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**BTECH**  
**(SEM VI) THEORY EXAMINATION 2023-24**  
**TOOL DESIGN**

**TIME: 3 HRS****M.MARKS: 100****Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.**

a.	Describe rake angle.	02
b.	Write the name of different milling cutters.	02
c.	Write the applications of jigs and fixtures.	02
d.	Explain clamping devices.	02
e.	What do you understand by punching and blanking?	02
f.	Describe spring back effect.	02
g.	Define core and core print.	02
h.	What is the function of riser?	02
i.	Write the requirements of a control system of a machine tool.	02
j.	What are the component of CNC machine?	02

**SECTION B****2. Attempt any three of the following:**

a.	Draw and explain the nomenclature of single point cutting tool using machine reference system.	10
b.	What is Drill Jig Bush? Explain the different types of Jigs?	10
c.	Describe the different types of bending dies.	10
d.	Write a short note on: compression dies, transfer dies, blow moulding dies, extrusion dies.	10
e.	Explain the speed and feed changing system with simple centralized control.	10

**SECTION C****3. Attempt any one part of the following:**

a.	Explain the twist drill geometry with neat sketches and label the important features.	10
b.	What are the different types of chips formed during metal cutting? Explain in detail with neat diagram.	10

**4. Attempt any one part of the following:**

a.	Describe the different types of clamps used in jigs and fixtures with neat sketch.	10
b.	Explain the concept of location. What do you understand by the 1-2-3 principle of location?	10

**5. Attempt any one part of the following:**

a.	What are the different dies used in sheet metal operation? Explain the progressive dies in detail.	10
b.	Determine the die and punch sizes for blanking a circular disc of 20 mm diameter from a steel sheet whose thickness is 1.5mm. If shear strength of steel is 294 MPa then calculate the Punching and Stripping force.	10

**6. Attempt any one part of the following:**

a.	Differentiate between hot chamber and cold chamber die casting in detail.	10
b.	What are the different elements of a gating system? Explain in detail.	10

**7. Attempt any one part of the following:**

a.	Write the function of guideways. Describe the hydrodynamic and antifriction Guideways in detail.	10
b.	What are the factors considering for reduction in Vibration in machine tools.	10