# INDIAN SCHOOL MUSCAT
## SENIOR SECTION
## DEPARTMENT OF ENGINEERING GRAPHICS
## CLASS XII

### UNIT-3 FREE HAND SKETCHING

1. Sketch freehand the Front view and Top view of a **Plain stud** of diameter = 20mm, keeping its axis vertical.

2. Sketch free hand the Front view and Side view of a **collar stud** with diameter 20 mm, when its axis is parallel to V.P and H.P. Give standard dimensions.

3. Sketch free hand the Front view and Side view of a **stud with square neck** with diameter 20 mm, when its axis is parallel to V.P and H.P. Give standard dimensions

4. Sketch freehand the Front view and Top view of a **snap head rivet** of diameter 20mm, keeping its axis vertical. Give standard dimensions.

5. Sketch freehand the front view and top view of a **pan head rivet** of diameter 30mm, keeping its axis vertical. Give standard dimensions.

6. Sketch freehand the front view and top view of a **60 ° csk  head rivet** of diameter 20mm, keeping its axis vertical. Give standard dimensions.

7. Sketch freehand the front view and top view of a **flat head rivet** of diameter 300mm, keeping its axis vertical. Give standard dimensions.

8. Sktech freehand the **conventional representation** of internal and external   V threads. (take P=50 mm)