

# AMINES AND UREA 1.

09-05-2020 Lecture-9(Last) Deg-I (H)

## TOPIC - ESTIMATION OF UREA

There are two standard methods for estimation of Urea :-

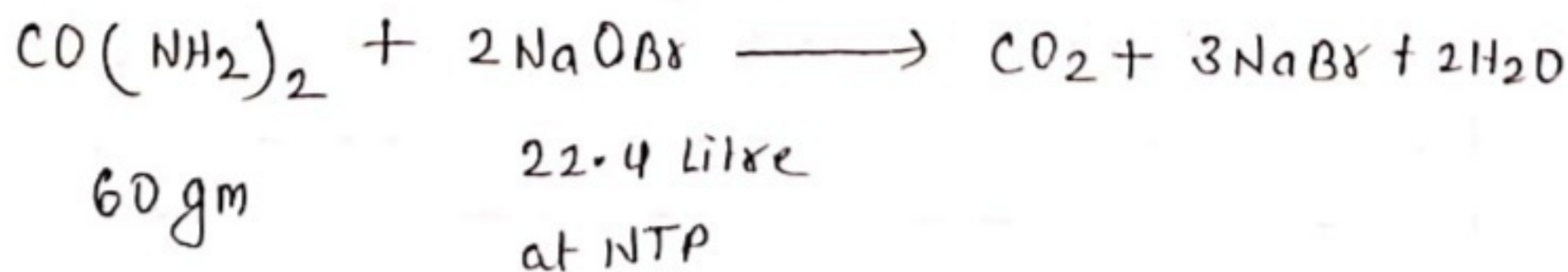
1. The Hypobromite Method.
2. The Urease Method.

### 1. Hypobromite Method

This method of determination of urea, whether in a crude solid sample or urine is very rapid and sufficiently accurate for medical requirements.

A known volume of urine (or urea solution)

is treated with sodium hypobromite solution containing excess of sodium hydroxide.



2.

The  $\text{CO}_2$  is absorbed by  $\text{NaOH}$  and the volume of nitrogen evolved measured in the nitrometer.

As shown by the chemical eq. 22.4 litre of nitrogen at NTP are produced by 60 g of urea.

Therefore, the amount of urea in 'x' ml of urine taken,

$$= \left( \frac{60}{22,400} \times x \right) \text{ gm}$$

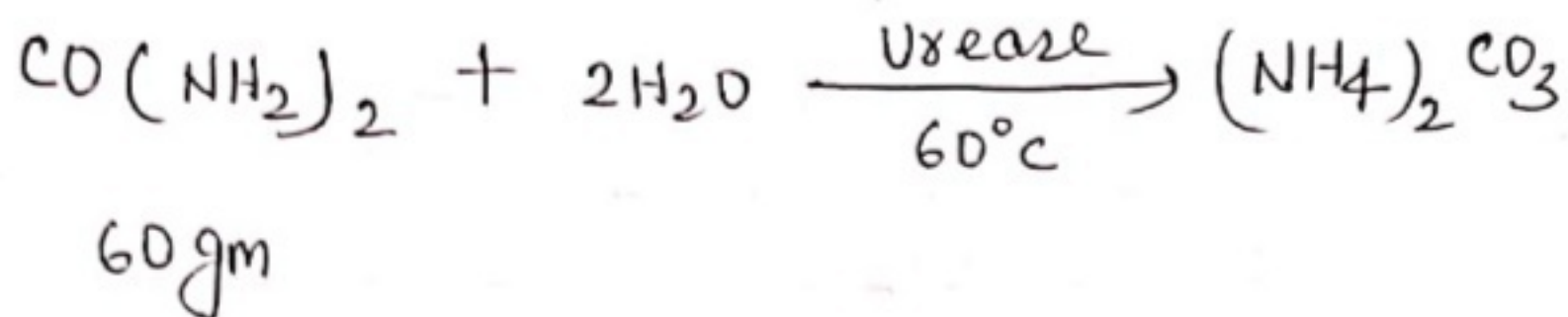
**Hypobromite Method Completed.**

## 2. UREASE METHOD

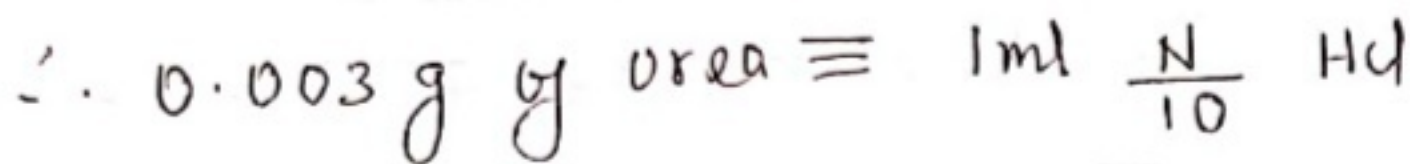
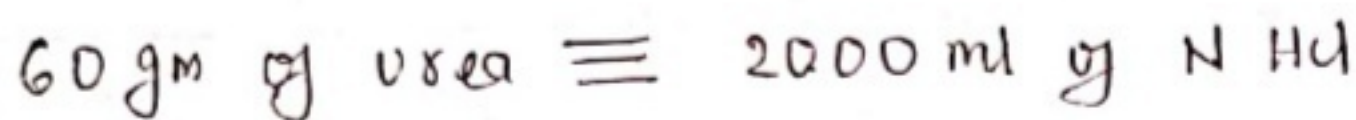
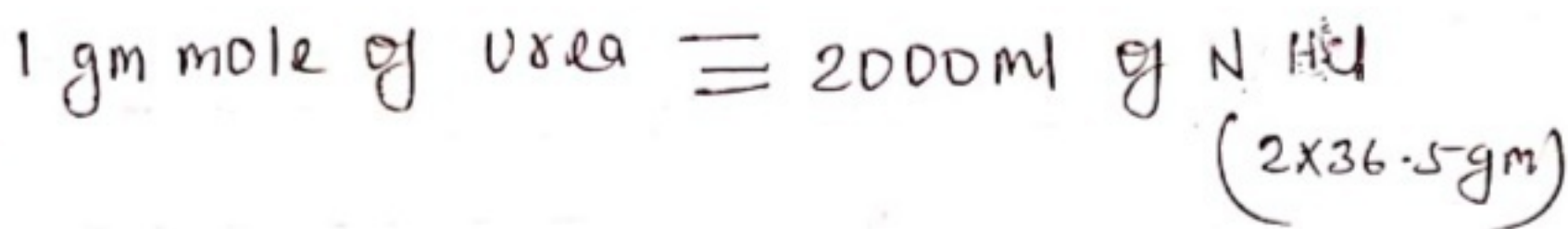
This method of estimating urea is more accurate than the hypobromite method and is extensively used.

It is based on the conversion of urea to ammonium carbonate by hydrolysis with urease (soya bean extract).

The ammonium carbonate solution so produced is estimated by titration with  $\text{N}/10 \text{ HCl}$ .

**3.**

From the vol. of  $\frac{N}{10}$  HCl used by a known weight of the sample, the amount of Urea in it can be calculated.



**Urease Method  
Completed.**

**AMINES AND UREA  
D-I (H&S) COMPLETED.**

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