IBPS RRB Clerk Prelims 2020

REASONING ABILITY

Directions (1-5): Study the following information carefully and answer the questions given below:

Eight persons i.e. D, Q, G, H, K, S, E and W are sitting around a square table in such a way that four persons sit at the corner side of the table and other four persons sit in the middle side of the table. The persons who sit at the corner side are facing away from the center and the persons who sit in the middle side are facing towards the center. D sits at the corner side of the table. One person sits between D and G. Q sits third to the right of G. Three persons sit between Q and E. W sits second to the right of E. W is not an immediate neighbour of D. H sits second to the right of K.

- **1.** Who among the following sits second to the right of S?
 - (a) Q (c) D
- (b) E
- (d) W
- (e) None of these
- 2. How many persons sit between D and W when counted from the right of D?
 - (a) Three (c) One
- (b) Four (d) Two
- (e) None of these
- **3.** Who among the following sits second to the left of G?
 - (a) D
- (b) K
- (c) H (d) S
- (e) None of these
- **4.** Who among the following are the immediate neighbours to each other?
 - (a) K, E
- (b) 0, D
- (c) G, H
- (d) W, S
- (e) None of these
- **5.** Four of the following five are alike in a certain way and hence form a group. Find the one who does not belong to that group?
 - (a) E
- (b) D
- (c) G
- (d) K
- (e) H

Directions (6-9): Study the following sequence of numbers and alphabets and answer the given questions-P4SAW58F91RE7203751B6KGN

- **6.** How many numbers are there which are immediately preceded by a vowel?
 - (a) One
- (b) None
- (c) Two
- (d) Three
- (e) None of these

- 7. If all the numbers are removed from the given series, then which among the following element is seventh from the right end?
 - (a) E (c) F
- (b) 0(d) R
- (e) None of these
- **8.** If all the consonants are removed from the given series, then which among the following element is ninth from the left end?
 - (a) 2 (c) 3
- (b) 0
- (d) 7
- (e) None of these
- **9.** Which among the following element is fifth to the left of twelfth element from the left end?
 - (a) F
- (b) 8
- (c) 9 (d) 1
- (e) None of these

Directions (10-12): Study the following information carefully and answer the questions given below:

Five persons A, B, C, D and E have different heights. Less than two persons are shorter than D. As many persons are taller than D as shorter than C. A is taller than B but shorter than E. B is not the shortest person. The height of third tallest person is 86 cm.

- **10.** If the height of shortest person is 68 cm, then what may be the height of B?
 - (a) 69 cm
 - (b) 81 cm
 - (c) 78 cm
 - (d) All the given heights
 - (e) None of these
- **11.** How many persons are taller than C?
 - (a) None
- (b) One
- (c) Two
- (d) Three
- (e) None of these
- **12.** Who among the following is just shorter than E?
 - (a) None (c) A
- (b) C (d) D
- (e) None of these

Directions (13-16): In each of the questions below are given some statements followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

- 13. Statements: All Greens are Yellows. No Yellows are Black.
 - Conclusions: I. No Greens are Black.
 - II. Some Greens are Black.
 - (a) If only conclusion I follows.
 - (b) If only conclusion II follows.
 - (c) If either conclusion I or II follows.
 - (d) If neither conclusion I nor II follows.
 - (e) If both conclusions I and II follow.
- 14. Statements: All Chairs are Sofas. Only a few Sofas are Beds. No Beds are Curtains.
 - **Conclusions: I.** Some Sofas are not Beds.
 - II. Some Sofas are not Curtains.
 - (a) If only conclusion I follows.
 - (b) If only conclusion II follows.
 - (c) If either conclusion I or II follows.
 - (d) If neither conclusion I nor II follows.
 - (e) If both conclusions I and II follow.
- 15. Statements: Only a few Coffee are Tea. All Tea is Drinks. Only a few Drinks are Cold

drinks.

Conclusions: I. Some Tea is not Cold drinks.

- II. No Coffee are Drinks.
- (a) If only conclusion I follows.
- (b) If only conclusion II follows.
- (c) If either conclusion I or II follows.
- (d) If neither conclusion I nor II follows.
- (e) If both conclusions I and II follow.
- 16. Statements: All Flowers are Trees. Only a few Trees are Gardens. No Gardens are

Lawns.

Conclusions: I. All Lawns can never be Trees

- II. Some Flowers can be Gardens
- (a) If only conclusion I follows.
- (b) If only conclusion II follows.
- (c) If either conclusion I or II follows.
- (d) If neither conclusion I nor II follows.
- (e) If both conclusions I and II follow.

Directions (17-21): Study the following information carefully and answer the questions given below:

Seven persons A, B, C, D, E, F and G are sitting in row and all are facing towards north but not necessarily in the same order. B sits second from one of the extreme ends. Three persons sit between D and B. Two persons sit between D and A. C sits to the immediate left of A. F sits to left of C but is not an immediate neighbour of C. More than two persons sit between F and E.

- **17.** How many persons sit to the left of F?
 - (a) Two
- (b) None
- (c) One
- (d) Three
- (e) None of these

- **18.** Who among the following sits third to the right of G?
 - (a) E
- (b) C (d) F
- (c) B

- (e) None of these
- **19.** Who among the following persons sit at the extreme ends?
 - (a) F, A
- (b) A, E
- (c) G, E
- (d) F, E
- (e) None of these
- **20.** How many persons sit between D and E?
 - (a) Two
- (b) Four (d) One
- (c) Three

- (e) None of these
- **21.** Who among the following sits to the immediate left of E?
 - (a) G
- (b) A
- (c) B
- (d) D
- (e) None of these

Directions (22-23): Study the following information carefully and answer the questions given below:

Point D is 10m north of point P. Point Y is 14m east of point D. Point Q is 8m north of point Y. Point S is 20m west of point Q. Point H is 8m south of point S.

- 22. What is the shortest distance between point H and point D?
 - (a) 8m (c) 4m
- (b) 6m
- (d) 10m
- (e) None of these
- 23. In which direction is point P with respect to point Q?
 - (a) South east (b) North west
 - (c) South west (d) North east (e) None of these

Directions (24-27): Study the following information carefully and answer the questions given below:

There are certain number of persons sitting in a row facing towa<mark>rds north dir</mark>ection. A sits fifth to the right of B. Two persons sit between C and B. D sits fourth to the left of C. Four persons sit to the left of D. The number of persons sit between D and B is same as the number of persons sit between B and F. F sits at fourth position from one of the extreme ends.

- **24.** How many persons sit between B and D?
 - (a) None
- (b) Six
- (c) Five
- (d) Four
- (e) None of these
- **25.** How many persons sit in the row?
 - (a) Twenty
- (b) Twenty-one
- (c) Twenty-two (d) Nineteen (e) None of these
- **26.** Who among the following sits second to the right of A?
 - (a) None (c) D
- (b) C (d) F
- (e) None of these
- **27.** How many persons sit to the right of B?
 - (a) Nine
- (b) Ten
- (c) Eight
- (d) Eleven
- (e) None of these

- **28.** How many such pairs of letters are there in the meaningful word 'MATCHES' each of which has as many letters between them in the word as in the English alphabet (From both backward and forward)?
 - (a) Two
 - (b) One
 - (c) More than three
 - (d) Three
 - (e) None of these

Directions (29-33): Study the following sequence carefully and answer the given questions.

COT IVY PEA FOX MRU

- **29.** If we add 'L' after first letter in every word, then how many meaningful words will be formed?
 - (a) None
- (b) Three
- (c) Two
- (d) One
- (e) None of these
- **30.** If third letter of each word is replaced by its succeeding letter according to English alphabetical order, then in how many words vowels will appear more than once?
 - (a) Two (c) None
- (b) One
- (d) Three
- (e) None of these
- **31.** If all the words are arranged according to English alphabetical order from left to right, then which word will appear fourth from the left end?
 - (a) MRU
- (b) FOX
- (c) PEA
- (d) IVY
- (e) None of these
- **32.** If all the letters are arranged according to English alphabetical order within each word, then in how many words vowel will appear at second position?
 - (a) One
- (b) None
- (c) Two
- (d) Three
- (e) None of these
- **33.** How many letters are there in English alphabetical series between the first letter of the second word from the left end and third letter of the third word from the right end?
 - (a) Five
- (b) Six

(d) Four

(c) Seven

- (e) None of these
- **34.** If in the number '35982476', 1 is added to each even digit and 2 is subtracted from each odd digit, then which digits will not appear twice in the number thus obtained?
 - (a) Only 1
 - (b) Only 9
 - (c) Both '1' and '9'
 - (d) Only 5

(e) None of these

Directions (35-39): Study the following information carefully and answer the questions given below:

Six people P, Q, R, S, T and U have events on different dates 7^{th} and 12^{th} of different months i.e. January, February and March. D has event on even numbered date in the month having 31 days. The number of persons have event before D is same as the number of persons have event after A. One person has event between A and C. F has event before C. B has event just before E.

- **35.** How many persons have event before B?
 - (a) Two
- (b) None
- (c) Three
- (d) One
- (e) None of these
- **36.** Who among the following has event just after D?
 - (a) C (c) B
- (b) None
- (d) F
- (e) None of these
- **37.** How many persons have event between F and D?
 - (a) One
- (b) Three
- (c) None
- (d) Two
- (e) None of these
- **38.** E has event on which among the following date?
 - (a) 12th February
- (b) 12th March
- (c) 7th March
- (d) 7th January (e) None of these
- **39.** Four of the following five are alike in a certain way and hence form a group. Which is the one that does not belong to that group?
 - (a) A, F
- (b) E, F
- (c) F, C
- (d) E, B
- (e) C, B
- **40.** Four of the following five are alike in a certain way and hence form a group. Which is the one that does not belong to that group?
 - (a) RUY
- (b) SQ0
- (c) OMK
- (d) FDB
- (e) YWU



Quantitative Aptitude

Directions (41-45): Line graph given below shows number of passengers travelling in five (A, B, C, D & E) different compartment of a trains. Read the data carefully and answer the questions.



- **41.** Total passengers in E are what percent less than total passengers in A?
 - (a) 6 ¼ %
- (b) 8 1/3%
- (c) $6\frac{1}{3}\%$
- (d) $6\frac{2}{3}\%$
- (e) 5%
- **42.** Find average number of passengers in A, C & E?
 - (a) 32
- (b) 30
- (c) 36
- (d) 33
- (e) 27
- **43.** Find the ratio of total passenger in B to that of in D?
 - (a) 7:9
- (b) 9:10
- (c) 11:9
- (d) 9: 13
- (e) 9:11
- **44.** Total passenger in C and E together are what percent more than total passenger in A?
 - (a) $33 \frac{1}{3}\%$
- (b) $66\frac{2}{3}\%$
- (c) 66 ½%
- (d) 50%
- (e) 60%
- **45.** Find total number of passengers traveling in B, C & D together?
 - (a) 69
- (b) 65
- (c)67
- (d) 63
- (e) 71

Directions (46-50): What will come in the place of question (?) mark in following questions.

- **46.** 12, 12, 24, 72, ?, 1440
 - (a) 256
- (c) 284
- (b) 288 (d) 296
- (e) 316
- **47.** 16, 17.8, 21.4, 28.6, 43, ?
 - (a) 69.8 (c)73.8
- (b) 72.8
- (d) 70.8
- (e) 71.8

- **48.** 12, 7, 8, 13, ?, 68.5
 - (a) 28
- (b) 27
- (c) 26
- (d) 27.5
- (e) 26.5

(e) 35

- **49.** 72. 79. 65. 93. ?. 149
 - (a) 36
- (b) 31
- (c) 33
- (d) 37
- **50**. 8, 9, 19, 58, 233, ?
 - (a) 1164
- (b) 1166
- (c) 1156
- (d) 1152
- (e) 1158
- **51.** If the difference between the present age of P and Q is three years and the ratio between the age of P and Q after two years will be 5:4, then find the age of P after two years (in years)?
 - (a) 15 (c) 18
- (b) 13
- (d) 16
- (e) 14
- **52.** A and B both spend 30% of their income together which is equal to Rs. 26400. If income of A is 20% more than that of B, then find the income of B (in Rs.)?
 - (a) 52000
- (b) 48000
- (c) 40000
- (d) 36000
- (e) 30000
- **53.** If a man invests equal sum at the same rate of interest on simple interest for T and T+4 years and the respective ratio of interest gets by man is 1:2 respectively, then find 'T'?
 - (a) 6
- (b) 2
- (c) 5
- (d)3
- (e) 4

- **54.** 12 women can complete a work in 64 day, then find how many women will be required to complete 2/3 rd of the same work in 16 days?
 - (a) 28
- (b) 24
- (c) 36
- (d) 32
- (e) 48
- **55.** A train running at the speed of 72 kmph crosses a pole in 30 seconds. Find the time taken by the same train to cross the pole with the speed of 54 kmph (in sec)?
 - (a) 42
- (b) 48
- (c) 54
- (d) 45
- (e) 40
- **56.** The upstream speed and downstream speed of a boat is 10 kmph and 14 kmph respectively and boat travelled for T hours & 6 hours in upstream and downstream respectively. If the distance travelled in downstream is 44 km more than upstream, then find the value of 'T'
 - (a) 4
- (b) 3
- (c) 6
- (d) 5
- (e)8
- **57.** An article was marked up by 50% above cost price and allowed Rs 50 discount on marked price. If shopkeeper still made a profit of Rs. 50, then find the selling price of the article (in Rs.)?
 - (a) 350 Rs.
- (b) 300 Rs.
- (c) 250 Rs.
- (d) 200 Rs.
- (e) 150 Rs.
- **58.** A & B invested Rs. X and Rs. (X + 800) for same period of time in a business. If A gets Rs. 3200 as profit share out of total profit of Rs. 6800, then find 'X'?
 - (a) 7800
- (b) 6000
- (c) 8400
- (d) 7200
- (e) 6400
- 59. A vessel contains mixture of milk and water in the ration of 3: 1 respectively. If 20 liters mixture taken out from the vessel and now the difference between milk and water in the remaining mixture is 70 liters, then find initial mixture in vessel (in liters)?
 - (a) 240
- (b) 160
- (c) 120
- (d) 80
- (e) 180
- **60.** Perimeter of a rectangle is 2 cm more than circumference of a circle and area of circle is 616 cm². If breath of rectangle is equal to radius of circle, then find length of rectangle (in cm)?
 - (a) 35
- (b) 33
- (c) 31
- (d) 21
- (e) 27

Directions (61-65): Table given below shows number of orders received by three (P, Q & R) companies of their three (A, B & C) items. Read the data carefully and answer the questions.

Companies	Α	В	С
P	80	60	50
Q	40	70	90
R	80	100	30

- **61.** Total orders of item A & B received by R is how much more than total orders of item B & C received by Q?
 - (a) 50 (c) 40
- (b) 10 (d) 20
- (e) 30
- **62.** Find total orders (all three items) received by R is what percent more than that of total orders (all three items) received by 0?
 - (a) 5%
- (b) 12.5%
- (c) 10%
- (d) 15%
- (e) 20%
- 63. Find ratio of total orders of item A & B received by P to total orders of item B & C received by Q?
 - (a) 7:9
- (b) 8:7
- (c) 4:7
- (d) 5:6
- (e) 7:8
- **64.** Find average number of orders of item B received by Q & R is what percent of total orders of item A received by P?
 - (a) 104 ¼ %
- (b) 106 ¼ %
- (c) 108 ¼ %
- (d) 102 ¼ % (e) 110 ¼ %
- **65.** Find total orders of item A, B & C received by P?
 - (a) 210
- (b) 220
- (c) 190
- (d) 180
- (e) 200

Directions (66-80): What should come in place of question mark (?) in following questions?

- **66.** $(48\% \text{ of } 625) \div 0.75 = ?$
 - (a) 800
- (b) None of these
- (c) 40
 - (d) 4000
- (e) 400

67.
$$\frac{(4)^3 + (18)^2}{7^2 + 121 - 73} = ?$$

- (b) 2
- (c) 4
- (d) 5
- (e) 3

68.
$$(4)^{?} \times 2 = \frac{(16)^{2}}{\sqrt[4]{16}}$$

- (a) 2
- (b) 3
- (c) 4
- (d) 1
- (e) None of these

69.
$$4 \times (? +120) = (8)^3$$

- (a) 6 (c) 8
- (b) 12
- (d) 4

- **70.** ? + 432 205 = 550 (a) 384 (b) 244
 - (c) 224
- (d) 276
 - (e) 324

71.
$$12 \times 8 + (?)^2 = (14)^2$$
(a) 10 (b) 12

- (a) 10 (c) 8
- (d) 6
- (e)9

(e) 16

- **72.** 40% of 400 + ? % of 300 = 250
 - (a) 40
- (b) 36
- (c) 25
- (d) 30
- (e) 20

73.
$$\sqrt{441} \div 7 = ? - 180$$

- (a) 185 (c) 187
- (b) 183 (d) 184
- (e) 182

- 74. $\sqrt{576}$ $\sqrt{144}$ + $\sqrt{729}$ = 36 + ?
 - (a) 1 (c) 5
- (b) 4 (d) 2
- (e) 3
- 75. $119 + 41 + 9 = ?^2$
 - (a) 10
- (b) 13
- (c) 17
- (d) 8
- (e) 16
- **76.** 12% (? + 100) = 18
 - (a) 40 (c) 30
- (b) 50
- (d) 100 (e) 60
- 77. $\frac{\sqrt[8]{1331}}{11} + \sqrt{81} + ? = 27$
 - (a) 19
- (b) 18

- (c) 17
- (d) 16
- (e) 15
- 78. $?^2 + \sqrt{400} = 6^2$
 - (a) 3
- (b) 4 (d) 1
- (c) 2

- (e) 5
- 79. $9\frac{1}{3} + 7\frac{1}{2} = ? + 5\frac{1}{6} + 6\frac{1}{3}$
 - (a)
- (b) 4 ½
- (c) 5
- (d) 51/6
- (e) 6
- **80.** $(3^4 \times 9^7) \div 27^6 = 3^7$
 - (a) 2
- (b) 3
- (c) 0
- (d) 6
- (e) 7

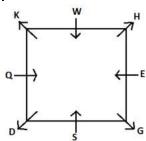
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IBPS RRB Clerk Prelims 2020 (Solutions)

REASONING ABILITY

Directions (1-5):



- 1. (b):
- 2.
- (d):
- 3. (c):

- 4. (b):
- 5. (a):
- 6. (c):

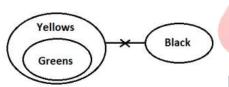
- 7. (d):
- (a):
- 9. (b):

Directions (10-12):

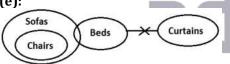
- 10. (d):
- 11. (a):
- 12. (c):

Directions (13-16):

13. (a):



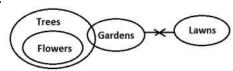
S14. (e):



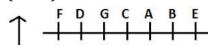
15. (d):



16. (b):



Directions (17-21):

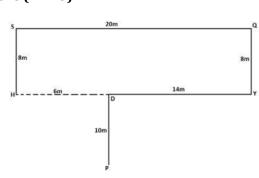


- 17. (b):
- 18. (c):
- 19. (d):

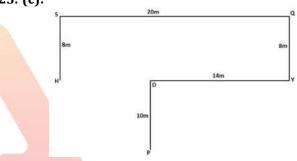
- 20. (b):
- 21. (c):

Directions (22-23):

22. (b):



23. (c):



Directions (24-27):



- 24. (b):
- 27. (b):
- 25. (c):
- 26. (d):

31. (a):

- 28. (c):



Directions (29-33):

- 29. (c):
- 30. (b):
- 33. (c):
- 32. (d):
- **34. (c):** 35982476 13793557

Directions (35-39):

Months	7 th	12 th
January	A	F
February	С	В
March	Е	D

- 35. (c):
- 36. (b):
- 37. (b):

38. (c):

Quantitative Aptitude

- **41. (b):** Required percentage = $\frac{36-33}{36} \times 100$ = $\frac{3}{26} \times 100 = 8\frac{1}{2}\%$
- **42.** (a): Required average = $\frac{36+27+33}{3}$ = 32
- **43. (e):** Required ratio = 18:22 = 9:11
- **44. (b):** Total passenger in C and E = 27 + 33 = 60 Required percentage = $\frac{60-36}{36} \times 100$ = $\frac{24}{36} \times 100 = 66\frac{2}{3}\%$
- **45. (c):** Required number of passengers = 18 + 27 + 22 = 67
- **46. (b):** Pattern of series $12 \times 1 = 12$ $12 \times 2 = 24$ $24 \times 3 = 72$ $? = 72 \times 4 = 288$ $288 \times 5 = 1440$
- **47. (e):** Pattern of series 16 + 1.8 = 17.8 17.8 + 3.6 = 21.4 21.4 + 7.2 = 28.6 28.6 + 14.4 = 43 ? = 43 + 28.8 = 71.8
- **48. (b):** Pattern of series $12 \times 0.5 + 1 = 7$ $7 \times 1 + 1 = 8$ $8 \times 1.5 + 1 = 13$ $? = 13 \times 2 + 1 = 27$ $27 \times 2.5 + 1 = 68.5$
- **49. (d):** Pattern of series 72 + 7 = 79 79 – 14 = 65 65 + 28 = 93 ? = 93 – 56 = 37 37 + 112 = 149
- **50. (b):** Pattern of series $8 \times 1 + 1 = 9$ $9 \times 2 + 1 = 19$ $19 \times 3 + 1 = 58$ $58 \times 4 + 1 = 233$ $233 \times 5 + 1 = 1166$
- **51. (a):** Let present age of Q = t years So, present age of P = (t + 3) years ATQ - $\frac{t+2}{(t+3)+2} = \frac{4}{5}$ t = 10 years

- So, Age of P after two years= (10 + 3) + 2 = 15 year
- **52. (c):** Let total income of B = 100x Rs. So, total income of A = $100x \times \left(1 + \frac{20}{100}\right) = 120x Rs$. ATQ $(100x + 120x) \times \frac{30}{100} = 26400$ 66x = 26400 x = 400 Rs. So, income of B = $400 \times 100 = 40000$ Rs.
- **53. (e):** Let sum invested by man = Rs. X And, rate of interest = r%ATQ- $\frac{X \times r \times T}{X \times r \times (T+4)} = \frac{1}{2}$ $\frac{T}{(T+4)} = \frac{1}{2} \Rightarrow T = 4$
- **54.** (d): Let total work = $12 \times 64 = 768$ units Required women = $768 \times \frac{2}{3} \times \frac{1}{16} = 32$
- 55. (e): Let length of train be 'l' meters

 ATQ
 72 × $\frac{5}{18} = \frac{l}{30}$ 1 = 600 meters

 Required time = $\frac{600}{54 \times \frac{5}{100}}$ = 40 sec
- 56. (a): ATQ - $14 \times 6 - 10 \times T = 44$ 10T = 40T = 4
- 57. (c): Let cost price of article = 100x Rs.

 So, marked price of article = $100x \times \left(1 + \frac{50}{100}\right) = 150x$ Rs.

 And, selling price of article = (150x 50) Rs.

 ATQ -(150x 50) 100x = 50 50x = 100 x = 2 Rs.

 So, selling price of article = $(150 \times 2 50) = 250$ Rs.
- 58. (e): ATQ $\frac{X}{(X+800)} = \frac{3200}{(6800-3200)}$ X = 6400
- **59. (b):** Let total initial mixture in vessel = 4x So, milk in vessel = 3x And water in vessel = x ATQ $(3x 20 \times \frac{3x}{4x}) (x 20 \times \frac{x}{4x}) = 70$

$$(3x-15) - (x-5) = 70$$

 $2x = 80$

x = 40

So, initial mixture in vessel = $4x = 4 \times 40 = 160$ liters

60. (c): Let radius of circle be 'r' cm

ATQ -

$$\frac{22}{7} \times r \times r = 616$$

r = 14 cm = breath of rectangle

Let length of rectangle be 'l' cm

Perimeter of rectangle = circumference of a circle + 2

$$2(14 + 1) = 2 \times \frac{22}{7} \times 14 + 2$$

$$2(14 + l) = 90$$

l = 31 cm

- **61. (d)**: Required difference = (80 + 100) (70 + 90) = 20
- **62. (a):** Total orders (all three items) received by R = (80 + 100 + 30) = 210

Total orders (all three items) received by Q = (40)

+70 + 90) = 200

Required percentage = $\frac{210-200}{200} \times 100 = 5\%$

63. (e): Total orders of item A & B received by P = 80 + 60 = 140

Total orders of item B & C received by Q = 70 +

90 = 160

Required ratio = 140:160 = 7:8

64. (b): Average number of orders of item B received by Q & R = $\frac{70+100}{2}$ = 85

Required percentage = $\frac{85}{80} \times 100 = 106\frac{1}{4}\%$

- **65.** (c): Required sum = 80 + 60 + 50 = 190
- **66.** (e): $\frac{48}{100} \times 625 \times \frac{4}{3} = ? \Rightarrow ? = 400$
- 67. (c): $\frac{64+324}{97} = ?$
- **68. (b):** $4^{?} \times 2 = \frac{256}{2}$ $4^{?} = 64$ $4^{?} = (4)^{3}$

? = 3

- **69.** (c): $4 \times ? = 512 480$ $? = \frac{32}{4}$ 2 - 8
- **70. (e):** ? + 432 206 = 550 ? = 550 226 ? = 324
- **71.** (a): $(?)^2 = 196 96$ $?^2 = 100 \Rightarrow ? = 10$

- 72. (d): $\frac{40}{100} \times 400 + \frac{300}{100} \times ? = 250$ $160 + 3 \times ? = 250$ $? = \frac{90}{3} = 30$
- **73. (b):** \div 7 = ? -180 ? = 183
- **74. (e):** 24 12 + 27 = 36 + ? ?= 3
- **75. (b)**: 119 + 41 + 9 =?² ? = 13
- **76. (b)**: $\frac{12}{100} \times (? +100) = 18$? = 150 - 100 ? = 50
- 77. (c): $\frac{11}{11} + 9 + ? = 27$ 1 + 9 + ? = 27 ? = 17
- **78. (b):** $?^2 + 20 = 36$ $?^2 = 16 \Rightarrow ? = 4$
- **79.** (d): $? = 9\frac{1}{3} + 7\frac{1}{2} 5\frac{1}{6} 6\frac{1}{3}$ $? = 9 + 7 - 5 - 6\left(\frac{1}{3} + \frac{1}{2} - \frac{1}{6} - \frac{1}{3}\right)$ $? = 5\frac{1}{6}$
- 80. (c): $\frac{3^4 \times 3^{7 \times 2}}{3^{6 \times 3}} = 3^{?}$ $3^? = 3^{4+14-18}$ $3^? = 3^0$? = 0

