GUJARAT TECHNOLOGICAL UNIVERSITY

DI -5 SEMESTER – OLD PAPER – W23 TO S25 – QUESTION BANK(English)

Subject Name & Code:

Tool Engineering- 4351905

Unit I: Introduction

Repeated Questions:

1. **Define Tool, Tool Design, and Tool Engineering.**
    - Appeared in: **W23 (Q1a, 03 marks)**, **S24 (Q1a, 03 marks)**
2. **Explain the concept and meaning of Tool design.**
    - Appeared in: **W24 (Q1a, 03 marks)**
3. **"Tool engineering enhances the productivity and quality of industry". Justify this statement with suitable example.**
    - Appeared in: **S24 (Q1b, 04 marks)**
4. **State the properties of cutting tool materials.**
    - Appeared in: **W23 (Q1b, 04 marks)**
5. **Classify the cutting tool materials.**
    - Appeared in: **W24 (Q2e, 03 marks)**
6. **Write Short note on cemented carbide.**
    - Appeared in: **W24 (Q1b, 03 marks)**
7. **State the composition, properties and applications of cemented carbide as a tool material.**
    - Appeared in: **S24 (Q1c-i, Part of 07 marks)**
8. **As a tool engineer, enlist main suitable criteria for selection of tool materials.**
    - Appeared in: **S24 (Q1c-i, Part of 07 marks - OR)**
9. **Enlist ISO designation for carbide inserts with material's types.**
    - Appeared in: **S24 (Q1c-ii, Part of 07 marks - OR)**
10. **What is the importance of process planning in tool engineering.**
    - Appeared in: **W23 (Q1c, 07 marks)**
11. **Write procedure of process planning.**

- Appeared in: **W24 (Q5a, 03 marks - OR)**, **S25 (Q5a, 03 marks - OR)**

12. **If you are working as a tool engineer in large scale industry, list out duties which will be performed by you.**
    - Appeared in: **S24 (Q2a, 03 marks)**
13. **What are the duties of tool engineer? How do they solve the problems?**
    - Appeared in: **W23 (Q2b, 04 marks - OR)**

Other Important Questions:

1. **Differentiate between machine tools and cutting tools.**
    - Appeared in: **S25 (Q1a, 03 marks)**
2. **Explain ceramic cutting tool material.**
    - Appeared in: **S25 (Q1b, 04 marks)**
3. **State the applications & limitations of High speed steel tool material.**
    - Appeared in: **S25 (Q3a, 03 marks)**
4. **Enlist cutting tool materials.**
    - Appeared in: **W23 (Q2a, 03 marks - OR)**
5. **Enlist steps of resharpening for end mill cutter.**
    - Appeared in: **S24 (Q1c-ii, Part of 07 marks)**

Unit II: Cutting tools and tool holders

Repeated Questions:

1. **Draw single point cutting tool geometry.**
    - Appeared in: **W24 (Q1c, 03 marks)**, **S25 (Q1c, 07 marks - OR)**
2. **Draw tool geometry of twist drill.**
    - Appeared in: **W24 (Q2c, 03 marks)**, **S25 (Q5c, 07 marks - OR)**
3. **Draw tool geometry of milling cutter.**
    - Appeared in: **W24 (Q5c, 07 marks - OR)**, **S25 (Q2c, 07 marks)**
4. **Explain Re-sharpening for a twist drill.**
    - Appeared in: **W23 (Q1c, 07 marks - OR)**
5. **Explain Re-sharpening method of milling cutter and Gear hob.**
    - Appeared in: **W24 (Q1d, 04 marks)**
6. **Explain the method of tool holding and tool mounting on drilling machine.**
    - Appeared in: **S25 (Q1c, 07 marks)**

Other Important Questions:

1. **Explain ceramic cutting tool material.**
    - Appeared in: **S25 (Q1b, 04 marks)**
2. **State the applications & limitations of High speed steel tool material.**
    - Appeared in: **S25 (Q3a, 03 marks)**

Unit III: Locating and clamping devices

Repeated Questions:

1. **Explain 3-2-1 principle of Location.**
    - Appeared in: **W23 (Q3b, 04 marks - OR)**, **W24 (Q2b, 03 marks)**, **S25 (Q2b, 04 marks)**
2. **Explain clamping principles.**
    - Appeared in: **W23 (Q2a, 03 marks)**
3. **List types of locators and explain any one of them.**
    - Appeared in: **W23 (Q2b, 04 marks)**
4. **Explain any one Locator with neat sketch.**
    - Appeared in: **W24 (Q2e, 03 marks)**
5. **List types of clamps and explain any one with figure.**
    - Appeared in: **W23 (Q2c, 07 marks)**
6. **Explain any one Clamping Device with neat sketch.**
    - Appeared in: **W24 (Q1e, 03 marks)**, **S25 (Q2a, 03 marks - OR)**
7. **Explain ejecting and Fool proofing with neat sketches.**
    - Appeared in: **W23 (Q2c, 07 marks - OR)**
8. **Write short note on ejecting device.**
    - Appeared in: **W24 (Q2b, 04 marks)**, **S25 (Q3b, 04 marks)**

Other Important Questions:

1. **Explain following terms: (i) Fool proofing (ii) loading & unloading.**
    - Appeared in: **S25 (Q2a, 03 marks)**

Unit IV: Jigs and fixtures

Repeated Questions:

1. **Define jig and fixture.**
    - Appeared in: **W23 (Q3a, 03 marks - OR)**
2. **State general principles of jigs and fixtures.**
    - Appeared in: **W23 (Q3a, 03 marks)**
3. **Differentiate between Jigs and Fixtures.**
    - Appeared in: **W23 (Q3b, 04 marks)**, **W24 (Q3b, 04 marks)**, **S25 (Q2b, 04 marks - OR)**
4. **Explain any one Fixture with neat sketch.**
    - Appeared in: **W23 (Q3c, 07 marks)**, **W24 (Q2c, 07 marks)**, **S25 (Q2c, 07 marks - OR)**
5. **List different types of fixtures and explain Milling fixtures with figure.**
    - Appeared in: **W23 (Q3c, 07 marks - OR)**
6. **State different types of Jig bushes and explain any one with neat sketch.**
    - Appeared in: **W24 (Q3b, 04 marks)**, **S25 (Q3b, 04 marks - OR)**
7. **Describe the procedure of designing a channel jig with neat sketch.**
    - Appeared in: **W24 (Q3c, 07 marks)**, **S25 (Q3c, 07 marks - OR)**
8. **Describe the procedure of designing a Box jig with neat sketch.**
    - Appeared in: **W24 (Q3c, 07 marks - OR)**
9. **Describe the procedure of designing a Leaf jig with neat sketch.**
    - Appeared in: **S25 (Q3c, 07 marks)**

Other Important Questions:

1. **Explain Plug gauge.**
    - Appeared in: **S25 (Q3a, 03 marks - OR)**

Unit V: Press tools

Repeated Questions:

1. **Define Following press operation (1) Blanking (2) Punching (3) Lancing.**
    - Appeared in: **W24 (Q4a, 03 marks)**
2. **Define Following press operation (1) Perforating (2) Piercing (3) Notching.**
    - Appeared in: **S25 (Q4a, 03 marks)**
3. **Explain following press operations in brief. (1) Punching (2) Trimming (3) Embossing (4) Blanking.**
    - Appeared in: **S24 (Q2b, 04 marks)**
4. **Write Short note on press working.**
    - Appeared in: **W24 (Q4b, 04 marks)**, **S25 (Q4b, 04 marks)**
5. **Explain (a) Scrap strip layout (b) percentage Stock Utilization with suitable example.**
    - Appeared in: **W24 (Q4c, 07 marks)**, **S25 (Q4c, 07 marks)**
6. **Explain with figures shear action in die cutting operation.**
    - Appeared in: **W23 (Q4c, 07 marks - OR)**
7. **Define press tonnage, shut height of press tool and shut height of die.**
    - Appeared in: **W23 (Q4a, 03 marks)**
8. **Explain (a) Tonnage Capacity (b) Centre of Pressure with suitable example.**
    - Appeared in: **W24 (Q4c, 07 marks - OR)**, **S25 (Q4c, 07 marks - OR)**
9. **List the method to determine center of pressure and explain any one of them.**
    - Appeared in: **W23 (Q4b, 04 marks)**
10. **Find the Centre of Pressure for the blank shown in fig.**
    - Appeared in: **S25 (Q4b, 04 marks - OR)**
11. **Write short note on centre of pressure.**
    - Appeared in: **W24 (Q4b, 04 marks - OR)**
12. **State the reason for using pilot.**
    - Appeared in: **W24 (Q4a, 03 marks - OR)**
13. **Explain with figure working of any type of pilots.**
    - Appeared in: **W23 (Q4b, 04 marks - OR)**
14. **Classify strippers and state its functions.**
    - Appeared in: **S25 (Q4a, 03 marks - OR)**

15. **Explain with figure working of any type of strippers.**
    - Appeared in: **W23 (Q4a, 03 marks - OR)**

Other Important Questions:

1. **Design a progressive cutting die, for a component shown in Figure... a) Prepare scrap strip layout and find maximum % utilization. b) Draw dimensional sketches of punch & die.**
    - Appeared in: **S24 (Q2c, 07 marks)**

Unit VI: Dies, moulds & limit gauges

Repeated Questions:

1. **Give classification of Limit gauges.**
    - Appeared in: **W23 (Q5a, 03 marks)**, **W24 (Q3a, 03 marks)**
2. **Explain Taylor's principle of gauge design.**
    - Appeared in: **W23 (Q5c, 07 marks - OR)**, **W24 (Q5c, 07 marks)**, **S25 (Q5c, 07 marks - OR)**
3. **What are the advantages and disadvantages of Limit Gauges.**
    - Appeared in: **W23 (Q5c, 07 marks)**
4. **Explain with figure working of Bending dies.**
    - Appeared in: **W23 (Q5b, 04 marks)**
5. **Explain with figure working of Drawing dies or curling dies.**
    - Appeared in: **W23 (Q5b, 04 marks - OR)**
6. **Explain drawing die with neat sketch.**
    - Appeared in: **W24 (Q5b, 04 marks - OR)**, **S25 (Q5b, 04 marks - OR)**
7. **Explain Embossing die with neat sketch.**
    - Appeared in: **W24 (Q5b, 04 marks)**
8. **Define bend radii, bend allowance and spring back.**
    - Appeared in: **W23 (Q5a, 03 marks - OR)**
9. **List of factors to be considered in selection of gauge.**
    - Appeared in: **W24 (Q5a, 03 marks)**
10. **State the criteria for selection of gauge material.**
    - Appeared in: **S25 (Q5a, 03 marks)**

Other Important Questions:

1. **Differentiate between Compound die & Progressive die.**
    - Appeared in: **S25 (Q5b, 04 marks - OR)**

****