

10. In testing a sample of spirits the temperature was found to be 60°, hydrometer indication 34.2, and another sample, temperature 55°, hydrometer indication 20.8, what would be the strength of each, and the difference in proof gallons between 100 wine gallons of the former and 98 of the latter ?

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No. 7.

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STOCK TAKING.—GRAIN.

*Time.—2 hours.*

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1. A rectangular bin full of malt, with the exception of the space occupied in one corner by a hopper which is empty. Dimensions of bin, opposite sides 148 in., ends 114 in., depth 8 ft. 6 in.; the hopper is at the top 45 in. by 40 in., and at the bottom 10 by 3 in., and of the same depth as the bin, two of its adjacent sides being formed by the side and end of the bin, and the other two sloping from the top to the bottom, as indicated by the dimensions above given. A measure of 1,000 cubic inches is found to weigh 16lb. How many centals of malt are there in the bin—to two places of decimals ?

2. The stock of Indian corn is found thrown up against the end wall of a granary 27 feet 6 inches in width. It extends along the side walls at the base 20 feet, within which dimensions it is confined by boards running across the granary parallel to the end wall to the height of 4 feet. From the top of these boards the grain slopes evenly up to the height of 10 feet against the end wall. A measured sample of 1,000 cubic inches weighs 28lb. What is the aggregate quantity ?

3. In addition to a bin containing 137.37 centals, there is a further lot of rye thrown up the corner of the granary as follows: At the base it extends 30 feet along either wall and is confined by boards to the height of 4 feet, from the top of which it slopes evenly back to the top of the pile which is levelled off at 148 inches from the floor. At the top it extends six feet along either wall. A sample weighs 26lbs., to the 1,000 cubic inches. How many centals of rye are there in all ?

4. A bin containing oats weighing 16 lbs. to the 1,000 cubic inches is of the following dimensions:—10 feet long, 8 feet 4 inches wide, and 85 inches in depth. State the aggregate quantity in bin ?

5. There were found piled up in a corner of the granary 19 barrels, each having a capacity of 50 Imperial gallons which had been temporarily filled with wheat. A sample weighed 28 lbs. to the 1,000 cubic inches. State the aggregate quantity ?

6. In addition to the above, a quantity of mill offal was found to weigh 8,347 lbs., which, with the above, completed the entire stock of grain.

*NOTE.*—The candidate is required to take a memorandum of the results of these computations, in order that he may enter them as the actual stock on hand after writing up the Grain Stock Book, which will be the subject of a succeeding paper.