

# RRB TEST - 4

## ANSWERS WITH EXPLANATIONS

### RRB (REASONING)

**Directions (1 - 5) Study the following information carefully and answer the questions given.**

Eight friends J, K, L, M, N, O, P and Q are sitting around a circular table but not necessarily in the same order. Some of them are facing the centre and some of them are facing outside. (i.e. in a direction opposite to the centre) .

Facing the same direction means if one person faces the centre, then the other also faces the centre and vice-versa.

Facing the opposite direction means, if one person faces the centre, then the other faces outside and vice-versa.

Immediate neighbours facing the same direction means, if one neighbor faces the centre, then the other also faces the centre and vice-versa.

Immediate neighbours facing the opposite direction means, if one neighbor faces the centre, then the other faces outside and vice-versa.

Only one person sits between K and O. Q sits third to the right of O.

M sits to the immediate right of Q. Q faces outside.

L sits second to the left of P. P is not an immediate neighbor of O. L faces a direction opposite to that of O. Immediate neighbours of L face opposite directions.

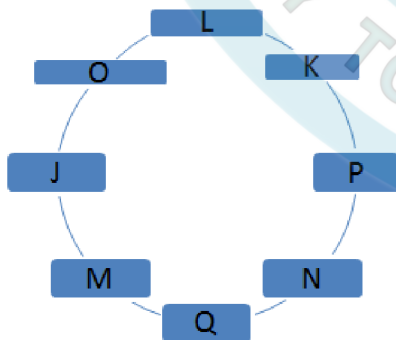
J sits third to the left of N. J is not an immediate neighbor of P nor K. M and J face a direction same as that of N.

**Q1. Four of the following five are alike in a certain way based on the directions they are forming and so form a group. Which is the one that does not belong to that group?**

- a. KL
- b. QM
- c. PQ
- d. NJ
- e. QL

**Ans: B**

**Solution:**



**Q2. Who among the following sit exactly between Q and O when counted from the right of Q?**

- a. P,J
- b. M,P
- c. L,K

d. N,L

e. J,M

**Ans: E**

**Q3. Which of the following is true regarding K as per the given arrangement?**

- a. N is an immediate neighbour of K
- b. None of the given options is true
- c. Only three people sit between K and M
- d. L sits to the immediate left of K
- e. K faces outside

**Ans: C**

**Q4. What is L's position with respect to N?**

- a. Immediate right
- b. Third to the right
- c. Second to the right
- d. Third to the left
- e. Immediate left

**Ans: B**

**Q5. Who amongst the following are immediate neighbours of P?**

- a. M, N
- b. K, M
- c. J, Q
- d. N, K
- e. Q, N

**Ans: D**

**Directions (6 - 10): Study the given information carefully to answer the given questions:**

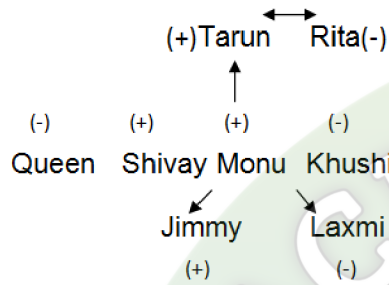
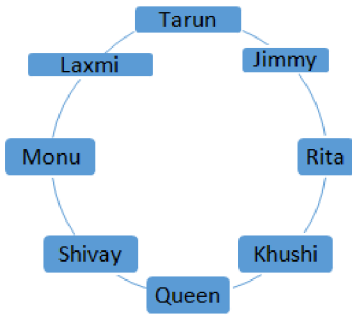
Eight persons – Jimmy, Khushi, Laxmi, Monu, Queen, Rita, Shivay, and Tarun are sitting around a circular table facing the centre but not necessarily in the same order. Each of them is related to Monu in some way or the other. Two persons are sitting between Queen and Laxmi. Monu is sitting second to the left of Queen. Three persons are sitting between Laxmi and the wife of Monu. The son of Monu is sitting second to the right of the wife of Monu. Three persons are sitting between the son of Monu and the brother of Monu. The daughter of Monu is sitting second to the left of the brother of Monu. Jimmy is sitting to the immediate right of Rita. Rita is neither son nor wife of Monu. The sister of Monu is sitting second to the left of Rita. Khushi is sitting to the immediate right of the sister of Monu. Two persons are sitting between Khushi and the father of Monu. Tarun is sitting second to the right of the mother of Monu.

**Q6. Who amongst the following is the brother of Monu?**

- a. Laxmi
- b. Shivay
- c. Tarun
- d. Rita
- e. Jimmy

**Ans: B**

**Solution:**



**Q7. What is the position of Monu's daughter with respect to Monu's son?**

- Third to the right
- Second to the left
- Third to the left
- Second to the right
- Immediate right

**Ans: D**

**Q8. Who amongst the following is the wife of monu?**

- Khushi
- Shivay
- Rita
- Laxmi
- Tarun

**Ans: A**

**Q9. How is Jimmy related to Tarun?**

- Son
- Niece
- Grandson
- Granddaughter
- Nephew

**Ans: C**

**Q10. Who amongst the following is the mother-in-law of Monu's wife?**

- Queen
- Rita
- Shivay
- Khushi

e. Queen

**Ans: B**

**Direction (11-15): Study the given information and answer the following questions:**

Avi, Bimal, Cruse, Deva, Edwen, Fatima, Gaurav and Heena are eight persons sitting around a circle facing outward in one arrangement and in a straight line facing north in another arrangement.

One of the immediate neighbour of Heena in straight line sits opposite Heena in the circle. Edwen sits third to the right of Bimal in the circle, while fourth to his left in the straight line. Fatima and Cruse are the immediate neighbour of Bimal in both the arrangements, but Cruse is not at the extreme ends of the row.

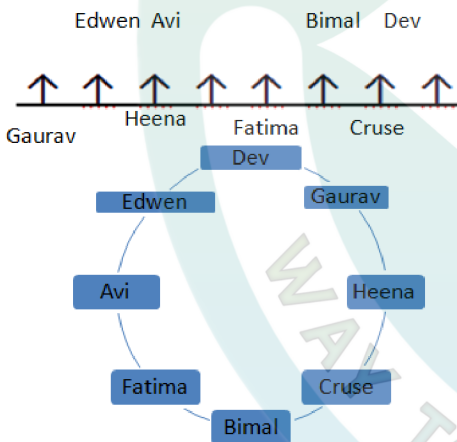
The one who sits on the extreme left end sits second to the right of Edwen in the circle. Heena is not on the immediate left of Fatima in both the arrangements. Gaurav sits on the immediate left of Heena in the circle, but both are not immediate neighbours of each other in the straight line. Dev sits third to the right of Fatima in the straight line. The one who sits on the immediate left of Bimal in straight line is sitting on the immediate right of Bimal in the circle

**Q11. Which of the following pairs sits at the extreme ends of the row?**

- a. Gaurav,Avi
- b. Dev,Gaurav
- c. Dev,Fatima
- d. Heena,Bimal
- e. None of these

**Ans: B**

**Solution:**



**Q12. Who among the following sits on the immediate right of Fatima in the circle?**

- a. Avi
- b. Bimal
- c. Cruse
- d. Edwen
- e. None of these

**Ans: A**

**Q13. The person sitting between Gaurav and Cruse in the circle is sitting what position in the straight line?**

- a. Between Cruse and Gaurav
- b. Immediate right of Avi

- c. Second from the right end
- d. Third from the left end
- e. None of these

**Ans: D**

**Q14. The one who sitting in the right end of the row is sitting what position in the circle?**

- a. Between Bimal and Fatima
- b. Immediate right of Gaurav
- c. Between Edwen and Gaurav
- d. Third to the right of Cruse
- e. None of these

**Ans: C**

**Q15. Who sits second to the left of Avi in the circle?**

- a. Edwen
- b. Bimal
- c. Cruse
- d. Heena
- e. None of these

**Ans: B**

**Directions (16 - 20): Study the following information to answer the given questions:**

**In a certain code**

'Crab Source Rhyme Praised' is written as

'81H! 61R% 30R# 91O\$',

'Viewers Prey Ban Appraise' is written as

'10P\* 20A@ 22I% 61R#',

'Win Addict Cold Magician' is written as

'30O# 32I@ 10D\$ 31A\*'

'Miser Basic Kitkat Solvent' is written as

'11I\$ 31I! 91O% 20A!'

**Q16. What is the code for 'Sit Class Paragraph'?**

- a. 30M! 91I@ 63A\*
- b. 40L! 91I@ 61P%
- c. 30L! 71M@ 62A\*
- d. 30L! 91I@ 61A\*
- e. Cannot be determined

**Ans: E**

**Solution:**

A is taken as 1, B as 2, .....Z as 26

3 letter word – @, 4 letter word – #, 5 letter word – !, 6 letter word – \$, 7 letter word – %, 8 letter word – \*

Crab: C – 03 so written 30, then second letter R, # for 4 letters word

Source: S – 19 so written 91, then second letter O, \$ for 6 letter word.

Praised: P – 16 so written 61, then second letter R, % for 7 letter word.

**Q17. What could '21I%' stand for?**

- a. Symbols
- b. Light
- c. License
- d. Urban
- e. Cannot be determined

**Ans: C**

**Q18. What is the code of 'Mistake'?**

- a. 31I%
- b. 13T@
- c. 28S\*
- d. 31M%
- e. Cannot be determined

**Ans: A**

**Q19. Which is the code for 'Would Kill'?**

- a. 42I! 11O#
- b. 42O# 11I#
- c. 42O! 11I#
- d. 42O\$ 11I#
- e. Cannot be determined

**Ans: C**

**Q20. Which is the code for 'Thirteen Banks'?**

- a. 20H# 20A@
- b. 02H\* 20A!
- c. 02H@ 02A!
- d. 20H\* 02A\$
- e. Cannot be Determined

**Ans: B**

**Direction (21-25) In this question, relationship between different elements is shown in the statements. The statements are followed by conclusions. Study the conclusions based on the given statement and select the appropriate answer.**

**Q21. Statements:**

**$M < S = D > A > J > R$ ;  $A < B = C > Z$ ;  $Z > F$**

**Conclusions:**

- I.  $Z < S$
  - II.  $C > R$
- a. Only conclusion I follows
  - b. Only conclusion II follows
  - c. Either conclusions I or II follows
  - d. Neither conclusion I nor II follows
  - e. Both conclusions I and II follows

Ans: B

Q22. Statements:

$R > A > H < D < F$ ;  $B > C < E > H$ ;  $H < J > K < L$

Conclusions:

I.  $F > J$

II.  $R = E$

- a. Only conclusion I follows
- b. Only conclusion II follows
- c. Either conclusions I or II follows
- d. Neither conclusion I nor II follows
- e. Both conclusions I and II follows

Ans: D

Q23. Statements:

$F > G = H < I > J$ ;  $K < L > M > N > H$ ;  $H < B < C$

Conclusions:

I.  $F > M$

II.  $C > J$

- a. Only conclusion I follows
- b. Only conclusion II follows
- c. Either conclusions I or II follows
- d. Neither conclusion I nor II follows
- e. Both conclusions I and II follows

Ans: D

Q24. Statements:

$F < D < M = R < N < J$ ;  $R = K < L > O > P = E$

Conclusions:

I.  $L > F$

II.  $J > O$

- a. Only conclusion I follows
- b. Only conclusion II follows
- c. Either conclusions I or II follows
- d. Neither conclusion I nor II follows
- e. Both conclusions I and II follows

Ans: A

Q25. Statements:

$M < V < J > E > O < A < H$ ;  $B > U > Z = Y < J$

Conclusions:

I.  $M = Z$

II.  $B = J$

- a. Only conclusion I follows
- b. Only conclusion II follows

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- c. Either conclusions I or II follows
- d. Neither conclusion I nor II follows
- e. Both conclusions I and II follows

**Ans: D**

**Q26. Conclusions:**

**At least some hills being lake is a possibility.**

**Some mountains are hills.**

**Statements:**

Statements – 1: All Hills are Mountains.

All hills are rivers. No hill is a lake.

Statements – 2: All Hills are Mountains.

All Mountains are rivers. No river is a lake.

Statements – 3: Some Hills are Mountains.

Some hills are rivers. No hill is a lake.

Statements – 4: Some Hills are Mountains.

All Mountains are rivers. No hill is a lake.

Statements – 5: All Hills are Mountains.

Some hills are rivers. No river is a lake.

- a. Only Statements – 1
- b. Only Statements – 2
- c. Only Statements – 3
- d. Only Statements – 4
- e. Only Statements – 5

**Ans: E**

**Q27. Conclusions:**

**Atleast some beans are carrot.**

**Some brinjals being carrot is a possibility**

**Statements:**

Statements – 1: All carrots are beans.

Some beans are apples.

No brinjal is Carrot.

Statements – 2: No carrots is beans.

Some beans are brinjals.

No brinjal is apple.

Statements – 3: All carrots are beans.

Some beans are brinjals.

No brinjal is apple.

Statements – 4: No carrots is beans.

Some beans are brinjals.

No brinjal is apple.

Statements – 5: All carrots are beans.



Some beans are apples.

No brinjal is carrot.

- a. Only Statements – 1
- b. Only Statements – 2
- c. Only Statements – 3
- d. Only Statements – 4
- e. Only Statements – 5

**Ans: C**

**Q28. Conclusions:**

**All Donkeys being Tigers is a possibility**

**All Monkeys being Tigers is a possibility**

**Statements:**

Statements – 1: All monkeys are Donkeys.

No Donkey is Tiger.

All elephants are Tigers

Statements – 2: All monkeys are Donkeys.

No Donkey is elephant.

All elephants are Tigers

Statements – 3: Some monkeys are Donkeys.

No Donkey is Tiger.

All elephants are Tigers

Statements – 4: No monkey is Tiger.

No Donkey is elephant.

All elephants are Tigers

Statements – 5: Some monkeys are Donkeys.

No Donkey is elephant.

No monkey is Tiger

- a. Only Statements – 1
- b. Only Statements – 2
- c. Only Statements – 3
- d. Only Statements – 4
- e. Only Statements – 5

**Ans: B**

**Q29. Conclusions:**

**Some mugs are plates**

**At least some trays are cups**

**Statements:**

Statements – 1: Some cups are trays. Some trays are plates. Some plates are mugs

Statements – 2: Some cups are plates. Some plates are trays. Some trays are mugs

Statements – 3: All cups are trays. Some trays are plates. No plate is mug

Statements – 4: All cups are trays. All trays are plates. No plates is mug

Statements – 5: Some cups are trays. Some trays are plates. No plate is mug

- a. Only Statements – 1
- b. Only Statements – 2
- c. Only Statements – 3
- d. Only Statements – 4
- e. Only Statements – 5

**Ans: A**

**Q30. Conclusions:**

**All tanks are jingers.**

**Some jingers are not fishes**

**Statements:**

Statements – 1: Some tanks are jars. Some jars are ginger. No fish is jar

Statements – 2: All jingers are jars. Some jars are tanks. No fish is jar

Statements – 3: All tanks are jars. Some jars are ginger. Some fishes are ginger

Statements – 4: All tanks are jars. All jars are ginger. No fish is jar

Statements – 5: All tanks are jars. All jars are ginger. Some fishes are ginger

- a. Only Statements – 1
- b. Only Statements – 2
- c. Only Statements – 3
- d. Only Statements – 4
- e. Only Statements – 5

**Ans: D**

**Directions (31-32):** Study the following information and answer the given questions.

Point F is 10 m to the South of E.

Point G is 3 m to the East of F.

Point H is 5 m to the South of G.

Point I is 6 m to the West of H.

Point J is 10 m to the North of I.

Point K is 6 m to the East of J.

Point L is 5 m to the North of K.

**Q31. Which of the following represents the direction of point G with respect to point J?**

- a. South-East
- b. North-West
- c. South-West
- d. South
- e. North-East

**Ans: A**

**Q32. How far and in which direction is point E from point L?**

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- a. 5 m, South
- b. 3 m, East
- c.  $\sqrt{234}$  m, North
- d. 3 m, West
- e. 5 m, North

**Ans: D**

**Directions (33 - 34):** Study the following questions carefully and answer the questions given below:

Y 4 8 A @ D F 3 # R N 1 M © W P § J 2 E 5 Z \* 6 Q B 7 \$ H U 9 I K

**Q33.** Four of the following five are alike in a certain way based on their positions in the above arrangement and so form a group. Which of the following does not belong to that group?

- a. RMA
- b. JWE
- c. 562
- d. \$9B
- e. D#A

**Ans: A**

**Q34.** How many such consonants are there in the above arrangement each of which is immediately preceded by a symbol and immediately followed by a letter?

- a. None
- b. One
- c. Three
- d. Two
- e. More than three

**Ans: E**

**Directions (35-36):** Study the following questions carefully and answer the questions given below:

C is the sister of F

B is the brother of E's husband

D is the father of A and Grand father of F

There are 2 father, 3 brothers, 1 Mother, 1 daughter in law in that family

**Q35.** How many female members in the family

- a. 2
- b. 3
- c. 4
- d. 5
- e. None of the above

**Ans: A**

**Q36.** How is 'F' related to E?

- a. Husband
- b. Son
- c. Daughter
- d. Grand son

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e. None of the above

**Ans: B**

**Directions (37-38):** Study the following series of letters, symbols and numbers carefully and The correct answer is the questions given below.

**P □ 7 E N ? 2 L \* □ K W 8 \$ = 5 J D ÷ V 6 F G @ 3 C R.**

**Q37.** How many such symbols are there in the above series each of which is immediately preceded by a number?

- a. Three
- b. Nil
- c. Two
- d. One
- e. None of these

**Ans: D**

**Q38.** How many such letters are there in the above series each of which is not immediately preceded by a symbol?

- a. Ten
- b. Nine
- c. Six
- d. Seven
- e. None of these

**Ans: E**

**Directions (39-40):** Find out the missing term in the following letter number series—

**Q39.** M 4, T 7, P 7, Q 10, S 10, N 13, ?, K 16

- a. V 4
- b. K 7
- c. T 13
- d. G 15

**Ans: C**

**Q40.** R 5 P, T 6 M, V 9 J, X 15 G, ?

- a. A 12 L
- b. I 18 X
- c. Z 25 D
- d. U 20 Q

**Ans: C**

## RRB (QUANT)

**Directions (1-5):** What approximate value will come in place of question mark (?) in the following equations?

1.  $339\% \text{ of } 803 + 77.8\% \text{ of } 1107 = ?$

- (1) 3175      (2) 3320      (3) 3580      (4) 3710      (5) 3950

2.  $\sqrt{2300} \times \sqrt{240} = ?$

- (1) 685      (2) 705      (3) 815      (4) 745      (5) 635

3.  $14.03 \times 27.489 - 8.749 \times 16.04 = ?$

- (1) 210      (2) 250      (3) 295      (4) 325      (5) 350

4.  $119.003 \times 14.987 + 21.04 \times 13.96 = ?$

- (1) 2080      (2) 2120      (3) 2150      (4) 2175      (5) 2200

5.  $17.38\% \text{ of } 1557 - 21.012 \times 8.97 = ?$

- (1) 50      (2) 80      (3) 110      (4) 140      (5) 175

**Directions (6-10):** What should come in place of question mark (?) in the following number series?

6. 17 19 23 29 37 ?

- a) 46      b) 49      c) 47      d) 48      e) 45

7. 900899 891 864 800 ?

- a) 695      b) 685      c) 665      d) 675      e) 655

8. 3.4 32 224 1344 6720 ?

- a) 26885      b) 26880      c) 26882      d) 26888      e) 26883

9. 56 54 58 50 66 ?

- a) 34      b) 98      c) 38      d) 94      e) 44

10. 655637 622 610 601 ?

- a) 598      b) 593      c) 595      d) 597      e) 594

**Directions (11-17)** In each of these questions two equations (I) and (II) are given. You have to solve both the equations and give answer

(1) if  $x > y$  (2) if  $x \geq y$  (3) if  $x < y$  (4) if  $x \leq y$

(5) if  $x = y$  or no relation can be established between  $x$  and  $y$

11. I.  $x^2 + 42 = 13x$

II.  $y = \sqrt[4]{1296}$

12. I.  $3x^2 - 23x + 40 = 0$

II.  $2y^2 - 23y + 66 = 0$

13. I.  $15x^2 - 46x + 35 = 0$

II.  $4y^2 - 15y + 14 = 0$

14. I.  $4x + 3y = (1600)^{1/2}$

II.  $6x - 5y = (484)^{1/2}$

15. I.  $2x^2 - (4 \div \sqrt{13})x + 2\sqrt{13} = 0$

II.  $10y^2 - (18 + 5\sqrt{13})y \div 9\sqrt{13} = 0$

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16. I.  $(6x^2 + 17) - (3x^2 + 20) = 0$

II.  $(5y^2 - 12) - (9y^2 - 16) = 0$

17. I.  $x^2 - 82x + 781 = 0$

II.  $y^2 = 5041$

**Directions (18-19):** In the following questions, three equations numbered I, II and III are given. You have to solve all the equations either together or separately, or two together and one separately or by any other method and give answer

(1) if  $x = y > z$

(2) if  $x < y = z$

(3) if  $x < y > z$

(4) if  $x = y = z$  or if none of the above relationship can be established.

(5) if  $x \leq y < z$

18. I.  $3x + 5y = 69$

II.  $9x + 4y = 108$

III.  $x + z = 12$

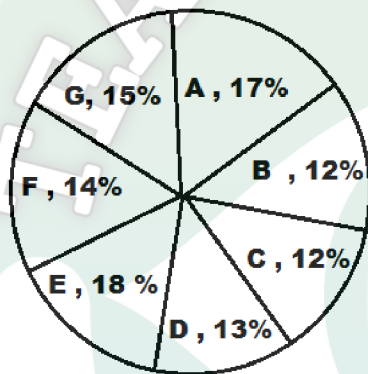
19. I.  $2x + 3y + 4z = 66$

II.  $2x + y + 3z = 42$

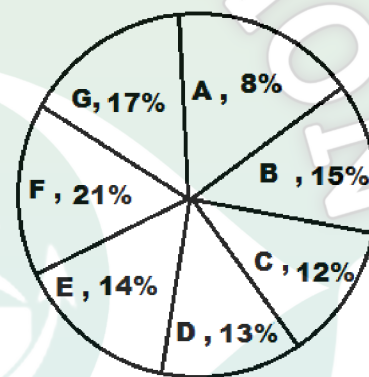
III.  $3x + 2y + 4z = 63$

**Directions (20-24):** The following pie charts show the distribution of students of graduates and post-

**TOTAL NUMBER OF STUDENTS OF GRADUATE LEVEL = 27300**



**TOTAL NUMBER OF STUDENTS OF GRADUATE LEVEL = 24700**



graduates levels in seven different institutes – A, B, C, D, E, F and G

**20. How many students of institutes A and F are studying at graduate level?**

A) 7516

B) 8463

C) 9127

D) 9404

E) Cannot Be determined

**21. Total number of students studying at post-graduate level from institute B and C is?**

A) 5601

B) 5944

C) 6669

D) 7004

E) None of

These

**22. What is the total number of graduate and post-graduate level from institute E?**

A) 8320

B) 7916

C) 9116

D) 8372

E) None of

These

**23. What is the ratio between the number of students studying at post-graduate and graduate levels respectively from institute F?**

- A) 14 : 19                      B) 19 : 21                      C) 17 : 21                      D) 19 : 14                      E) None of These

**24. What is the ratio between the number of students studying at post-graduate level from institute F and the number of students studying at graduate level from institute D?**

- A) 13 : 19                      B) 21 : 13                      C) 13 : 8                      D) 19 : 13                      E) None of These

**Directions (25–28) Study the table and answer the given questions. Data related to candidates appeared and qualified from a state in a competitive exam during 5 years**

Years	No. of appeared candidates	% of appeared candidates who qualified	Respective ratio of number of qualified male & female candidates
2011	700	--	3 : 2
2012	--	--	5 : 3
2013	480	60%	--
2014	--	42%	9 : 5
2015	900	64%	--

**Years No. of appeared candidates % of appeared candidates who qualified Respective ratio of number of qualified male & female candidates**

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2011	700	--	3 : 2
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2013	480	60%	--
2014	--	42%	9 : 5
2015	900	64%	--

**25. In 2015, if the number of female qualified candidates was 176, what was the respective ratio of number of male qualified candidates and number of female qualified candidates in 2015 ?**

- a) 25 : 16                      b) 5 : 4                      c) 25 : 11                      d) 21 : 16                      e) None of these

**26. The number of appeared candidates increased by 40% from 2011 to 2016. If 25% of the appeared candidates qualified in 2016, what was the number of qualified candidates in 2016?**

- a) 240                      b) 225                      c) 255                      d) 245                      e) None of these

**27. In 2012, the respective ratio of number of appeared candidates to the qualified candidates was**

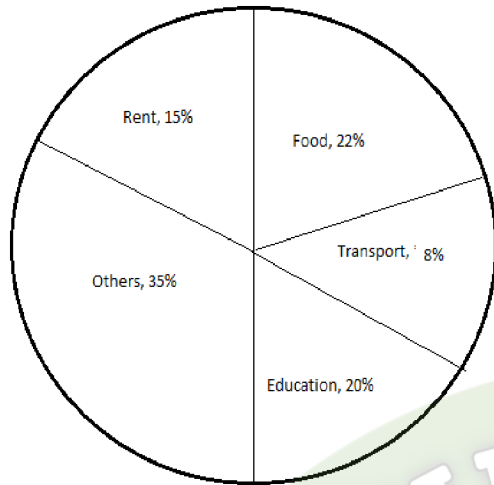
**5:4. Number of female qualified candidates constitutes what per cent of number of appeared candidates in the same year?**

- a) 20                      b) 25                      c) 30                      d) 15                      e) 40

**28. In 2014, if the difference between number of male qualified candidates and female qualified candidates was 72, what was the number of appeared candidates in 2014?**

- a) 800                      b) 900                      c) 850                      d) 600                      e) None of these

**Directions: (29 – 33):** The following pie chart represents the break-up of Raju’s monthly Expenses.



29. If Raju spent Rs 4500 more on food and transport together than he spent on rent, then Find his monthly expenses.

- a) Rs. 20,000      b) Rs. 15,000      c) Rs. 30,000      d) Rs. 40,000      e) Rs. 35,000

30. If Raju increased his savings, which is currently 10% of his income, by 20% and reduced his expenses by 20%, then his savings would be what percentage of his expenses approximately?

- a) 15%      b) 25%      c) 30%      d) 10%  
e) 20%

31. Raju spent 20% of his expenditure on 'others' on entertainment. This amounted to Rs 2100. Find his expenditure on education.

- a) 4,500      b) 5,000      c) 7,000      d) 6,500      e) None of these

32. Find the angle made by the expenditure on rent and 'others' put together.

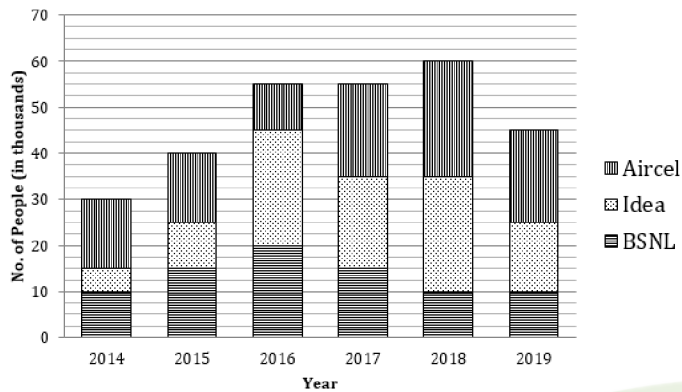
- a)  $150^\circ$       b)  $160^\circ$       c)  $180^\circ$       d)  $200^\circ$   
e) None of these

33. As prices dropped, Raju's expenditure on clothes dropped by 10%. As a result of this, his expenditure on 'others' decreased from Rs 10,500 to Rs 10,290. What percentage of his expenditure on 'others' was spent on clothes?

- a) 12%      b) 30%      c) 16%      d) 20%  
e) None of these

Directions (34-40): Study the given graph carefully to answer the questions that follow:





- 34. What is the ratio of the number of people using mobile service of BSNL in the year 2015 to that of those using the same service in the year 2014?**
- a) 8 : 7      b) 3 : 2      c) 19 : 13      d) 15 : 11      e) None of these
- 35. What is the total number of people using mobile service of Idea in the years 2018 and 2019 together?**
- a) 35,000      b) 30,000      c) 45,000      d) 25,000      e) None of these
- 36. An order was placed for supply of carpet of breadth 3 metres, the length of carpet was 1.44 times of breadth. Subsequently the breadth and length were increased by 25 and 40 per cent respectively. At the rate of Rs. 45 per square metre, what would be the increase in the cost of the carpet:**
- a) Rs 1020.6      b) Rs. 398.8      c) Rs 437.4      d) Rs 583.2      e) none
- 37. The length of the rectangular plot is thrice its breadth. If the area of the rectangular plot is 7803 sq. metre, what is the breadth of the rectangular plot:**
- a) 51 metre      b) 153 metre      c) 104 metre      d) 88 metre      e) none
- 38. In a mixture of milk and water the proportion of water by weight was 75%. If in the 60 gms mixture 15 gms , water was added, what would be the percentage of water in the new mixture:**
- a) 75%      b) 88%      c) 90%      d) 100%      e) none
- 39. A shopkeeper bought 30 kg of wheat at the rate of Rs. 45 per kg. He sold forty percent of the total quantity at the rate of Rs. 50 per kg. Approximately, at what price per kg, should he sell the remaining quantity to make 25% overall profit:**
- a) Rs 54      b) Rs. 52      c) Rs. 50      d) Rs. 60      e) Rs.56
- 40. Arun invested a sum of money at a certain rate of simple interest for a period of four years. Had he invested the same sum for a period of six years the total interest earned by him would have been fifty percent more than the earlier interest amount. What was the rate of interest per cent per annum:**
- a) 4      b) 8      c) 5      d) can't determine      e) none

## ANSWER

1. C)	9. A)	17.E)	25.C)	33.D)
2. D)	10.C)	18.E)	26.D)	34.B)
3. B)	11.B)	19.B)	27.C)	35.E)
4. A)	12.C)	20.B)	28.D)	36.C)
5. B)	13.C)	21.C)	29.C)	37.A)
6. C)	14.A)	22.D)	30.A)	38.E)
7. D)	15.B)	23.D)	31.E)	39.C)
8. B)	16.E)	24.D)	32.C)	40.D)

## EXPLANATIONS

1. c) ?  $\frac{340 \times 800}{100} + \frac{78 \times 1100}{100}$   
 $= 2720 + 858 = 3578 \approx 3580$

2. d) ?  $\sqrt{2300} \times \sqrt{240} \approx 48 \times 15.5$   
 $= 744 = 745$

3. b) ?  $\approx 14 \times 27.5 - 8.75 \times 16$   
 $= 385 - 140 = 245 \approx 250$

4. a) ?  $\approx 119 \times 15 + 21 \times 14$   
 $= 1785 + 294 = 2079 \approx 2080$

5. b) ?  $\frac{17.4 \times 1550}{100} - 21 \times 9$

Vivek sir

11. b)  $x^2 + 42 = 13x$   
 or  $x^2 - 13x + 42 = 0$   
 or  $x^2 - 7x - 6x + 42 = 0$   
 or  $x(x - 7) - 6(x - 7) = 0$   
 or  $(x - 6)(x - 7) = 0$   
  $x = 6, 7$   
 II.  $y \sqrt[4]{1296}$   
  $y = 6$   
 $X \geq y$

12. c) I.  $3x^2 - 23x + 40 = 0$   
 or  $3x^2 - 15x - 8x + 40 = 0$   
 or  $3x(x - 5) - 8(x - 5) = 0$   
 or  $(3x - 8)(x - 5) = 0$   
 $x = 5, \frac{8}{3}$   
 II.  $2y^2 - 23y + 66 = 0$   
 or  $2y^2 - 12y - 11y + 66 = 0$   
 or  $2y(y - 6) - 11(y - 6) = 0$   
 or  $(y - 6)(2y - 11) = 0$   
 $y = 6, \frac{11}{2} x < y$

13. c) I.  $15x^2 - 25x - 21x + 35 = 0$   
 or  $5x(3x - 5) - 7(3x - 5) = 0$   
 or  $(5x - 7)(3x - 5) = 0$   
 $x = \frac{7}{5}, \frac{5}{3}$   
 II.  $4y^2 - 8y - 7y + 14 = 0$   
 or  $4y(y - 2) - 7(y - 2) = 0$   
 or  $(4y - 7)(y - 2) = 0$   
 $y = \frac{7}{4}$   
 $x < y$

14. a)  $4x + 3y = 40$  .....(i)  $\times 6$   
 $6x - 5y = 22$  .....(ii)  $\times 4$   
 $24x + 18y = 240$   
 $24x - 20y = 88$   
 $\quad \quad \quad + \quad \quad \quad -$   
 $38y = 152$   
 $y \frac{152}{38} = 4$

Putting the value of y in equation (i) , we have  
 $4x + 3 \times 4 = 40$   
 or,  $4x = 40 - 12 = 28$   
 $x = 7$   
 Hence,  $x > y$ .

15. b)  $2x^2 - 4x - \sqrt{13}x + 2\sqrt{13} = 0 \dots(i)$   
 or,  $2x(x - 2) - \sqrt{13}(x - 2) = 0$   
 or,  $(x - 2)(2x - \sqrt{13}) = 0$   
 $x = 2, \frac{\sqrt{13}}{2}$   
 $10y^2 - 18y - 5\sqrt{13}y + 9\sqrt{13} = 0 \dots(ii)$   
 or,  $2y(5y - 9) - \sqrt{13}(5y - 9) = 0$   
 or,  $(2y - \sqrt{13})(5y - 9) = 0$   
 $y = \frac{9}{5}, \frac{\sqrt{13}}{2}$   
 Hence,  $x \geq y$ .

16. e)  $6x^2 + 17 - 3x^2 - 20 = 0 \dots (i)$   
 or,  $3x^2 = 3$   
 $x \pm 1$   
 $5y^2 - 12 - 9y^2 + 16 = 0 \dots (ii)$   
 or,  $4y^2 = 4$   
 $y \pm 1$   
 Hence  $x = y$ .

17. e) I.  $x^2 - 11x - 71x + 781 = 0$   
 or  $x(x - 11) - 71(x - 11) = 0$   
 or  $(x - 11)(x - 71) = 0$   
 $x = 11, 71$   
 II.  $y^2 = 5041$   
 $y = \pm 71$

18. e)  $3x + 5y = 69 \dots (i)$   
 $9x + 4y = 108 \dots (ii)$   
 $x + z = 12 \dots (iii)$   
 Now, from (i) and (ii), we have  
 $3x + 5y = 69 \dots (i) \times 4$   
 $9x + 4y = 108 \dots (ii) \times 5$   
 $12x + 20y = 276$   
 $45x + 20y = 540$   
 $-33x = -264$   
 On subtracting, we get  
 or,  $33x = 264$   
 $x = \frac{264}{33} = 8$   
 Putting the value of x in equation (i), we get  $3 \times 8 + 5y = 69$   
 or,  $5y = 69 - 24 = 45$   
 $y = \frac{45}{5} = 9$   
 Again, putting the value of x in equation (iii), we get  
 $x + z = 12$   
 or,  $z = 12 - 8 = 4$   
 Hence,  $x < y > z$

19. b) I.  $2x + 3y + 4z = 66 \dots (i)$   
 II.  $2x + y + 3z = 42 \dots (ii)$   
 III.  $3x + 2y + 4z = 63 \dots (iii)$   
 From (iii) and (i),  
 $x - y = -3 \dots (iv)$   
 From equation (i)  $\times 3$  - equation (ii)  $\times 4$   
 $6x + 9y + 12z = 198$   
 $8x + 4y + 12z = 168$   
 $-2x + 5y = 30 \dots (v)$   
 Solving equation (iv) and (v), we get  
 $x = 5, y = 8$   
 Now, on putting the value of x and y in equation (i),  
 $10 + 24 + 4z = 66$   
 or,  $4z = \frac{32}{4} = 8$   
 Hence,  $x < y = z$

20. b)

Students of institute A at graduate level  
 = 17% of 27300 = 4641  
 Students of institute F at graduate level  
 = 14% of 27300 = 3822  
 Therefore, Total number of students  
 = 4641 + 3822 = 8463

21. (c)

Required Number  
 = (15% of 24700) + (12% of 24700)  
 = 3705 + 2964 = 6669

22. (d)

Required Number  
 = (18% of 27300) + (14% of 24700)  
 = 4914 + 3458 = 8372

23. (d)

Required ratio  
 $= \frac{21\% \text{ of } 24700}{14\% \text{ of } 27300} = \frac{21 \times 24700}{14 \times 27300} = \frac{19}{14}$

24. (d)

Required ratio  
 $= \frac{21\% \text{ of } 24700}{13\% \text{ of } 27300} = \frac{21 \times 24700}{13 \times 27300} = \frac{19}{13}$

25. Ans.(c)

Sol.No. of qualified candidates in 2015  
 =  $64 \times 9 = 576$   
 $\therefore$  no. of males =  $576 - 176 = 400$   
 $\therefore$  Required Ratio =  $400 : 176 = 25 : 11$

26. Ans.(d)

Sol.No. of appeared candidates in 2016  
 =  $140/100 \times 700 = 980$   
 Required no. of candidates =  $25/100 \times 980 = 245$

27. Ans.(c)

Sol. Let appeared candidates in 2012 = 500  
 $\therefore$  Let qualified candidates in 2012 = 400  
 $\therefore$  No. of female qualified in 2012 =  $3/8 \times 400 = 150$   
 $\therefore$  Required % =  $150/500 \times 100 = 30\%$

28. Ans.(d)

Sol. Let no. of males qualified in 2014 =  $9x$   
 $\therefore$  No. of females qualified in 2014 =  $5x$   
 $\therefore 9x - 5x = 72$   
 $x = 18$

∴ No. of candidates qualified in

$$2014 = 14x = 14 \times 18 = 252$$

$$\therefore \text{Required no. of candidates} = 252/42 \times 100 = 600$$

29. c) Percentage of his expenditure spent on

rent = 15%

Percentage of his expenditure spent on transport and food = 30%

$$\Rightarrow 30\% - 15\% = 15\% = \text{Rs } 4500$$

Monthly expenses:

$$= 100\% = (100/15) \times 4500$$

= **Rs. 30,000**

30. a) Let his monthly income be Rs x.

Original savings = Rs.  $(10/100)x$

New Savings =  $(10/100)x + 20/100(10x/100)$

$$= \text{Rs. } (12/100)x$$

Original expenditure =  $x - (10/100)x$

$$= \text{Rs. } (90/100)x$$

New expenditure :

$$= (90/100)x - (20/100)(90x/100)$$

$$= \text{Rs. } (72/100)x$$

Required percentage :

$$[(12x/100) / (72x/100)] \times 100$$

= **16.66%**

31. e) Expenditure on entertainment:

= 20% of (35% of others) = 7% of the total expenses

$$\Rightarrow 2100 = 7\% \text{ of total expenses}$$

Also education accounts for 20% of the total expenses.

⇒ Expenditure on education:

$$= 20\% \text{ of the total} = \text{Rs } [2100 \times (20/7)]$$

= **Rs. 6,000**

32. Ans. (c) Total expenditure on rent and others:

$$= 15\% + 35\%$$

$$= 50\%$$

$$\text{Required angle} = (50/100) \times 360^\circ$$

$$= \mathbf{180^\circ}$$

33. Ans. (d) Decrease in expenditure on 'others':

$$= 10,500 - 10,290 = \text{Rs } 210$$

⇒ initial expenditure on clothes:

$$= 210 (100/10)$$

$$= \text{Rs. } 2100$$

Required percentage:

$$= (2100/10,500) \times 100$$

$$= \mathbf{20\%}$$

34. Ans. (b)

$$\text{Sol. Required Ratio} = 15 : 10 = 3 : 2$$

35. Ans. (e)

$$\text{Sol. Required no. of people} = (25 + 15) \times 1000 = 40000$$

36. C; Initial area of carpet =  $3 \times (3 \times 1.44)$  sq. metre = 12.96 sq. metre after corresponding changes in dimensions, Area of the carpet =  $(3 \times 125/100) \times (3 \times 1.44 \times 140/100) = 22.68$  sq. metre  
Increase in the cost =  $\text{Rs}(9.72 \times 45) = \text{Rs. } 437.4$

37. A; Let the breadth of the rectangular plot be x metre. Length = 3x, according to the question,  $3x \times x = 7803$   
→  $x = 51$  metre

38. E; In 60 gm of mixture, Quantity of water =  $60 \times \frac{75}{100} = 45$  gm. Quantity of milk = 15 gm. After mixing 15 gm of more water, quantity of water in the new mixture =  $45 + 15 = 60$  gm  
Quantity of water in 75 gm of mixture = 60 gm  
100 gm of mixture will contain =  $\frac{65}{75} \times 100 = 86.67\%$   
80% of water

39. C; Let B receives Rs x. C's amount = 75% of x =  $\text{Rs. } 3x/4$ .

$$\text{And, A's amount} = 125\% \text{ of } 3x/4 = \frac{3x}{4} \times \frac{125}{100} = \text{Rs. } \frac{15x}{16}$$

$$\text{According to question, } \frac{15x}{16} + \frac{3x}{4} + x = 2236 \rightarrow \frac{15x + 12x + 16x}{16} = 2236 \rightarrow x = 832; \text{ A's amount} = 15/16 \times 832 = \text{Rs. } 780$$

$$x : y = 25 : 60 = 5 : 12$$

40. D; According to question,  $\frac{P \times R \times T}{100} = \frac{P \times R \times 4}{100} \times \frac{150}{100}$ ; this relation gives no result.