QP Code :14852

(3 Hours) [Total Marks : 80

N. B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **three** questions out of the remaining five questions.
(3) Assume suitable data, if necessary.
(4) **Figures** to the **right** indicate **full** marks.

1. Explain briefly :– 20
   (a) With a neat sketch explain ORS system of tool nomendature.
   (b) Marchants circle diagram.
   (c) Wear mechanisms of cutting tools.
   (d) Taylor's Tool life equation.

2. (a) Derive an expression for optimum cutting speed and optimum tool life for 12
       (i) Maximum Production Rate
       (ii) Minimum Production Cost
   (b) Explain in brief "Chip Breaker Design" for single point cutting tools. 8

3. (a) Differentiate between the following 10
       (i) Orthogonal cutting & oblique cutting
       (ii) Cardide tool material & HSS material
   (b) Explain the procedure of spline broach design; assume suitable data. 10

4. (a) Explain the design procedure of 15
       (i) Twist Drill
       (ii) Design of serial Taps.
   (b) What are the functions of cutting fluids? And what are its desired properties. 5
   Explain briefly.

5. (a) Write a note on Drilling Dynamometers. 6
   (b) Write a note on types of gear milling cutters. 6
   (c) Explain the construtional details of circular and flat form tools. 8

6. Write short notes on (any **four**) :– 20
   (a) Design of Reamer
   (b) Surface finish
   (c) Web Thining of Twist drill
   (d) Specific Power consumption in machining
   (e) Gear Hob

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