SELF LEARNING MATERIAL
UNIT-3
Ranking

3.0 OBJECTIVES:

After reading this unit, you will be able to:

- Sequential Order of Arrangement
- Position Test
- Time Sequence Test

3.1 INTRODUCTION:

This unit broadly deals with the problems related to the arrangement of persons/objects is ascending/descending order (based on different parameters like height, weight, merit, position etc.), determining the position of a person/object in a row/queue and the problems related to the time sequence test wherein the candidate has to find out a particular day based on some given conditions.

3.2 Sequential Order of Arrangement

Ranking involves determining the sequential ordering of two or more persons/things based on the comparison of parameters such as age, height, marks, salary, weight, length, size etc.

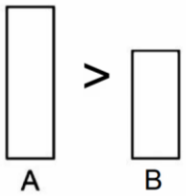
Questions based on ranking are generally given with a set of information in jumbled form, based on which the candidates are required to systematically arrange the given information and determine the sequential order of arrangement of the various persons/objects.

Generally, we compare the things, objects and persons using various notations such as greater than (>), smaller than (<), less than or equal to (=), greater than or equal to (>=), less than or equal to (<=), The candidates

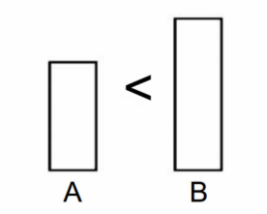
are required to understand the given constraints and conditions to provide appropriate notation of comparison to reach to the conclusion.

While solving problems, under this section, use of the following symbols is required

1. Greater/Heavier/Taller/Higher/More (>)
   A > B means A is greater than B.



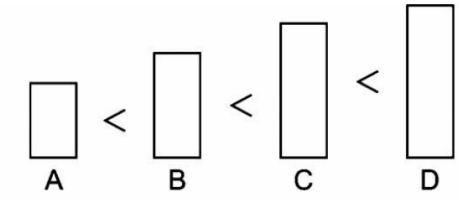
2. Smaller/Lighter/Shorter/Lower/Less (<)
   A < B means A is smaller than B



Ascending Order Sequence

In this sequence, the persons, are arranged in ascending order of their heights, weight, ages etc.

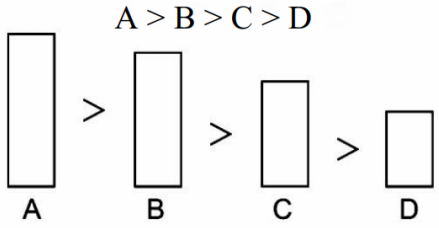
A < B < C < D



Descending Order Sequence

In this sequence, the persons are arranged in descending order of their heights, weights, ages etc.

A > B > C > D



Comparison Based on Length or Height

In this type of questions, comparison of lengths or heights of different persons/objects is given separately. We have to arrange the data in the meaningful order and answer the related question.

Example 3.1: Vinay is taller than Hansika, Hansika is taller than Abhay, Aalok is taller than Ashok and Ashok is taller than Vinay. Who is the shortest in the group?

(a) Aalok (b) Ashok (c) Hansika (d) Abhay

Solution:

On arranging the above data,
we get Aalok > Ashok > Vinay > Hansika > Abhay

Clearly, Abhay is the shortest.

Comparison Based on Age

In this type of questions, the ages of different persons are given in comparison with each other and we have to arrange this data in a logical order and answer the question (s) related to the data.

Example 3.2: Vishal is elder than Aakash but younger than Subhi, Yaksh is younger than Deepak but elder than Aakash. If Subhi is younger than Deepak, then who is the eldest?

(a) Aakash (b) Vishal (c) Subhi (d) Deepak

Solution:

On arranging the above data,
we get Deepak > Subhi > Vishal > Yaksh > Aakash

Clearly, Deepak is the eldest.

Comparison Based on Weight

In this type of questions, the weight of different persons are given in comparison with each other and we have to arrange this data in the logical order and answer the related questions

Example 3.3: Sunil is heavier than Abhinav but not as heavier as Rajiv. Abhinav is heavier than Jayesh. Kashi is heavier than Sunil but not as heavier as Rajiv. Who is the heaviest?

(a) Sunil (b) Abhinav (c) Rajiv (d) Kashi

Solution:

On arranging the above data,
we get Rajiv > Kashi > Sunil > Abhinav > Jayesh

Clearly, Rajiv is the heaviest.

Comparison Based on Merit

In this type of questions, persons are compared on the basis of their merit or competency or intelligence and we have to deduce the logical order of merit from the data and answer the related question (s)

Example 3.4: Vikash is more competent than Keshav, Shiv is less competent than Aashu but more competent than Keshav. Vikash is less competent than Shiv. Who is the most competent in the group?

(a) Aashu (b) Keshav (c) Vikash (d) Shiv

Solution:

On arranging the above data,
we get, Aashu > Shiv > Vikash > Keshav

Clearly, Aashu is the most competent in the group.

CHECK YOUR PROGRESS 3.1:

1. In a group of five persons Kamal is the tallest while Lata is the shortest. Rashmi is shorter than Kamal but taller than Vandana and Prem. Prem is second shortest person in the group. Who is the third tallest?

   (a) Vandana (b) Rashmi (c) Prem (d) Lata

2. Seema's younger brother Sohan is older than Seeta. Sweta is younger than Deepti but elder than Seema. Who is the eldest ?

(a) Seema (b) Sweta (c) Seeta (d) Deepti

3. Anil is taller than Sunny and Sunny is shorter than Baby Anil is taller than Bose whose height is less than Sunny Baby is shorter than Anil. Who is the shortest among them?

   (a) Anil (b) Baby (c) Sunny (d) Bose

4. N is more intelligent than M. M is not as intelligent as Y. X is more intelligent than Y but not as good as N. Who is the most intelligent of all?

   (a) N (b)M (c)X (d)Y

 # # Answers are given at the end of the document.

3.3 Position Test

In this type of questions, the rank or position of a person(s) from either of the two ends of a raw/queue is given and it is asked to determine things such as the total number of persons in the group or the number of persons to the left/right (or above/below) of a particular person etc.

Sometimes, such questions are given in the form of a puzzle involving interchanging of seats by two or more persons.

Rank of a Person/Object from Top or Bottom/from Left or Right

In this type of questions, it is asked to determine the rank or position of a person/object in a group of persons/objects either from the left (or right) or from the top (or bottom) depending upon the arrangement. The position or rank can be calculated with the help of following formulae

(i) Position (or rank) from the left end (or top) = (Total number of persons/students - Rank from the right end (or bottom) +1

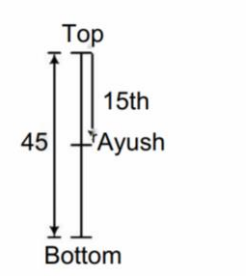
(ii) Position (or rank) from the right end (or bottom) = (Total number of persons/students - Rank from the left end (or top) +1

Example 3.5: In class of 45 students rankof Ayush is 15 from top, then rankof Ayush from bottom is

(a) 30 (b) 32 (c) 31 (d) 35

Solution:

Ayush's rank from the bottom = Total number of students - Rank of Ayush fromtop+1 =45-15+1 = 31



Total Number of Objects/Persons in Queue

In this type of questions, it is asked to calculate the total number of persons when the rank of a person from both the ends is given. Following formula is helpful in the calculation of total number of objects/persons in a queue.

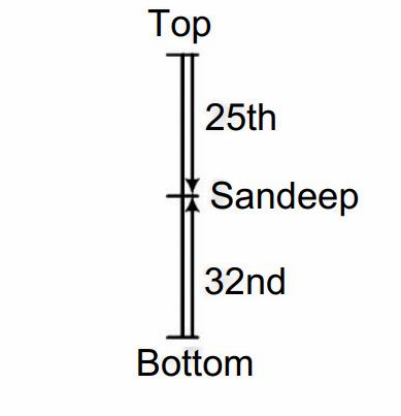
Total number of persons/in a row or queue = (Position (or rank) of a person from the left end (or top or front) + Position (or rank) of the person from the right end (or bottom or last) -1.

Example 3.6: In a class of students, Sandeep is 25th from top and 32nd from bottom in a class, then total number of students in the class is

(a) 56 (b) 50 (c) 57 (d) 58

Solution:

Total students in a class = (Rank of Sandeep from top + Rank of Sandeep from bottom) -1 = 25 + 32 -1 = 57 -1 = 56



New Position of a Person (s) After Interchange of Positions between Two Persons

In this type of questions, the positions of two persons/objects are interchanged and it is asked to determine their new positions (from the left or right) which can be calculated with the help of following formulae.

(i) New position/place of first person after the interchange = Difference of two positions / places of second person + [Initial position/place of second person]

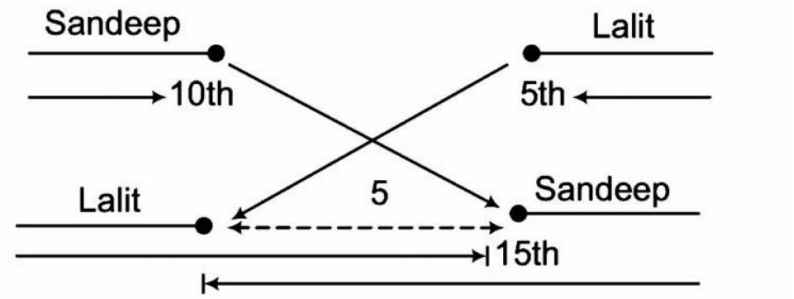
(ii) New position /place of second person after the interchange = Difference of two positions / places of second person + [Initial position/place of second person

Example 3.7: In a queue of boys, Sandeep is 10th from left and Lalit is 5th from right. The places of Sandeep and Lalit are interchanged. If the new position of Sandeep is 15th from left, then the new position of Lalit from right is

(a) 10th (b) 11th (c) 12th (d) 13^{th}

Solution:

New position of Lalit from right end = [Difference of the two positions of Sandeep] + [Initial position of Lalit] = (15 -10)+5 = 5+5 =10th position



Number of Persons/Objects between the Original and Changed Position

In this type of questions, total number of persons between the original and new position of a person is asked which can be calculated by the given formula.

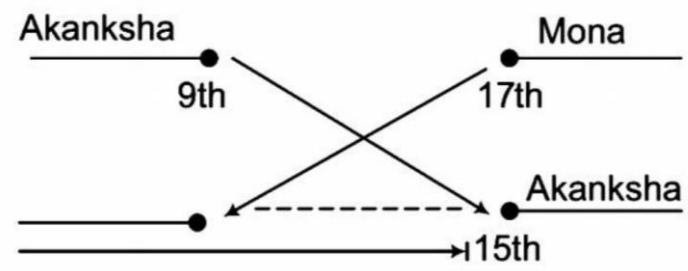
Total number of persons of between two positions = New position - Old position -1

Example 3.8: In a queue of girls, Akanksha is 9th from left and Mona is 17th from right. If the positions of Akanksha and Mona are interchanged, then new position of Akanksha is 15th from left. Find the number of girls between Mona and Akanksha.

(a) 4 (b)5 (c)6 (d)7

Solution:

Total number of persons between Mona and Akanksha = 15-9-1=5



Number of Persons in an Alternate Order

In these type of questions, number of persons standing in an alternate order under certain conditions is asked. The candidate is required to analyse the given information and answer accordingly.

Example 3.9: At a ticket counter there are 17 persons in a queue. If every second person in the queue is a female and also in the starting and at the end there is a female, then the total number of males in the queue is

(a) 7 (b)10 (c) 8 (d) 9

Solution:
Queue of the 17 persons can be shown as .

Total number of males = 8

Maximum and Minimum Number of Persons in a Row

If positions of two persons from the two opposite ends and the total number of places between these two positions is given, then

(i) Maximum number of persons that can be present in the row = Sum of positions of both persons + Number of places in the in the middle

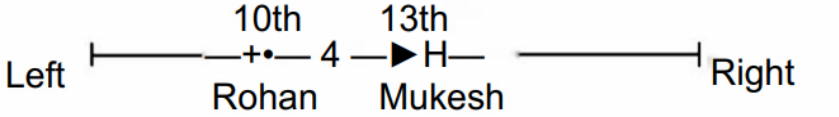
(ii) Minimum number of persons that can be present in the row = Sum of positions of both persons - Number of places in the middle - 2

Example 3.10: If in a row, Rohan is 10th from left and Mukesh is 13th from right and there are four persons in between Rohan and Mukesh, then find the maximum and minium number of persons in the row.

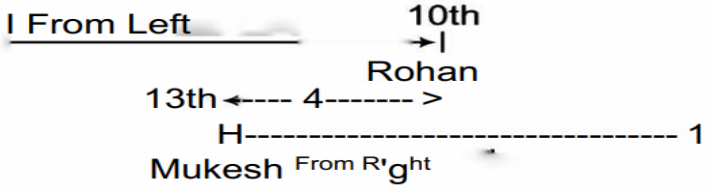
(a) 27, 18 (b) 27, 17 (c) 30, 15 (d) 30, 19

Solution:

For maximum number of persons, arrangement in the row will be as follows



Total number of persons = Sum of positions of both persons + Number of places in middle =10 + 13 +4 = 27
For minimum number of persons, arrangement in the row will be given as follows



Total number of persons = Sum of positions of both places - Number of places in middle - 2 = (10 + 13)- 4- 2 = 17
Hence, option (b) is the correct answer.

CHECK YOUR PROGRESS 3.2:

1. Kavi ranked 9th from the top and 38th from the bottom in a class. How many students are there in the class?

   (a) 45 (b) 42 (c) 46 (d) 44

2. 37 boys are standing in a row facing the school building. Ashwini is 15th from the left end. If he is shifted six places to the right, what is his position from the right end?

   (a) 16th (b) 21st (c) 20th (d) 18th (e) None of these

3. Surbhi ranks 18th in a class of 49 students. What is her rank from the last?

   (a) 31 (b) 28 (c) 35 (d) 32

4. In a row of girls, Veena is 12th from the start and 19th from the end. In another row of girls, Sunita is 14th from the start and 20th from the end. How many girls are there in both the rows together?

   (a) 72 (b) 65 (c) 63 (d) 61

 # # Answers are given at the end of the document.

3.4 Time Sequence Test

In these questions, the candidate is required to find out a particular day/date on the basis of several statements provided to them. The questions asked from this section neither require a special methodology nor any special formulae. The questions are very basic in nature and require common sense.

Example 3.11:
Kamal remembers that his brother Dinu's birthday falls after 20th May but before 28th May, while Garima remembers that Dinu's birthday falls before 22nd May but after 12th May. On what date Dinu's birthday falls?

(a) 22nd May (b) 21st May (c) Cannot be determined (d) None of these

Solution:
According to Kamal, Dinu's birthday falls on one of the days — 21 st, 22nd, 23rd, 24th, 25th, 26th or 27th May.
According to Garima, Dinu's birthday falls on one of the days 13th, 14th, 15th, 16th, 17th, 18th 19th, 20th or 21 st May.
The common date in both the group of dates =21 st
May Clearly, Dinu's birthday falls on 21st May.

CHECK YOUR PROGRESS 3.3:

1. Ayush remembers that Sanjay's birthday is certainly after January 12 but not later than 16th January. If Mehar remembers that Sanjay's birthday is before 17th of Jan but not before 13th Jan. On which of the following day was Sanjay's birthday?

   (a) 14th (b) 15th (c) 16th (d) Either 14th or 15th

2. Sameer remembers that his brother's birthday is after fifteenth but before 18th of February whereas his sister Kanika remembers that her brother's birthday is after 16th but before 19th of February. On which day in February is Sameer's brother's birthday?

   (a) 15th February (b) 18th February (c) 17th February (d) None of these

3. Pratap correctly remembers that his mother's birthday is before 23rd April but after 19th April, whereas his sister correctly remembers that their mother's birthday is not on or after 22nd April. On which day in April is definitely their's mother's birthday?

   (a) 20th (b) 21st (c) 20th or 21 st (d) Cannot be determined (e) None of these

4. Rajat correctly remembers that his mother's birthday is not after 18th of June. His sister correctly remembers that their mother's birthday is before 20th June but after 17th June.On which day in April was definitely their mother's birthday?

(a) 17th (b) 19th (c) 18th (d) 17th or 18th

5. Meena correctly remembers that her father's birthday is after 18th May but before 22nd May. Her brother correctly remembers that their father's birthday is before 24th May but after 20th May. On which date in May was definitely their father's birthday?

   (a) 20th (b) 19th (c) 18th (d) Cannot be determined (e) None of these

 # # Answers are given at the end of the document.

SUMMARY:

- Ranking questions on Sequential Order of Arrangement is explained
- Ranking questions on Position Test is explained
- Ranking questions on Time Sequence Test is explained

3.5Glossary:

Ranking : a position in a hierarchy or scale.

Sequential Order: Things in sequence, or regular order, are arranged sequentially

3.6 Suggested Readings:

- Quantitative Aptitude for Competitive Examinations by R.S.Agarwal. Published by S. CHAND
- Study material for CAT, SAT, GRE, GMAT by TIME, CareerLauncher and IMS etc.
- Quantitative Aptitude by Pearson Publications

3.7 Practice exercise:

Directions (Q. Nos. 1-3) Read the following information carefully and answer the questions that follow.

I. There is a group of five girls.
II. Kamini is second in height but younger than Rupa.
III. Pooja is taller than Monika but younger in age.
IV. Rupa and Monika are of the same age but Rupa is tallest between them.
V. Neelam is taller than Pooja and elder to Rupa.

1. If they are arranged in the ascending order of height, who will be in the third position?

(a) Monika (b) Monika or Rupa (c) Rupa (d) None of these

2. If they are arranged in descending order of their ages, who will be in the fourth position?

(a) Monika or Rupa (b) Monika (c) Kamini (d) None of these

3. To answer the question, "Who is the youngest person in the group", which of the following statements is superfluous?

(a) Only I (b) OnlyV (c) Only II (d) Either I or IV

4. There are four persons A, B, C and D. The total amount of money with A and B together is equal to the total amount of money with C and D together but the total amount of money with B and D together is more than the amount of money with A and C together. The amount of money with A is more than that with B. Who has the least amount of money?

(a) B (b) C (c) D (d) Cannot be determined

5. Each of A, B, C, D and E has different amount of money. C has more money only than E, B and A. Who has the maximum amount of money?

(a) C (b) D (c) E (d) Data inadequate (e) None of the above

Directions (Q. Nos. 6-10) Read the following information carefully and answer the questions that follow. A blacksmith has five iron articles A, B, C, D and E each having a different weight.

I. A weighs twice as much as B.

II. B weighs four and half times as much as C.
III. C weighs half as much as D.
IV. D weighs half as much as E.
V. E weighs less than A but more than C.

6. Which of the following is the lightest in weight?

(a) A (b) B (c) C (d) D

7. E is lighter in weight than which of the other two articles?

(a) A, B (b) D, C (c) A, C (d) D, B

8. E is heavier than which of the following two articles?

(a) D, B (b) D,C (c) A,C (d) A, B

9. Which of the following is the heaviest in weight?

(a) A (b) B (c) C (d) D

10. Which of the following represents the descending order of weights of the articles?

(a) A, B, E, D, C (b) B, D, E, A, C (c) A, B, C, D, E (d) C, D, E, B, A

11. In a row at a bus stop, A is 7th from the left and B is 9th from the right. They both interchange their positions. Now, A becomes 11th from the left. How many people are there in the row?

(a) 10 (b) 20 (c) 19 (d) 18

Directions (Q. Nos. 12-15) Read the following information carefully and answer the questions that follow. Sunita is taller than Seema and Renu, Renu is shorter than Radha and Gauri. Bina is taller than Radha and shorter than Sunita. Sunita is not the tallest and Renu is not the shortest.

12. Who is the tallest?

(a) Sunita (c) Gauri (b) Bina (d) Data inadequate

13. Who is the shortest?

(a) Radha (b) Renu (c) Bina (d) Seema

14. What is the position of Radha from the shorter end?

(a) Fourth (b) Second (c) Third (d) Data inadequate

15. Which of the following statements is definitely correct?

(a) Bina occupies the third position from the top
(b) Seema is taller than Renu
(c) Gauri is shorter than Radha
(d) None of the above

Directions (Q. Nos.16-19) Read the following information and answer the questions that follow. In a study of five brands of pain relieving tablets P, Q, R, S and T, the brands were tested and ranked against each other as more or less effective per dose. The following results were obtained.

I. P was more effective than Q.
II. The effectiveness of R was less than that of S.
III. T was the least effective brand tested.
IV. Q and R were equally effective.
V. The effectiveness of S was greater than that of Q.

16. If the above statements are true, which of the following must also be true?

(a) P and S were equally effective
(b) P was the most effective
(c) S was the most effective
(d) R was less effective than P

17. All the informations in the results given above can be derived from which of the following groups of statements?

(a) Statements I, II and III
(b) Statements I, III and IV

(c) Statements I, III and V
(d) Statements I, II, III and IV

18. If a sixth brand M is tested and found to be more effective than S, then which of the following must be true, if the findings of the study are correct?

(a) M is the most effective of all the six brands tested
(b) Atleast four ofthe six brands tested are less effective than M
(c) M is more effective than P
(d) M is less effective than P

19. If R is more expensive per dose than P and T is less expensive per dose than R, which of the following must be true, according to the study, for a consumer, who wishes to buy a pain reliever with the greatest effectiveness for the amount spent per dose?

(a) P should be purchased instead of R
(b) P should be purchased instead of T
(c) T should be purchased instead of R
(d) Q should be purchased instead of R, if Q is ofthe same price as S

ANSWERS:

CHECK YOUR PROGRESS 3.1

1. a
2. d
3. d
4. a

CHECK YOUR PROGRESS 3.2

1. c
2. e
3. d
4. c

CHECK YOUR PROGRESS 3.3

1. d
2. c

3. c
4. c
5. e

Practice exercise 3.7

1. d
2. d
3. a
4. b
5. b
6. c
7. a
8. b
9. a
10. a
11. a
12. c
13. d
14. c
15. a
16. d
17. c
18. b
19. a