Mock Test 8

Quantitative Aptitude Set-8

Question 1

Ram borrowed a certain amount from Shyam at a compound interest of ***a%*** for the first year and ***b%*** for the second year. Shyam noticed that the total interest he gets after two years is twice the interest he gets after one year. Find the value of:

1b−1a\frac{1}{b} - \frac{1}{a}

A) 1/150
B) 1/200
C) 1/100
D) 1/20

Question 2

A drum contains **75 litres** of water. **15 litres** of the water is removed and substituted with milk. What is the **least number of such substitutions** required so that milk is **at least 50%** of the solution?

Question 3

In a parallelogram **ABCD** of **189 sq cm**, sides **CD** and **AD** have lengths of **21 cm** and **15 cm**, respectively. Let **R** be a point on **CD** such that **AR is perpendicular to CD**. Find the **area** (in sq cm) of triangle **ARD**.

A) 72
B) 54
C) 48
D) 36

Question 4

Find the number of integers that **do not** satisfy the inequality:

12|x|−5<316\frac{1}{2|x|-5} < \frac{3}{16}

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

Question 5

A shopkeeper purchases rice at a certain price and marks it up by **68%**. However, a customer requests a discount of **75%**. The shopkeeper realises he can take advantage of this situation to make a **20% profit** by using **false weights**. To achieve this profit margin, what **percentage decrease in weight** should he manipulate?

A) 65%
B) 60%

C) 57.5%
D) 55%

Question 6
Train **A** starts from city **M** to city **N**, and after **one hour**, train **B** also starts from city **M** towards city **N**. Train **B** takes **20 minutes** to reach city **N** after **crossing Train A**. Train **A** arrives at city **N 10 minutes after** Train B's arrival. If the speed (in km/hr) of both trains are integers, which of the following can be the **distance between city M and city N**?

A) 228 km
B) 525 km
C) 792 km
D) 468 km

Question 7
Two regular polygons, P_1 and P_2, have **x** and **y** sides respectively. It is given that **y = 2x**, and each interior angle of polygon P_2 is **1.5 times** that of polygon P_1. What is the value of each **interior angle (in degrees)** of a regular polygon with **2x + y** sides?

A) 150°
B) 155°
C) 160°
D) 165°

Question 8
The cost of a fish varies **directly as the cube of its weight**. If the fish is cut into **three pieces** with weights in the ratio of **2:2:1**, then the fishmonger receives **₹43,200 less** after selling all the pieces. Find the **original price (in rupees)** of the whole fish.

Question 9
17 men and 14 women can complete a piece of work in **12 days**, while **6 men and 3 women** can complete the same piece of work in **40 days**. If there are **n women** and **(n − 1) men** working together, they can complete the work in **20 days**. Find the value of **n**.

Question 10
There are **five integers** in an arithmetic progression. The **sum** of the terms is **45** and their **product** is **45045**. Which of the following numbers is **not** part of the progression?

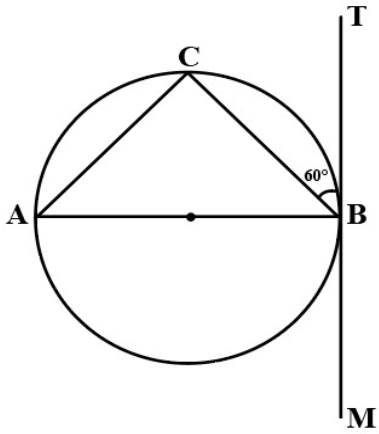
A) 13
B) 3
C) 5
D) 11

Question 11
4 kg of pure nickel is combined with a certain amount of **nickel-chromium alloy A_1**, resulting in a new alloy **A_2** containing

80% nickel by weight. Another new alloy A_3 is made by combining **alloy A_1** with **4 kg** of **alloy A_4** (which contains **80% nickel**), resulting in **72% nickel** by weight. Find the **weight (in kg)** of **alloy A_1** used to form **alloy A_2**.

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

Question 12
In the following figure, **AB is the diameter**, **MT is the tangent** to the circle touching at **B**, and the **radius** of the circle is **m**. Find the length of **AC**.



A) 5 m
B) 5√3 m
C) 10 m
D) 20/3 m

Question 13
Sourabh had sufficient money to purchase **24 bottles of orange juice** or **18 bottles of mango juice**, or **12 bottles of milk**. He retained **16.66%** of the funds for **transportation costs**. Find the **maximum number of bottles of orange juice** he could purchase if he bought **exactly two milk bottles**, **at least one mango juice**, and **spent all the money left**.

A) 13
B) 14
C) 11
D) 12

Question 14
In a triangle **ABC**, ∠**BAC = 70°**. **D** and **E** are the **midpoints** of **AB** and **AC**, respectively, such that **DE = AE**. Find the **difference** between ∠**BEC** and ∠**DBE**.

A) 70°
B) 60°
C) 50°
D) 80°

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Question 15

Mayank is rolling a **fair die three times successively**. Find the **probability** that on **each turn**, the number appearing on the die is **greater** than the number that appeared in the **previous turn**.

A) 1/12
B) 7/72
C) 5/54
D) 2/27

Question 16

If the **roots** of a quadratic equation are in the **ratio 2:5** and the quadratic equation is of the form

x2−px+q=0x^2 - px + q = 0

then the **maximum value** of

20p−q−48020p - q - 480

is **a**. Find the value of **a**.

Question 17

What is the **rank** of the word **SEESAWS**, if all possible permutations of the word are arranged in **dictionary order**?

A) 225th
B) 226th
C) 227th
D) 224th

Question 18

Find the remainder, when $53^{27^{31}}$ divided by 7.

A) 3
B) 1
C) 6
D) 4

Question 19

Hari is in a **shopping mall** and needs to use an **upward escalator**. His friend **Giri**, who is **twice as fast** as Hari, climbs the same escalator in **12 seconds**. When Hari is **halfway up**, Giri calls him, and Hari starts **descending** on the same escalator. Given that **Giri's climbing speed** is **20 steps/sec** and the **total steps** on the escalator are **300**, what is the **duration (in seconds)** of Hari's travel on the escalator?

A) 25
B) 30
C) 40
D) 20

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Question 20

It is given that $\log_4 3 = a$ and $\log_7 12 = b$. Find the value of $\log_7 3$.

A) (ab)/(a + 1)
B) (ab)/(1 - a)
C) (ab)/(b + 1)
D) (ab)/(b - 1)

Question 21

Sanket runs an **import-export business** involving **three countries** – the **USA**, **Kuwait**, and **Thailand**. He purchased:

- **Item A** from **Thailand** at **70 Baht**, and sold it in the **USA** at **27 Dollars**
- **Item B** from the **USA** at **99 Dollars**, and sold it in **Kuwait** at **154 Dinar**
- **Item C** from **Kuwait** at **55 Dinar**, and sold it in **Thailand** at **245 Baht**

Currency conversion rates are:

35 Baht=9 Dollar=11 Dinar35 \text{ Baht} = 9 \text{ Dollar} = 11 \text{ Dinar}

Find the **overall profit** made by Sanket in selling **Items A, B, and C** combined.

A) 72 Dollars
B) 350 Baht
C) 66 Dinar
D) 81 Dollars

Question 22

A contractor hires **three persons: A, B, and C** to complete certain work. **A and B** started the work. **C joined them 7 days before** finishing the work and **left 2 days before** it was finished. The ratio of time taken by **A, B, and C** to complete the work **alone** is

1/2:1/3:1/51/2 : 1/3 : 1/5

If **C alone** can finish **half the work in 9 days**, how many **days did A work**?

A) 15 days
B) 8 days
C) 13 days
D) 4 days

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Answer Key

1. **(c) 1/100**
2. **4**
3. **(b) 54**
4. **(c) 6**
5. **(a) 65%**
6. **(b) 525 Kms**
7. **(d) 165°**
8. **50000**
9. **10**
10. **(b) 3**
11. **(c) 6**
12. **(a) 5 m**
13. **(d) 12**
14. **(a) 70°**
15. **(c) 5/54**
16. **10**
17. **(c) 227th**
18. **(b) 1**
19. **(c) 40**
20. **(d) (ab)/(b - 1)**
21. **(c) 66 Dinar**
22. **(c) 13 days**