SECTION - 1

Q1 GVF :- Gradually varied flow is if the depth of flow in a channel changes gradually over a long length of channel than the flow is said to be gradually varied flow.

RVF :- Rapidly varied flow ~~is when some flow is added or so~~
if the depth of flow changes suddenly over a small length of channel than the flow is said to be rapidly varied flow.

2. Critical depth: Critical depth is defined as that depth of flow of water at which the specific energy is minimum, this is denoted by 'Y_c' Hence

Critical depth for rectangular channel is

$$Y_c = \left(\frac{q^2}{g}\right)^{1/3}$$

3. Flow Profile: Water surface profile are classified using the value of bed slope, normal depth and critical depth, flow profile are divided into 5 categories depending on the bed slope:

1. Horizontal slopes
2. Mild slope
3. Critical slope
4. Steep slope
5. Adverse slopes.

4. Draft Tube:

(i) A tube or pipe of gradually increasing area is used for discharge water from exit of turbine to the trail race. This tube of increasing area is called draft tube.

(ii) The primary function of the draft tube is to minimise the velocity of discharge thus, minimizing the loss of kinetic energy at the outlet.