## SECTION: II

**Q. 4 Answer the following.**

**(A) Attempt any five.** **(10)**

(1) Sketch the different types of rake angles used in single point cutting tool. Discuss the applications of each.

(2) Sketch the broach tool and show the various elements of it.

(3) Differentiate between piercing and blanking.

(4) Distinguish clearly between Ra and Rz.

(5) State advantage of expert system.

(6) Enlist the factors affecting strip layout for blanking operation.

**(B)** **(10)**

(1) Derive the expression for minimum diameter of the hole that can be pierced.

(2) Derive the equation of tooth thickness at the pitch line by using gear tooth vernier caliper.

**Q. 5 Attempt any three.** **(18)**

(1) Design and draw single point cutting tool assuming empirical proportions to turn a mild steel bar with a linear cutting speed of 40 m/min, on a lathe equipped with a 10 KW motor. Safe stress for tool material is 250 MPa and efficiency of the machine tool is 70 %.

(2) Explain the graphical method for determining the outside diameter of a circular form tool with positive rake angle.