GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY RECRUITMENT CELLS

METHODOLOGY FOR CALCULATION OF "PERCENTILE SCORE" &
"NORMALIZED MARKS FROM PERCENTILE SCORES"
FOR ALP/TECHNICIAN AND TRAIN MANAGER POSTS IN CENTRALISED GDCE-2023

- CBT for ALP/Technician with ITI Trade for Part-B – Post Group-I shall be conducted in one shift and CBT for Technician with 10+2, Physics &Maths. for Part-B –Post Group-I shall be conducted in another shift.
  There shall be no requirement of normalization within the shift.

- To rank candidates with ITI Trade who are also eligible for Technician Gr.III and Technician Gr.I (Signal), percentile equivalence method shall be adopted.
- CBT for Train Manager shall be conducted in three shifts.
- For normalization across shifts for Train Manager, the percentile equivalence method shall be adopted.

METHODOLOGY :

1) Percentile Scores : Percentile Scores are scores based on relative performance of all those who appear for the examination. The marks obtained are transformed into a scale ranging from 100 to 0 for each shift of examinees. The percentile score is not the same as the percentage of marks obtained.

2) The Percentile Score indicates the percentage of candidates that have scored EQUAL TO OR BELOW (same or lower raw score) of each shift will get the same Percentile of 100 which is desirable. The marks obtained in between the highest and lowest scores are also converted to appropriate Percentiles.

3) The Percentile score will be the Normalised Score for the examination (instead of the raw marks of the candidate) and shall be used for the preparation of the merit lists.

4) The Percentile score of a Candidate for a particular shift will be calculated as below :

$$\text{Percentile Score} = \frac{\text{Number of candidates appeared in the 'Shift' with Raw score EQUAL TO OR LESS than the candidate}}{\text{Total number of the candidates who appeared in the 'Shift'}} \times 100$$

5) The percentile scores for the raw score of all the candidates for all relevant shifts would be merged and shall be called the RRC scores which will then be used for the compilation of results and further processing for deciding the merit allocation.

6) The Percentile Scores will be calculated up to 5 decimal places to avoid the bunching effect and reduce ties.

7) In case of two or more candidates securing same Normalized Percentile Score, their merit position shall be determined by age criteria i.e., older person shall be placed at higher merit and in case age being same, then alphabetical order (A to Z) of the name shall be taken into account to break the tie.

8) In order to finalize the Merit based on Percentile Score as mentioned above it is necessary to include only those candidates in the Merit who have secured Minimum qualifying Marks.

9) **The Raw Marks** of each candidate will be normalized using the Equi-percentile method as detailed below :

9.1)Selection of Base Shift :
   "Base Shift" is a shift having the "Highest Mean" (Average) among all the Shifts of CBT with a condition that its Present Candidate Counts should be 70% or more than the average of all Shifts". In case the "Highest Mean" of two Shifts are same then Shift having "Highest Individual Marks" shall be considered as "Base Shift". In case both the "Highest Mean" and "Highest Individual Marks" are same then the Shift having "Highest Present Count" shall be considered as "Base Shift" to break the tie.
(In case attendance in none of the shift is more than 70%, equal weightage50% to marks (out of 300), 50% to attendance (percentage value) shall be used to have Base Shift with highest weighted score).

9.2)Calculation of Normalized Marks : If percentile Score is to be again converted to normalized marks for <u>deciding minimum qualifying marks</u>, the following process is to be adopted ;

    a) For the candidates whose Percentile Score is greater than or equal to the Base Shift percentile :

        X is the percentile score of a candidate. If X percentile score is found in base shift, then corresponding marks are directly available. Otherwise, following formula of interpolation is to be used. This formula is nothing but interpolation formula.

        $N = \{[(Y2-Y1)/(X2-X1)] *(X-X1)\}+Y1$

        N = Normalized Marks

        X2 is immediate higher percentile score in base shift
        X1 is immediate lower percentile score in base shift

        Y2 is marks corresponding to X2 percentile score in base shift
        Y1 is marks corresponding to X1 percentile score in base shift

    b) For the candidates whose Percentile Score is less than the Base Shift Percentile(which cannot be calculated by sub-section a) above) :

        $N = Y1-\{[(Y2-Y1)/(X2-X1)] * (X1-X)\}$

        N = Normalised Marks

        X1 is immediate higher percentile score in base shift
        X2 is immediate next higher percentile score in base shift

        Y1 is marks corresponding to X1 percentile score in base shift
        Y2 is marks corresponding to X2 percentile score in base shift

Dated : 24.11.2023   **Chairpersons**
                                               <u>Railway Recruitment Cells</u>