



# ASSISTANT PRELIMS



# QUANTITATIVE APTITUDE



### INSTRUCTIONS

- This RBI Assistant Pre Exam practice set of Quantitative Aptitude (Qs. 1-35)
- All the questions are compulsory.
- Each question has five options, of which only one is correct. The candidates are advised to read all the options thoroughly.

## Quantitative Aptitude

**Direction (1-5): What should come in place of question mark (?) in the following number series?**

1. 131, 67, 35, 19, 11, ?

- |      |      |
|------|------|
| A. 9 | B. 7 |
| C. 6 | D. 5 |
| E. 4 |      |

2. 25, 28, 22, 31, 19, ?

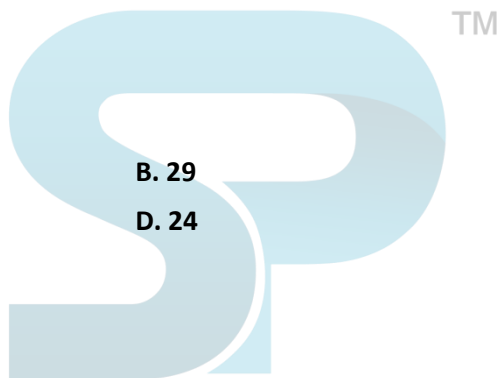
- |                  |       |
|------------------|-------|
| A. 39            | B. 29 |
| C. 34            | D. 24 |
| E. None of these |       |

3. 7, 4.5, 6, 11, ?

- |          |         |
|----------|---------|
| A. 24.5  | B. 20.5 |
| C. 22.25 | D. 22.5 |
| E. 18    |         |

4. 1, 4, 9, 18, 35, ?

- |                  |       |
|------------------|-------|
| A. 65            | B. 68 |
| C. 54            | D. 59 |
| E. None of these |       |





5. 3.5, 4, 8, 27, ?, 767

A. 258

B. 147

C. 267

D. 129

E. None of these

**Direction (6-10): In the following question two equations are given. You have to solve both and establish the relation between given variables:**

6. I.  $2x^2 + 11x + 14 = 0$

II.  $2y^2 + 13y + 21 = 0$

A.  $X > Y$

B.  $X \geq Y$

C.  $X < Y$

D.  $X \leq Y$

E.  $X = Y$  or the relationship cannot be established

7. I.  $x^2 - 9x + 20 = 0$

II.  $y^2 = 16$

A.  $X > Y$

B.  $X \geq Y$

C.  $X < Y$

D.  $X \leq Y$

E.  $X = Y$  or the relationship cannot be established

8. I.  $x^2 - 7x + 12 = 0$

II.  $y^2 - 11y + 30 = 0$

A.  $X > Y$

B.  $X \geq Y$

C.  $X < Y$

D.  $X \leq Y$

E.  $X = Y$  or the relationship cannot be established

9. I.  $x^2 - 8x + 15 = 0$

II.  $y^2 - 12y + 36 = 0$

A.  $X > Y$

B.  $X \geq Y$

C.  $X < Y$

D.  $X \leq Y$

E.  $X = Y$  or the relationship cannot be established



10. I.  $2x^2 + 9x + 7 = 0$

II.  $y^2 + 4y + 4 = 0$

A.  $X > Y$

B.  $X \geq Y$

C.  $X < Y$

D.  $X \leq Y$

E.  $X = Y$  or the relationship cannot be established

**Direction (11-15): Study the following chart carefully to answer these questions.**

Percentage – wise Distribution of teachers who teach Six Different Subjects total numbers of teachers = 1800  
percentage of teachers-

Biology	12%
Chemistry	23%
Physics	17%
Hindi	8%
English	27%
Mathematics	13%

11. If two-ninth of the teachers who teach Physics is female, then number of male Physics teachers is **approximately** what percentage of the total number of teachers who teach Chemistry?

A. 57

B. 42

C. 63

D. 69

E. 51

12. What is the total number of teachers teaching Chemistry, English and Biology?

A. 1226

B. 1116

C. 1176

D. 998

E. None of these

13. What is the difference between the total number of teachers who teach English and Physics together and the total number of teachers who teach Mathematics and Biology together?

A. 352

B. 342

C. 643

D. 653

E. None of these



14. What is the **respective** ratio of the number of teachers who teach Mathematics and the number of teachers who teach Hindi?

- A. 13:7  
B. 7:13  
C. 7:26  
D. 8:15  
E. None of the above

15. If the percentage of Mathematics teachers is increased by 50 per cent and percentage of Hindi teachers decreased by 25 per cent then what will be the total number of Mathematics and Hindi teachers together?

- A. 390  
B. 379  
C. 459  
D. 480  
E. None of these

**Directions (16-20) Go through the data given in the table below and solve the questions that follow.**

The table consists of details of students who appeared for 2 subjects, Physics' and 'Chemistry' and the percentage who passed these subjects from ABC college from the year, 2011 to 2015.

Year	Physics		Chemistry	
	Total numbers of Student appeared	% of students passed	Total numbers of Student appeared	% of students passed
2011	650	30	800	50
2012	250	70	630	30
2013	350	50	550	20
2014	600	60	300	80
2015	350	70	200	40



16. What is the average number of students, who appeared for Physics from the year, 2011 to 2015?

- A. 440
- B. 400
- C. 480
- D. 380
- E. None of these

17. Calculate the ratio, between the total number of students who appeared for Physics from 2013 to 2015 and the total number of students, who appeared for Chemistry from 2011 to 2013?

- A. 13: 201
- B. 63: 99
- C. 64: 99
- D. 65: 99
- E. None of these

18. What is the average number of students, who did not pass in Physics in the year 2011 and 2015 together?

- A. 320
- B. 280
- C. 300
- D. 260
- E. 240

19. Calculate the difference between the total number of students, who passed in Chemistry in 2011 and the total number of students who did not pass in Physics in 2015?

- A. 485
- B. 395
- C. 535
- D. 295
- E. None of these

20. The total number of students, who did not pass Physics in 2013 is approximately what percent of the total number of students, who did not pass Chemistry in 2013?

- A. 45%
- B. 40%
- C. 42%
- D. 56%
- E. 58%

**Direction (21-25): What approximate value should come in place of the question mark (?) in the following equation (Note: You are not expected to calculate the exact value)?**



21.  $21.003 \times 39.998 - 209.91 = 126 \times ?$

- |      |      |
|------|------|
| A. 5 | B. 4 |
| C. 3 | D. 2 |
| E. 6 |      |

22.  $(47\% \text{ of } 1442 - 36\% \text{ of } 1412) = 63 = ?$

- |      |      |
|------|------|
| A. 4 | B. 5 |
| C. 3 | D. 6 |
| E. 1 |      |

23.  $2418.065 + 88 \div 14.2 \times 6 = ?$

- |         |         |
|---------|---------|
| A. 1059 | B. 2419 |
| C. 2496 | D. 2455 |
| E. 1985 |         |

24.  $1201 \div 14.99 \times 19.91 + 400.01 = ?$

- |         |         |
|---------|---------|
| A. 1700 | B. 1850 |
| C. 1800 | D. 1950 |
| E. 2000 |         |

25.  $15.2\% \text{ of } 726 \times 12.8\% \text{ of } 643 = ?$

- |         |         |
|---------|---------|
| A. 9110 | B. 9088 |
| C. 9100 | D. 9096 |
| E. 9082 |         |

26. The average of five positive numbers is 128. The average of the first two numbers is 118 and the average of last two numbers is 126. What is the third number?

- |                  |                      |
|------------------|----------------------|
| A. 152           | B. 56                |
| C. 86            | D. Cannot determined |
| E. None of these |                      |



27. 4 years ago, the ratio of  $\frac{1}{2}$  of Anita's age at that time and four times of Bablu's age at that time was 5 : 12. Eight years hence,  $\frac{1}{2}$  of Anita's age at that time will be less than Bablu's age at that time by 2 years. What is Bablu's present age?

- A. 10 years
- B. 24 years
- C. 9 years
- D. 15 years
- E. 18 years

28. A man sold an article at a loss of 20%. If he had sold that article for Rs. 24 more then he would have gained 10%. Find the cost price of that article:

- A. Rs. 120
- B. Rs. 80
- C. Rs. 90
- D. Rs. 112
- E. None of these

29. A started a business with investing Rs. 8000 and after some months, B joined with investing Rs. 5000. At the end of one year, total profit was Rs. 4250 and share of A is Rs. 3000. After how many months did B join?

- A. 4
- B. 5
- C. 2
- D. 1
- E. Date inadequate

30. Train P crosses a pole in 6 sec. Train Q coming from opposite direction crosses a bogie of train P of length  $\frac{1}{3}$  of train P in 4 seconds. Length of Train P and Train Q are in the ratio 5: 4. Find the speed of Train P, if the speed of Train Q is 21 m/s.

- A. 60 m/s
- B. 50 m/s
- C. 40 m/s
- D. 30 m/s
- E. 20 m/s

31. One ball is picked up randomly from a bag containing 8 yellow, 7 blue and 6 black balls. What is the probability that it is neither yellow nor black?

- A.  $\frac{3}{4}$
- B.  $\frac{4}{7}$
- C.  $\frac{2}{9}$
- D.  $\frac{1}{3}$
- E. None of the above





32. A and B together can do a piece of work in 60 days, A and C can do the same work in 45 days. The ratio of Work efficiency of B and C is 1:2. In how many days they together can do the same work?

- A. 30 days
- B. 25 days
- C. 24 days
- D. 36 days
- E. None of these.

33. Swami brought pulses of worth INR 32/kg and INR 45/kg. He mixed them with a third variety in the ratio 1:1:2. If the mixture is worth INR 88/kg, then the price of the third variety per kg will be:

- A. 169.50
- B. 137.50
- C. 175.50
- D. 145.50
- E. None of the above

34. The speed of a boat in still water is  $(27/4)$  km/hr. The time required to travel a certain distance upstream is five times than that of downstream for the same distance. Find the speed of the stream.

- A. 3.5 km/hr.
- B. 7.6 km/hr.
- C. 5.8 km/hr.
- D. 4.5 km/hr.
- E. 2.8 km/hr.

35. The ratio of Curved Surface Area to Total Surface Area of Cylinder is 3:5. If the curved surface area of the cylinder is 1848 metre square, find the height of the cylinder.

- A. 25m
- B. 27m
- C. 21m
- D. 28m
- E. None of these

## RBI Assistant Pre Paper Explanation

1. **Ans. B.**

$$131 - 64 = 67$$

$$67 - 32 = 35$$

$$35 - 16 = 19$$

$$19 - 8 = 11$$

$$11 - 4 = 7$$



2. **Ans. C.**

$$25 + 3 = 28$$

$$28 - 6 = 22$$

$$22 + 9 = 31$$

$$31 - 12 = 19$$

$$19 + 15 = 34$$

3. **Ans. A.**

$$7 \times 0.5 + 1 = 4.5$$

$$4.5 \times 1 + 1.5 = 6$$

$$6 \times 1.5 + 2 = 11$$

$$11 \times 2 + 2.5 = 24.5$$

4. **Ans. B.**

$$1 + 3 = 4$$

$$4 + 5 = 9$$

$$9 + 9 = 18$$

$$18 + 17 = 35$$

Again we have to check here –

$$3 + 2 = 5$$

$$5 + 4 = 9$$

$$9 + 8 = 17$$

$$17 + 16 = 33$$

We will add 33 in 35 = 68



5. **Ans. D.**

$$3.5 \times 2 - 3 = 4$$

$$4 \times 3 - 4 = 8$$

$$8 \times 4 - 5 = 27$$

$$27 \times 5 - 6 = 129$$

$$129 \times 6 - 7 = 767$$

6. **Ans. E.**

$$2x^2 + 11x + 14 = 0$$

$$2x^2 + 4x + 7x + 14 = 0$$

$$2x(x+2) + 7(x+2) = 0$$

$$(x+2)(2x+7) = 0$$



i.e.  $X = -2$  or  $-7/2$

$$2y^2 + 13y + 21 = 0$$

$$2y^2 + 6y + 7y + 21 = 0$$

$$2y(y+3) + 7(y+3) = 0$$

$$(2y+7)(y+3) = 0$$

i.e.  $y = -3$  or  $-7/2$

Thus, Relationship cannot be established

7. **Ans. B.**

$$x^2 - 9x + 20 = 0$$

$$x^2 - 5x - 4x - 20 = 0$$

$$(x-5)(x-4) = 0$$

i.e.  $X = 4$  or  $5$

$$y^2 = 16$$

$$y = (16)^{1/2}$$

$$y = 4 \text{ or } -4$$

Thus,  $x \geq y$



8. **Ans. C.**

$$x^2 - 7x + 12 = 0$$

$$x^2 - 4x - 3x + 12 = 0$$

$$x(x-4) - 3(x-4) = 0$$

i.e.  $X = 3$  or  $4$

$$y^2 - 11y + 30 = 0$$

$$y^2 - 5y - 6y + 30 = 0$$

$$y(y-5) - 6(y-5) = 0$$

i.e.  $y = 5$  or  $6$

Thus,  $y > x$

9. **Ans. C.**

$$x^2 - 8x + 15 = 0$$

$$x^2 - 5x - 3x + 15 = 0$$

$$x(x-5) - 3(x-5) = 0$$

i.e.  $X = 5$  or  $3$

$$y^2 - 12y + 36 = 0$$

$$y^2 - 6y - 6y + 36 = 0$$



$$y(y-6) - 6(7-6) = 0$$

$$\text{i.e. } y = 6$$

Thus,  $y > x$

10. **Ans. E.**

$$2x^2 + 9x + 7 = 0$$

$$2x^2 + 7x + 2x + 7 = 0$$

$$x(2x+7) + 1(2x+7) = 0$$

$$\text{i.e. } x = -1 \text{ or } -7/2$$

$$y^2 + 4y + 4 = 0$$

$$y^2 + 2y + 2y + 4 = 0$$

$$y(y+2) + 2(y+2) = 0$$

$$\text{i.e. } y = -2$$

Thus, Relationship cannot be established between X & Y.

11. **Ans. A.**

$$\text{Number of teachers in physics subject} = 1800 \times \frac{17}{100} = 306$$

$$\text{Number of female teachers in physics} = 306 \times \frac{2}{9} = 68$$

$$\text{Number of male teachers in physics} = 306 - 68 = 238$$

$$\text{Number of teachers in chemistry subject} = 1800 \times \frac{23}{100} = 414$$

$$\text{Required percentage} = 238 / 414 = 57 \% \text{ (approx).}$$

12. **Ans. B.**

$$\text{Number of teachers in Chemistry subject} = 1800 \times 23\% = 414$$

$$\text{Number of teachers in English subject} = 1800 \times 27\% = 486$$

$$\text{Number of teachers in Biology subject} = 1800 \times 12\% = 216$$

$$\text{Required number} = 414 + 486 + 216 = 1116$$

13. **Ans. B.**

$$\text{Total number of teachers English and Physics} = 486 + 306 = 792$$

$$\text{Total number of teachers Mathematics and Biology} = 234 + 216 = 450$$

$$\text{Required difference} = 792 - 450 = 342$$



14. **Ans. E.**

Number of teachers in Mathematics subject =  $1800 \times 13\% = 234$

Number of teachers in Hindi subject =  $1800 \times 8\% = 144$

Required ratio =  $234 : 114 = 13:8$

15. **Ans. C.**

Number of increased Mathematics teachers =  $234 + 234 \times 50\% = 351$

Number of decreased Hindi teachers =  $144 - 144 \times 25\% = 108$

Required total number =  $351 + 108 = 459$

16. **Ans. A.**

Average number of students, who appeared for Physics from the year,

2011 to 2015 =  $(650 + 250 + 350 + 600 + 350)/5 = 440$

17. **Ans. D.**

Total number of students who appeared for Physics from 2013 to 2015 =  $(350 - \text{con } 350) = 1300$

Total number of students, who appeared . Chemistry from 2011 to 2013 =  $(800 + 630 + 550) = 1980$

Required ratio =  $1300 : 1980 = 65:99$

18. **Ans. B.**

Students who did not pass in Physics in the year 2011 =  $70/100 * 650 = 455$

Students who did not pass in Physics in the year 2015 =  $30/100 * 350 = 105$

Average =  $(455 + 105)/2 = 280$

19. **Ans. D.**

Total number of students, who passed in Chemistry in 2011 =  $50/100 * 800 = 400$

Total number of students who did not pass in Physics in 2015 =  $30/100 * 350 = 105$

Difference =  $400 - 105 = 295$

20. **Ans. B.**

Total number of students who did not pass Physics in 2013 =  $50/100 * 350 = 175$

Total number of students who did not pass Chemistry in 2013 =  $80/100 * 550 = 440$

Percentage =  $175/440 * 100 = 39.77\% = 40\%$



21. **Ans. A.**

Take nearest values

$$21.003 \times 39.998 - 209.91 = 126 \times ?$$

$$630 = 126 \times ?$$

$$? = 5 \text{ (approx)}$$

22. **Ans. C.**

$$\left(\frac{47}{100} \times 1442 - \frac{36}{100} \times 1412\right) \div 63$$

$$= (677.74 - 508.32) \div 63 = 169. \frac{42}{63} =$$

$$= 2.689 = 3 \text{ (approx)}$$

23. **Ans. D.**

$$? = 2418.065 + 88 \div 14.2 \times 6$$

$$? = 2418.065 + 88 \times \frac{1}{14.2} \times 6$$

$$? = 2418.065 + 37.18$$

$$? = 2455.25$$

$$? = 2455 \text{ (Approx.)}$$



24. **Ans. E.**

$$1200 \div 15 \times 20 + 400 = 80 \times 20 + 400$$

$$= 1600 + 400 = 2000 \text{ (Approx)}$$

Hence option E is correct 30.

25. **Ans. E.**

$$? = 726 \times \frac{15.2}{100} \times 643 \times \frac{12.8}{100}$$

$$= 110.352 \times 82.304$$

$$= 9082.41$$

$$9082 \text{ (approx)}$$

26. **Ans. A.**

$$\text{Third Number} = (128 * 5) - (118 \times 2) - (126 \times 2) = 152$$



27. **Ans. A.**

28. **Ans. B.**

Let 100 (CP)

80 (SP) 110 (SP)

Diff. 30

30 units — 24

1 unit —  $24/30$

100 units —  $24/30 \times 100 = \text{Rs. } 80.$

CP = Rs. 80

29. **Ans. A.**

A started a business with investing Rs. 8000 and after some months, B joined with investing Rs. 5000.

Equivalent capital of A = Rs.  $8000 \times 12 = \text{Rs. } 96000$

Let B joined after x months. So, equivalent capital of B = Rs.  $5000 \times (12 - x) = \text{Rs. } 60000 - 5000x$  Total profit after one year = Rs. 4250

Share of A = Rs. 3000.

Then, the share of B = Rs.  $4250 - 3000 = \text{Rs. } 1250$

So, the ratio of their share; A: B =  $3000 : 1250 = 12 : 5$

Now, we can write,  $96000 / (60000 - 5000x) = 12/5$

$= 60000 - 5000x = 96000 \times (5/12) = 60000 - 5000x = 8000 \times 5$

$= 5000x = 60000 - 40000$

$= X = 20000/5000 = x = 4$

$\therefore$  After 4 months, B joined in the business.

30. **Ans. D.**

Let the length of train P and Q are  $5a$  and  $4a$ .

speed of train P =  $5a/6$  therefore,

$(5a/6 + 21) \times 4 = 5a/3 + 4a$

$-5a/3 + 4a = 84 \quad a = 36$

speed of train P =  $36 \times 5/6 = 30 \text{ m/s}$

31. **Ans. D.**

Total no of balls =  $8 + 7 + 6 = 21$

Let, E be the event where the ball can be selected which is neither yellow nor black Number of events where the ball can be selected which is neither yellow nor black = 7

$P(E) = 7/21 = 1/3$



32. **Ans. D.**

33. **Ans. B.**

34. **Ans. D.**

35. **Ans. C.**

Curved Surface Area of Cylinder =  $2\pi rh$

Total Surface Area of Cylinder =  $2\pi r(h+r)$

According to question,  $2\pi rh : 2\pi r(h+r) = 3:5$

i.e.  $h / (h+r) = 3/5$

i.e.,  $2h = 3r - (a)$

Also, Curved surface area of the cylinder = 1848 metre square

i.e.  $2\pi rh = 1848$

From (a),  $2\pi (2/3h) * h = 1848$

On solving the above equation,  $h = 21m$

