CALCULATION OF NORMALIZED MARKS FOR MULTI-SESSION PAPERS

University of Jammu may conduct its recruitment examination (in CBT mode) in multiple sessions for some of the positions, where the number of candidates is very large. Such examinations are based on the same syllabus, same pattern for the candidates having same eligibility criteria. A candidate is permitted to appear only in one session. Since the question paper will be different for each session, there is a possibility that the candidates may compare the variation in the difficulty levels of the question papers across the sessions for the same post. However, it may be noted that utmost care has been taken to prepare the question papers of different sessions to have similar difficulty levels and are of the same standard. It is decided to adopt a normalization process to eliminate any such variations in the difficulty levels of various sessions. The main aim of the normalization is to ensure that no student gets advantage/disadvantage due to multiple sessions.

The normalization is done based on the fundamental assumption that "in all multi-session, the distribution of abilities of candidates is the same across all the sessions". The normalization process brings all the candidates across all sessions on a comparative scale. Normalized marks justify the candidates while respecting their actual performance.

Based of the above, the University has decided to adopt the following normalization procedure which is being followed by other competitive Examinations in India to avoid advantage/disadvantage to candidates in a particular session compared to the other sessions.

Normalization Methodology

The following has to be calculated for every shift for all the candidates who have written the exam for the same post:

Step-by-Step Calculation

1. Calculate M_{ij} (Raw Marks)

- This is simply the marks you obtained in your session.

2. Calculate Mean (μ) and Standard Deviation (σ)

Given marks: (x_1, x_2, ..., x_n) (all candidates 'marks in a session or all sessions)

- **Mean (μ)**: $\mu=(x_1+x_2+x_3+x_4+\ldots\ldots+x_n)/n$

- **Standard Deviation (σ)**:

$$\sigma = \sqrt{\frac{(x_1 - \mu)^2 + (x_2 - \mu)^2 + \ldots + (x_n - \mu)^2}{n}}$$

3. Calculate M_{iq} and M^g_q (Mean + SD)

- For the session: $M_{iq=}\mu_{i+}\sigma_i$
- For all Session: $M^g_q=\mu_{g+}\sigma_g$

4. Calculate $\overline{M}_{ti}$ and $\overline{M}^g_t$ (Top 0.1% Average)

- Sort all marks in the session (or all sessions).
- Take the top 0.1% candidates
  Find their average:
  Average of top 0.1=Sum of top 0.1/Number of top candidates

Calculation of Normalized Marks for Multiple – Session Papers

The normalised marks of the j^{th} candidate in the i^{th} session, denoted by $\widehat{M}_{ij}$, are computed as

$$\widehat{M}_{ij} = \frac{\overline{M}^g_t - M^g_q}{\overline{M}_{ti} - M_{iq}}(M_{ij} - M_{iq}) + M^g_q$$

where,

M_{ij} is the actual marks obtained by the j^{th} candidate in the i^{th} session;

$\overline{M}^g_t$ is the average marks of the top 0.1% of the candidates considering all sessions;

M^g_q is the sum of mean and standard deviation marks of the candidates in the paper considering all sessions;

$\overline{M}_{ti}$ is the average marks of the top 0.1% of the candidates in the i^{th} session; and

M_{iq} is the sum of the mean marks and standard deviation marks of the i^{th} session.

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