1.The purpose of fixation is to preserve tissues permanently.Fixation should be carried out as soon as possible after removal of the tissues (in the case of surgical pathology) or soon after death (with autopsy) to prevent autolysis. It terminates any ongoing biochemical reactions and may also increase the treated tissues' mechanical strength or stability. Its purpose also includes preserving cells and tissue components and to do this in such a way as to allow for the preparation of thin, stained sections. This allows the investigation of the tissues' structure, which is determined by the shapes and sizes of such macromolecules (in and around cells) as proteins and nucleic acids. Fixatives also denature proteins by combination of coagulation and additive processes.

2(A)Phosphate buffered formalin
Formulation:
40% formaldehyde: 100 ml
Distilled water: 900 ml
Sodium dihydrogen phosphate monohydrate: 4 g
Disodium hydrogen phosphate anhydrous 6.5 g
The solution should have a pH of 6.8
Fixation time: 12 – 24 hours
(B)Formal calcium
Formulation:
40% formaldehyde: 100 ml
Calcium chloride: 10 g
Distilled water: 900 ml
Fixation time: 12 – 24 hours
(C)Zenker's fixative
Formulation:
Distilled water: 950 ml
Mercuric chloride: 50 g
Potassium dichromate: 25 g
Glacial acetic acid: 50 ml
Fixation time: 4 – 24 hours
(D)Alcoholic formalin
Formulation:
40% Formaldehyde: 100 ml
95% Ethanol: 900 ml
0.5 g calcium acetate can be added to ensure neutrality
Fixation time: 12 - 24 hours
(E)Zinc formalin (unbuffered)
Formulation:
Zinc sulphate: 1 g
Deionised water: 900 ml
Stir until dissolved then add –
40% formaldehyde: 100 ml
Fixation time: 4 – 8 hours