

## PUNJAB NATIONAL BANK SPECIALIST OFFICERS EXAM

(Held on 4-10-2010)

# Quantitative Aptitude

Directions—(Q. 1-5) What should come in place of the question mark (?) in the following questions ?

1.  $5083 + 25\% \text{ of } ? + 289 = 6385.5$   
(A) 4044 (B) 4054  
(C) 4154 (D) 4104  
(E) None of these
2.  $383 \div 25 \times 2.5 + 12 = ?$   
(A) 50-30 (B) 222-14  
(C) 68-30 (D) 124-24  
(E) None of these
3.  $4.5\% \text{ of } 800 \div 0.5\% \text{ of } 640 = ?$   
(A) 11-75 (B) 12  
(C) 112-05 (D) 11-25  
(E) None of these
4.  $\sqrt[3]{12167} \times \sqrt{?} = 621$   
(A) 841 (B) 27  
(C) 625 (D) 29  
(E) None of these
5.  $(5967 - 2437 - 1910) \div ? = 27$   
(A) 60 (B) 50  
(C) 65 (D) 45  
(E) None of these

Directions—(Q. 6-10) What should come in place of the question-mark (?) in the following number series ?

6. 50, 60, 75, 97.5, ?, 184-275, 267-19875  
(A) 120-50 (B) 130-50  
(C) 131-625 (D) 124-25  
(E) None of these
7. 12, 15, 36, ?, 480, 2415, 14508  
(A) 115 (B) 109  
(C) 117 (D) 121  
(E) None of these
8. 1, 2, 6, 21, 88, 445, ?  
(A) 2230 (B) 2676  
(C) 2580 (D) 2670  
(E) None of these
9. 20, 21, 25, 34, 50, ?, 111  
(A) 70 (B) 65

- (C) 60 (D) 75  
(E) None of these
10. 600, 125, 30, ?, 7-2, 6-44, 6-288  
(A) 6 (B) 10  
(C) 15 (D) 12  
(E) None of these

Directions—(Q. 11-13) Study the following information carefully and answer the questions given below it.

Mr. Z earns an annual income of ` 12-75 lakhs. Every month he saves 20% of his monthly income. 15% of the remaining amount of his monthly income he spends in paying his loan instalment. He spends 24% of his monthly income in paying various bills and spends 42% of his monthly income on various other household expenses. The remaining amount of his monthly income he sends to his family.

11. What is the total of the monthly amount Mr. Z sends to his family and the monthly amount he spends on various household expenses ?  
(A) ` 46,750 (B) ` 48,000  
(C) ` 45,500 (D) ` 46,000  
(E) None of these

Directions—(Q. 16-20) Study the following table carefully and answer the questions given below it—

Number of Teachers in various Universities (Males & Females) and percentage of PhDs amongst them				
Universities	Males		Females	
	No. of Teachers	% of PhDs	No. of Teachers	% of PhDs
A	175	32	125	44
B	250	74	105	40
C	180	45	120	55
D	320	65	80	80
E	290	30	100	35

16. What is the average number of female teachers in all the Universities together ?  
(A) 100 (B) 105  
(C) 108 (D) 106  
(E) None of these
17. What is the total number of non-PhD male teachers from University A and C together ?  
(A) 137 (B) 208  
(C) 145 (D) 218  
(E) None of these

12. What is the amount Mr. Z spends annually in paying his loan instalment ?  
(A) 71,55,000 (B) 71,50,000  
(C) 71,58,000 (D) 71,51,000  
(E) None of these
13. The monthly amount Mr. Z sends to his family forms what per cent of his monthly savings ?  
(A) 5 (B) 8  
(C) 15 (D) 10  
(E) None of these
14. In how many different ways can the letters of the word 'PEANUT' be arranged ?  
(A) 720 (B) 360  
(C) 650 (D) 700  
(E) None of these
15. The speed of a car is 1.5 times the speed of a bus. If the car travels at the speed of 60 km/hr what will be the difference in the time taken by the bus and the time taken by the car to cover 720 km ?  
(A) 5 hours (B) 6 hours  
(C) 4 hours (D) 8 hours  
(E) None of these

18. What is the respective ratio of the non-PhD male teachers from University D to the non-Ph.D. female teachers from the same University ?

- (A) 7 : 1      (B) 13 : 4  
(C) 9 : 5      (D) 16 : 13  
(E) None of these

19. What is the difference between the number of female PhD teachers from University E and male non-PhD teachers from the same University ?

- (A) 165      (B) 52  
(C) 158      (D) 75  
(E) None of these

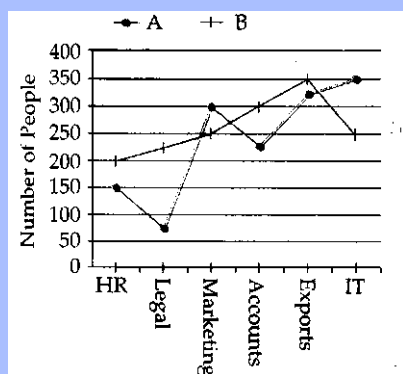
20. The number of PhD teachers in University B (Both males and females) is **approximately** what per cent of the total number of teachers in the University ?

(Both males and females)

- (A) 54      (B) 68  
(C) 64      (D) 52  
(E) 58

**Directions**—(Q. 21-25) Study the following graph carefully and answer the questions given below it—

**Number of People Working in Various Departments of Two Different Organizations**



21. What is the respective ratio of the number of people working in the IT department of organization A and the number of people working in the Marketing department of organization B ?

- (A) 9 : 2      (B) 7 : 5  
(C) 5 : 7      (D) 3 : 7  
(E) None of these

22. The number of people working in legal department of organization A is **approximately** what per cent of the total number of people working in that organisation ?

- (A) 5      (B) 8  
(C) 3      (D) 10  
(E) 12

23. What is the total number of people working in organization B ?

- (A) 1755      (B) 1525  
(C) 1675      (D) 1500  
(E) None of these

24. What is the difference between the number of people working in HR, Legal and Marketing departments of organization A and the number of people working in Accounts, Export and IT department of organization B ?

- (A) 150      (B) 225  
(C) 375      (D) 300  
(E) None of these

25. If 20% more than the existing number of people in the Exports department of organization B, join the department, what will be the total number of people working in the Exports department of both the organizations (A and B) together ?

- (A) 715      (B) 745  
(C) 700      (D) 675  
(E) None of these

**Directions**—(Q. 26-30) Each of the questions below consists of a question and two statements numbered I and II are given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer—

(A) If the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

(B) If the data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.

(C) If the data either in Statement I alone or in Statement II alone are sufficient to answer the question.

(D) If the data in both the Statements I and II are not sufficient to answer the question.

(E) If the data in both the Statements I and II together are necessary to answer the question.

26. What is the circumference of the circle ?

- I. The diameter of the circle is 21 cm.  
II. The area of the circle is 346.5 sq cm.

27. What is the average age of the boys in the class ?

- I. The average age of girls in the class is 14.  
II. The number of boys in the class is twice the number of the girls in the class.

28. How many pieces of 80 cm each can be cut from the reel of cloth ?

- I. The length of the reel on cloth is 900 cm.  
II. After cutting all the pieces 20 cm of the cloth from the reel remains.

29. What is the selling price of the wrist watch ?

- I. The cost price of the wrist watch is ₹ 6,400.  
II. 31-25 per cent profit is earned after selling the wrist watch.

30. What is the two-digit number ?

- I. The sum of the two digits of the number is 6.  
II. The number is divisible by 7.

**Directions**—(Q. 31-35) What **approximate** value will come in place of the question-mark (?) in the following questions ? (You are not expected to calculate the exact value.)

31.  $\frac{3.5 \times 1.35 \times 4.5}{0.5} = ?$

- (A) 35      (B) 20  
(C) 40      (D) 50  
(E) 55

32.  $(128.4 + 11.101 + 35.025) \div ? = 12$

- (A) 8      (B) 10  
(C) 18      (D) 14  
(E) 20

33.  $572 \div \sqrt{1755} \times 12 = ?$

- (A) 150
- (B) 170
- (C) 155
- (D) 165
- (E) 175

34.  $\sqrt{925} \div \sqrt[3]{350} = ?$

- (A) 4
- (B) 8
- (C) 12
- (D) 15
- (E) 6

35.  $12.36 \times 4.26 + 13.38 = ?$

- (A) 72
- (B) 66
- (C) 58
- (D) 52
- (E) 80

### Answers with Hints

$$\begin{aligned}
 1. (B) \because 5083 + \frac{25}{100} \text{ of } ? + 289 \\
 &= 6385.5 \\
 \Rightarrow 0.25 \times ? &= 6385.5 - 5083 - 289 \\
 \therefore ? &= \frac{1013.5}{0.25} \\
 &= 4054
 \end{aligned}$$

$$\begin{aligned}
 2. (A) ? &= 383 \div 25 \times 2.5 + 12 \\
 &= \frac{383}{25} \times 2.5 + 12 \\
 &= 50.30
 \end{aligned}$$

$$\begin{aligned}
 3. (D) ? &= \frac{4.5}{100} \text{ of } 800 + \frac{0.5}{100} \text{ of } 640 \\
 &= 36 \div 3 - 2 = 11.25
 \end{aligned}$$

$$\begin{aligned}
 4. (E) \because \sqrt[3]{12167} \times \sqrt{?} &= 621 \\
 \Rightarrow 23 \times \sqrt{?} &= 621 \\
 \Rightarrow \sqrt{?} &= \frac{621}{23} = 27 \\
 \therefore ? &= (27)^2 \\
 &= 729
 \end{aligned}$$

$$\begin{aligned}
 5. (A) (5967 - 2437 - 1910) \div ? &= 27 \\
 \therefore \frac{1620}{?} &= 27 \\
 \therefore ? &= \frac{1620}{27} = 60
 \end{aligned}$$

$$\begin{aligned}
 6. (C) & \begin{array}{l} 50 \\ 60 \\ 75 \\ 97.5 \\ ? = 131.625 \\ 184.275 \\ 267.19875 \end{array} \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \end{array} \begin{array}{l} \times 1.20 \\ \times 1.25 \\ \times 1.30 \\ \times 1.35 \\ \times 1.40 \\ \times 1.45 \end{array} \\
 ? &= 97.5 \times 1.35 \\
 &= 131.625
 \end{aligned}$$

$$\begin{aligned}
 7. (C) & \begin{array}{l} 12 \\ 15 \\ 36 \\ 117 \\ ? \\ 480 \\ 2415 \\ 14508 \end{array} \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \end{array} \begin{array}{l} \times 1+3 \\ \times 2+6 \\ \times 3+9 \\ \times 4+12 \\ \times 5+15 \\ \times 6+18 \end{array}
 \end{aligned}$$

$$\begin{aligned}
 8. (B) & \begin{array}{l} 1 \\ 2 \\ 6 \\ 21 \\ 88 \\ 445 \\ 2676 \\ ? \end{array} \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \end{array} \begin{array}{l} \times 1+1 \\ \times 2+2 \\ \times 3+3 \\ \times 4+4 \\ \times 5+5 \\ \times 6+6 \end{array}
 \end{aligned}$$

$$\begin{aligned}
 9. (D) & \begin{array}{l} 20 \\ 21 \\ 25 \\ 34 \\ 50 \\ 75 \\ ? \\ 111 \end{array} \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \end{array} \begin{array}{l} +(1)^2 \\ +(2)^2 \\ +(3)^2 \\ +(4)^2 \\ +(5)^2 \\ +(6)^2 \end{array}
 \end{aligned}$$

$$\begin{aligned}
 10. (E) & \begin{array}{l} 600 \\ 125 \\ 30 \\ 11 \\ ? \\ 7.2 \\ 6.44 \\ 6.288 \end{array} \begin{array}{l} \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \\ \leftarrow \end{array} \begin{array}{l} -475 \\ -95 \\ -19 \\ -3.8 \\ -0.76 \\ -0.152 \end{array} \begin{array}{l} \times \frac{1}{5} \\ \times \frac{1}{5} \\ \times \frac{1}{5} \\ \times \frac{1}{5} \\ \times \frac{1}{5} \end{array}
 \end{aligned}$$

For Q. 11 to 13 :

$$\begin{aligned}
 \text{Annual income of Mr. Z} \\
 &= \text{ lakhs} \\
 \therefore \text{Monthly income of Mr. Z}
 \end{aligned}$$

$$\begin{aligned}
 \text{Monthly saving of Mr. Z} \\
 &= \frac{106250}{5}
 \end{aligned}$$

$$\begin{aligned}
 \text{Remaining amount of his} \\
 \text{monthly income} \\
 &= 106250 - 21250 \\
 &= 85000
 \end{aligned}$$

$$\begin{aligned}
 \text{Expenditure in paying loan} \\
 \text{instalment} \\
 &= 85000 \times \frac{15}{100} \\
 &= 712750
 \end{aligned}$$

$$\begin{aligned}
 \therefore \text{Expenditure in paying various} \\
 \text{bills} \\
 &= 106250 \times \frac{24}{100}
 \end{aligned}$$

$$\begin{aligned}
 \therefore \text{Expenditure on various other} \\
 \text{household expenses} \\
 &= 106250 \times \frac{42}{100}
 \end{aligned}$$

$$\begin{aligned}
 \text{and amount sent to his family} \\
 &= 106250 - (91375 + 12750) \\
 &= 106250 - 104125 \\
 &= 2125
 \end{aligned}$$

$$\begin{aligned}
 11. (A) \text{Reqd. sum} &= 2125 + 44625 \\
 &= 46750
 \end{aligned}$$

$$\begin{aligned}
 12. (E) \text{Annual amount of paying his} \\
 \text{loan instalment} \\
 &= 12750 \times 12
 \end{aligned}$$

$$\begin{aligned}
 13. (D) \text{Reqd. \%} &= \frac{2125 \times 100}{21250} \% \\
 &= 10\%
 \end{aligned}$$

$$\begin{aligned}
 14. (A) \text{Reqd. ways} \\
 &= {}^6P_6 = \underline{6} \\
 &= 6 \times 5 \times 4 \times 3 \times 2 \times 1 \\
 &= 720
 \end{aligned}$$

$$\begin{aligned}
 15. (B) \text{Speed of bus} &= 60 \times \frac{1}{1.5} \\
 &= 40 \text{ km/hr.}
 \end{aligned}$$

Difference in the time taken by both Bus and Car

$$\begin{aligned}
 &= \frac{720}{40} - \frac{720}{60} \\
 &= 18 - 12 \\
 &= 6 \text{ hours}
 \end{aligned}$$

$$\begin{aligned}
 16. (D) \text{Average number of female} \\
 \text{teachers} \\
 &= \frac{125 + 105 + 120 + 80 + 100}{5} \\
 &= \frac{530}{5} = 106
 \end{aligned}$$

$$\begin{aligned}
 17. (D) \text{Reqd. number} \\
 &= 175 \times \frac{68}{100} + 180 \times \frac{55}{100} \\
 &= 119 + 99 = 218
 \end{aligned}$$

$$\begin{aligned}
 18. \text{ (A) Reqd. ratio} &= \left(320 \times \frac{35}{100}\right) : \left(80 \times \frac{20}{100}\right) \\
 &= 112:16 \\
 &= 7:1
 \end{aligned}$$

$$\begin{aligned}
 19. \text{ (E) Reqd. difference} &= \left(100 \times \frac{35}{100}\right) - \left(290 \times \frac{70}{100}\right) \\
 &= 35 - 203 \\
 &= 168
 \end{aligned}$$

$$\begin{aligned}
 20. \text{ (C) Reqd. \%} &= \left(250 \times \frac{74}{100} + 105 \times \frac{40}{100}\right) \\
 &\quad \times \frac{100}{355} \% \\
 &= \frac{(18500 + 4200)}{355} \% \\
 &= \frac{22700}{355} \% \\
 &= 63.94\% \\
 &= 64\% \text{ (App.)}
 \end{aligned}$$

$$\begin{aligned}
 21. \text{ (B) Reqd. ratio} &= 350 : 250 \\
 &= 7 : 5 \\
 \text{Total no. of workers in org. A} &= (150 + 75 + 300 + 225 + 325 \\
 &\quad + 350) \\
 &= 1425
 \end{aligned}$$

$$\begin{aligned}
 22. \text{ (A) Reqd. \%} &= \frac{75 \times 100}{1425} \% \\
 &= 5.26\% \\
 &\approx 5\%
 \end{aligned}$$

$$\begin{aligned}
 23. \text{ (E) Required number} &= (200 + 225 + 250 + 300 + 350 \\
 &\quad + 250) \\
 &= 1575
 \end{aligned}$$

$$\begin{aligned}
 24. \text{ (C) Reqd. difference} &= (150 + 75 + 300) - (300 + 350 \\
 &\quad + 250) \\
 &= 525 - 900 \\
 &= 375
 \end{aligned}$$

$$\begin{aligned}
 25. \text{ (B) Reqd. number} &= 350 \times \frac{120}{100} + 325 \\
 &= 420 + 325 \\
 &= 745
 \end{aligned}$$

$$\begin{aligned}
 26. \text{ (C) From I, the circumference of} & \\
 \text{the circle} &= \frac{22}{7} \times 21 \\
 &= 66 \text{ cm.}
 \end{aligned}$$

$$\begin{aligned}
 \text{From II, } r &= \sqrt{\frac{346.5 \times 7}{22}} \\
 &= \sqrt{110.25} \\
 &= 10.5 \text{ cm.}
 \end{aligned}$$

∴ From II, the circumference of the circle

$$\begin{aligned}
 &= \frac{22}{7} \times 2 \times 10.5 \\
 &= 66 \text{ cm.}
 \end{aligned}$$

27. (D) Data in both I and II are not sufficient to answer the question.

$$\begin{aligned}
 28. \text{ (E) From I and II together, number of cut pieces} &= \frac{900 - 20}{80} = 11
 \end{aligned}$$

$$\begin{aligned}
 29. \text{ (E) From I and II together, S. P. of the wrist watch} &= 6400 \times \frac{125}{100} \\
 &= \text{Rs. } 8000
 \end{aligned}$$

$$\begin{aligned}
 30. \text{ (E) From I, Possible two digit number} &= 60, 15, 51, 24, 42 \text{ and } 33 \\
 \text{From II, Required two digit no.} &= 42
 \end{aligned}$$

$$\begin{aligned}
 31. \text{ (C) ?} &= \frac{3.5 \times 1.35 \times 4.5}{0.5} \\
 &\approx \frac{3.5 \times 1.4 \times 4.5}{0.5} \\
 &= \frac{22.05}{0.5} \\
 &\approx 40 \text{ (App.)}
 \end{aligned}$$

$$\begin{aligned}
 32. \text{ (D) } \therefore 12 &= \frac{(128.4 + 11.101 + 35.025)}{?} \\
 \therefore ? &\approx \frac{128 + 11 + 35}{12} \\
 &= \frac{174}{12} = 14.5 \\
 &\approx 14 \text{ (App.)}
 \end{aligned}$$

$$\begin{aligned}
 33. \text{ (D) ?} &= 572 \div \sqrt{1755} \times 12 \\
 &= \frac{570}{42} \times 12 = 13.6 \times 12 \\
 &= 163.2 \approx 165
 \end{aligned}$$

$$\begin{aligned}
 34. \text{ (A) ?} &= \sqrt[3]{925} \div \sqrt[3]{350} \\
 &\approx \frac{30}{7} = 4.29 \\
 &\approx 4
 \end{aligned}$$

$$\begin{aligned}
 35. \text{ (B) ?} &= 12.36 \times 4.26 + 13.38 \\
 &\approx 12.4 \times 4.3 + 13 \\
 &\approx 53.3 + 13 \\
 &\approx 66 \text{ (App.)}
 \end{aligned}$$

## Test Your Knowledge

### Answers with Hints

- (B) 2. (D) 3. (D)
- (C) Ravi river merges with Chenab river near Multan in Pakistan.
- (A) 6. (B) 7. (A) 8. (C) 9. (B)
- (D)
- (B) Geet Govindam is an epic poem on the romance of Krishna and Radha written by Jayadev in the 11th century.
- (C)
- (B) Arti Pradhan became the first woman in the world to swim in 30 kilometre strait of Gibraltar on August 29, 1988.
- (A)
- (A) Levanter is a cold wind which blows in Southwestern Coast of Spain and France.
- (B) The first Indian Iron Steel Factory Bengal Iron works was founded in Kulti (West Bengal) in 1870.
- (B) 18. (C) 19. (B) 20. (B) 21. (B)
- (A)
- (D) According to Rousseau, the majority will and will of all are not general will as both the wills (majority will and will of all) may be based on self-interest and emotions whereas the general will is always based on general interest and is reasonable.
- (B) 25. (A) 26. (A) 27. (B) 28. (A)
- (B) After the death of Hyder Ali his son Tipu Sultan ascended the throne of Mysore in 1782.
- (C) 31. (A)
- (A) The eightfold path (Ash-tangika) of Buddhism includes Samyak Drishti, Samyak, Sankalp, Samyak Vani, Samyak Karma, Samyak Ajivika, Samyak Vyayam, Samyak Smiriti, and Samyak Samadhi.
- (B) 34. (B) 35. (D) 36. (A) 37. (C)
- (C) 39. (B) 40. (C)