exist?

A. 2
B. 3
C. 4
D. 5

Question 17.
In triangle ABC, A(7,3), B(4,2), C(3,5). Let AD be altitude from A to BC. Find coordinates of D.

A. (7,3)
B. (3,5)
C. (4,2)
D. (2,8)

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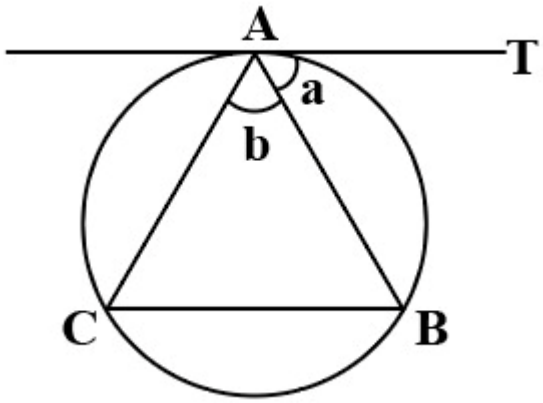
Question 18.
Festival expenses = fixed + sqrt(guests). For 100 guests, ₹2650; for 64 guests, ₹2200. Find the cost for 1444 guests.

Question 19.



Circle has radius 4m. ∠A = ∠B = 60°. Find area of triangle ABC.

A. 9
B. $48\sqrt{3}$
C. $12\sqrt{3}$
D. 12

Question 20.
Ram can complete a task in 50 days, while Sham takes 100 days to complete the same task. They started working on the task together, but after 25 days, both fell sick. Instead of them, Talram began to work on the task from the 26th day. Ram and Sham recovered and joined back the next day, and together, all three of them completed the task within 3 days. If they were paid Rs 10,000 for the task, find the amount of money earned by Talram per day.

A. ₹537
B. ₹400
C. ₹367
D. ₹300

Question 21.
A and B are running in the same direction on a 5000m circular track. The speed of A is 50m/s and the speed of B is X m/s where X is a natural number less than 50. When they run in the same direction they meet at 8

distinct points on the track. If they both participate in a 7000m running race with A giving B a head start of 200m, by how much time does A beat B?

A. 1.5 min
B. 60 sec
C. 30 sec
D. 2 min

Question 22.

Find the remainder that $7^{51} + 3^{29}$ leaves when divided by 8.

A. 0
B. 1
C. 2
D. 4

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Answer Key

1. **(d) $f(x) = x^3 - 3x$**
2. **60000**
3. **(d) ₹8.16 lakhs**
4. **(c) ₹3812.5**
5. **(c) 600 seconds**
6. **$x < -5$ or $x > 15$**
7. **81**
8. **(c) 8/5**
9. **(d) 1/2187**
10. **(b) 10% less than Aman's original efficiency**
11. **(a) $80\sqrt{3}$ sq. cm**
12. **671**
13. **63**
14. **(a) 103/87**
15. **(a) ₹25,000**
16. **(b) 3**
17. **(c) (4, 2)**
18. **8950**
19. **(c) $12\sqrt{3}$**
20. **(b) ₹400**
21. **(b) 60 seconds**
22. **(c) 2**