QUANTITATIVE APTITUDE

All Questions are compulsory

Time: 2 Hours Marks: 100

1. **A business started with Shyam investing ₹1,50,000. After 8 months, Ritu joined with ₹2,40,000. After another 4 months, Karan joined with ₹1,80,000. At the end of 2 years, in what ratio should the profits be shared?**
   - **(A) 15:16:10**
   - **(B) 20:24:15**
   - **(C) 30:28:12**
   - **(D) 10:12:8**

2. **The sum of three numbers is 144. The ratio of the first to the second is 3:4 and the ratio of the second to the third is 5:6. The second number is:**
   - **(A) 36**
   - **(B) 40**
   - **(C) 48**
   - **(D) 54**

3. **If log base x of y = (log 27 + log 64) / (log 9 + log 16), then find the value of x + y.**
   - **(A) 10**
   - **(B) 12**
   - **(C) 15**
   - **(D) 18**

4. **If 4a = 5b = 40c, then c =**
   - **(A) ab / [5(a + b)]**
   - **(B) ab / [4(a + b)]**
   - **(C) ab / [8(a + b)]**
   - **(D) ab / [40(a + b)]**

5. **₹90 is divided among boys and girls so that each boy gets ₹1 and each girl gets ₹0.60. If there are 70 students in all, how many boys are there?**

(A) 25
(B) 30
(C) 35
(D) 40

6. **Anil boards an elevator at the 9th floor going up at 48 floors/min. At the same time, Meena is on the 55th floor going down at 52 floors/min. At which floor will they meet?**
   (A) 20
   (B) 25
   (C) 28
   (D) 30

7. **The quadratic equation x^2 - 10x + 25 = 0 has:**
   (A) Two equal real roots
   (B) Two distinct real roots
   (C) No real roots
   (D) Complex conjugate roots

8. **The cubic equation x^3 - 5x^2 - 4x + 20 = 0 has the product of two roots equal to –4. Which is the correct set of roots?**
   (A) 2, –2, 5
   (B) –2, –5, 2
   (C) 4, –4, 1
   (D) 2, –4, 3

9. **Solve the inequalities: x + 2y ≥ 8, 3x + y ≥ 12, x + y ≥ 6. Which points satisfy all?**
   (A) (4,3), (5,2), (6,2)
   (B) (2,4), (3,3), (4,4)
   (C) (5,3), (6,2), (7,1)
   (D) (3,2), (4,2), (6,3)

10. **The largest side of a triangle is 4 cm longer than twice the smallest side; the third side is 3 cm shorter than the largest. If perimeter is at least 66 cm, the minimum length of smallest side is:**
    (A) 9 cm

(B) 10 cm
(C) 11 cm
(D) 12 cm

11. A sum of ₹800 is lent at a certain rate of simple interest. After 9 months, an additional ₹500 is lent at double the previous rate. If the total interest for a year is ₹76, find the first rate.
(A) 3%
(B) 3.5%
(C) 4%
(D) 4.5%

12. A sum becomes ₹12,600 in 6 years at simple interest and the total interest is ₹4,200. Find the compound interest on ₹5,000 for 2 years at the same rate.
(A) ₹680
(B) ₹700
(C) ₹714
(D) ₹725

13. Find the effective annual rate corresponding to a nominal rate of 10% p.a. compounded half-yearly (approximate).
(A) 10.15%
(B) 10.20%
(C) 10.25%
(D) 10.30%

14. Compound interest on a sum for 2 years at 12% p.a. is ₹1,272. Find simple interest for double the time at half the rate on the same sum.
(A) ₹900
(B) ₹1,000
(C) ₹1,100
(D) ₹1,200

15. Find future value of ₹8,000 invested for 3 years at 8% p.a., compounded quarterly. (Given: (1.02)^12 = 1.2682)
(A) ₹10,146