Arrangements for the Provision of Laboratory Technicians – Questions and Answers

1.	Q.:	What is the manning scale of laboratory technicians for government, aided and caput secondary schools?
	A.:	No. of laboratory technicians = $$\frac{\text{No. of practical periods per week for the whole school}}{54}$$ The number of practical periods per week for the whole school is the sum of the total number of practical periods of the approved classes at the junior secondary levels per week, the total number of practical periods of the science subject groups at the senior secondary levels per week, and the total number of additional practical periods (i.e. 1.3 practical periods multiplied by the number of S1-3 approved classes) per week. Any fraction of a post of laboratory technician of half or above will be considered as one post. Number of laboratory technicians should not be greater than the number of laboratories in school. One of the Laboratory Technician posts provided will be ranked at Laboratory Technician I in a school where there are four or more laboratories and three or more Laboratory Technicians.
2.	Q.:	For calculating the laboratory technician entitlement, how should the number of practical periods for different science curricula be worked out?
	A.:	The provision of laboratory technicians to secondary schools is based on the number of 40-minute practical periods per week in the whole school in accordance with the number of approved junior classes and number of senior science subject groups adopted. A summary of the "standard numbers" of practical periods for different curricula is shown in the following table.

Subject \ Level	S1	S2	S3	S4	S5	S6
Science (S1-3)	4	4	4			
Biology (S4-6)				4	4	4
Chemistry (S4-6)				4	4	4
Physics (S4-6)				4	4	4

		For schools assigning practical periods less than the "standard numbers" in the table above to each of the junior secondary classes / senior secondary science subject groups, the actual number of practical periods should be used in working out the manning scale. If the assigned practical periods are more than the "standard numbers" in the table above, the "standard numbers" will be used in the calculation.
3.	Q.:	How should the number of practical periods be calculated if number of science lessons in S3 are more than those in S1 and S2?
	A.:	Similar to other levels, if the total number of assigned practical periods for S3 Science is more than or equal to the "standard number" for S3 (i.e. 4 lessons), the "standard number" should be used in working out the manning scale. Otherwise, the actual number of assigned practical periods should be used.
4.	Q.:	How should the number of practical periods be converted if the lesson duration is not 40 minutes and/or the number of days per teaching cycle is not 5?
	A.:	The calculation method listed in Question 1 is based on 5 days per teaching cycle and 40 minutes per lesson. If a school adopted the above-mentioned practice, there is no need to do conversion. For other cases, the following formula should be used for conversion. $$\text{Number of practical periods per cycle} \times \frac{\text{duration of a period in minutes}}{40 \text{ min}} \times \frac{5 \text{ days}}{\text{no. of days per teaching cycle}}$$
5.	Q.:	How should the form for calculating laboratory technician entitlement in the estimates for "Applications for Grants: Aided Secondary Schools" (Form B) be completed?
	A.:	Please refer to the examples at the Appendix.

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Example 1 (For schools on 5-day cycle with 40 minutes per period)

(i) Number of days per teaching cycle: (5) days

(ii) Number of science laboratories: (5)

(iii) Details about the practical periods:

Level	Subject (No. of groups)	No. of junior classes approved / senior science subject groups (a)	No. of practical periods per class / subject group per cycle (b)	No. of practical periods per class / subject group per week (Based on 40 minutes duration per period; please show the details of the conversion, if any) # Fill in average duration of each period @ Fill in number of days per teaching cycle	No. of practical periods per class / subject group per week to be used for calculation (based on 40 minutes duration per period; standard number of practical periods is 4) (c)	Subtotal of practical periods for the level per week [For S1-3: (a) x [(c)+1.3] For S4-6: (a) x (c)] (d)
S1	Science	4	4	$\underline{4}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\text{ min}}$ x $\dfrac{5\text{ days}}{(\ 5\ )^{@}\text{days}}$ = $\underline{4}$	4	4 x (4+1.3) = 21.2
S2	Science	4	4	$\underline{4}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\text{ min}}$ x $\dfrac{5\text{ days}}{(\ 5\ )^{@}\text{days}}$ = $\underline{4}$	4	4 x (4+1.3) = 21.2
S3	Science	4	4	$\underline{4}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\text{ min}}$ x $\dfrac{5\text{ days}}{(\ 5\ )^{@}\text{days}}$ = $\underline{4}$	4	4 x (4+1.3) = 21.2
S4	Physics (1) Chemistry (1) Biology (2)	4	4	$\underline{4}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\text{ min}}$ x $\dfrac{5\text{ days}}{(\ 5\ )^{@}\text{days}}$ = $\underline{4}$	4	4 x 4 = 16
S5	Physics (1) Chemistry (1) Biology (2)	4	4	$\underline{4}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\text{ min}}$ x $\dfrac{5\text{ days}}{(\ 5\ )^{@}\text{days}}$ = $\underline{4}$	4	4 x 4 = 16

Level	Subject (No. of groups)	No. of junior classes approved / senior science subject groups (a)	No. of practical periods per class / subject group per cycle (b)	No. of practical periods per class / subject group per week (Based on 40 minutes duration per period; please show the details of the conversion, if any) # Fill in average duration of each period @ Fill in number of days per teaching cycle	No. of practical periods per class / subject group per week to be used for calculation (based on 40 minutes duration per period; standard number of practical periods is 4) (c)	Subtotal of practical periods for the level per week [For S1-3: (a) x [(c)+1.3] For S4-6: (a) x (c)] (d)
S6	Physics (1) Chemistry (1) Biology (2)	4	4	$4 \times \dfrac{(40)^{\#}\,min}{40\ min} \times \dfrac{5\ days}{(5)^{@}\,days} = \underline{4}$	4	4 x 4 = 16

Total number of practical periods per week for the whole school = 111.6

(iv) Number of laboratory technicians calculated = $\dfrac{111.6}{54}$ = 2.07 (2 decimal places) = 2

(v) Proposed establishment of laboratory technicians (LTs):

LTI: 0   LT II/III: 2

Example 2 (For schools not on 5-day cycle with 40 minutes per period)

(i) Number of days per teaching cycle: (6) days

(ii) Number of science laboratories: (5)

(iii) Details about the practical periods:

Level	Subject (No. of groups)	No. of junior classes approved / senior science subject groups (a)	No. of practical periods per class / subject group per cycle (b)	No. of practical periods per class / subject group per week (Based on 40 minutes duration per period; please show the details of the conversion, if any) # Fill in average duration of each period @ Fill in number of days per teaching cycle	No. of practical periods per class / subject group per week to be used for calculation (based on 40 minutes duration per period; standard number of practical periods is 4) (c)	Subtotal of practical periods for the level per week [For S1-3: (a) x [(c)+1.3] For S4-6: (a) x (c)] (d)
S1	Science	4	5	$\underline{5}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 6\ )^{@}\text{days}}$ = $\underline{4.17}$	4	4 x (4+1.3) = 21.2
S2	Science	4	5	$\underline{5}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 6\ )^{@}\text{days}}$ = $\underline{4.17}$	4	4 x (4+1.3) = 21.2
S3	Science	4	6	$\underline{6}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 6\ )^{@}\text{days}}$ = $\underline{5}$	4	4 x (4+1.3) = 21.2
S4	Physics (2) Chemistry (2) Biology (2)	6	5	$\underline{5}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 6\ )^{@}\text{days}}$ = $\underline{4.17}$	4	6 x 4 = 24
S5	Physics (2) Chemistry (2) Biology (2)	6	5	$\underline{5}$ x $\dfrac{(\ 40\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 6\ )^{@}\text{days}}$ = $\underline{4.17}$	4	6 x 4 = 24

Level	Subject (No. of groups)	No. of junior classes approved / senior science subject groups (a)	No. of practical periods per class / subject group per cycle (b)	No. of practical periods per class / subject group per week (Based on 40 minutes duration per period; please show the details of the conversion, if any) # Fill in average duration of each period @ Fill in number of days per teaching cycle	No. of practical periods per class / subject group per week to be used for calculation (based on 40 minutes duration per period; standard number of practical periods is 4) (c)	Subtotal of practical periods for the level per week [For S1-3: (a) x [(c)+1.3] For S4-6: (a) x (c)] (d)
S6	Physics (2) Chemistry (2) Biology (2)	6	5	$5 \times \dfrac{(\ 40\ )^{\#}\min}{40\ \min} \times \dfrac{5\ \text{days}}{(\ 6\ )^{@}\text{days}} = \underline{4.17}$	4	6 x 4 = 24

Total number of practical periods per week for the whole school = 135.6

(iv) Number of laboratory technicians calculated = $\dfrac{135.6}{54}$ = 2.51 (2 decimal places) = 3

(v) Proposed establishment of laboratory technicians (LTs):

LTI: _1_   LT II/III: _2_

Example 3 **(For schools not on 5-day cycle with duration of each period not equal to 40 minutes)**

(i) Number of days per teaching cycle: (7) days

(ii) Number of science laboratories: (4)

(iii) Details about the practical periods:

Level	Subject (No. of groups)	No. of junior classes approved / senior science subject groups (a)	No. of practical periods per class / subject group per cycle (b)	No. of practical periods per class / subject group per week (Based on 40 minutes duration per period; please show the details of the conversion, if any) # Fill in average duration of each period @ Fill in number of days per teaching cycle	No. of practical periods per class / subject group per week to be used for calculation (based on 40 minutes duration per period; standard number of practical periods is 4) (c)	Subtotal of practical periods for the level per week [For S1-3: (a) x [(c)+1.3] For S4-6: (a) x (c)] (d)
S1	Science	4	5	$\underline{5}$ x $\dfrac{(\ 45\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 7\ )^{@}\text{days}}$ = $\underline{4.02}$	4	4 x (4+1.3) = 21.2
S2	Science	4	5	$\underline{5}$ x $\dfrac{(\ 45\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 7\ )^{@}\text{days}}$ = $\underline{4.02}$	4	4 x (4+1.3) = 21.2
S3	Science	4	5	$\underline{5}$ x $\dfrac{(\ 45\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 7\ )^{@}\text{days}}$ = $\underline{4.02}$	4	4 x (4+1.3) = 21.2
S4	Physics (2) Chemistry (2) Biology (2)	6	5	$\underline{5}$ x $\dfrac{(\ 45\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 7\ )^{@}\text{days}}$ = $\underline{4.02}$	4	6 x 4 = 24
S5	Physics (2) Chemistry (2) Biology (2)	6	5	$\underline{5}$ x $\dfrac{(\ 45\ )^{\#}\text{min}}{40\ \text{min}}$ x $\dfrac{5\ \text{days}}{(\ 7\ )^{@}\text{days}}$ = $\underline{4.02}$	4	6 x 4 = 24

Level	Subject (No. of groups)	No. of junior classes approved / senior science subject groups (a)	No. of practical periods per class / subject group per cycle (b)	No. of practical periods per class / subject group per week (Based on 40 minutes duration per period; please show the details of the conversion, if any) # Fill in average duration of each period @ Fill in number of days per teaching cycle	No. of practical periods per class / subject group per week to be used for calculation (based on 40 minutes duration per period; standard number of practical periods is 4) (c)	Subtotal of practical periods for the level per week [For S1-3: (a) x [(c)+1.3] For S4-6: (a) x (c)] (d)
S6	Physics (2) Chemistry (2) Biology (2)	6	5	$5 \times \dfrac{(\ 45\ )^{\#}\min}{40\ \min} \times \dfrac{5\ \text{days}}{(\ 7\ )^{@}\text{days}} = \underline{4.02}$	4	6 x 4 = 24

					Total number of practical periods per week for the whole school =	135.6

(vi) Number of laboratory technicians calculated = $\dfrac{135.6}{54}$ = __2.51__ (2 decimal places) = __3__

(vii) Proposed establishment of laboratory technicians (LTs):

   LTI: __1__   LT II/III: __2__