Q.29 What is the significance of estimation methods in tool design and application?

Q.30 Explain the significance of personal safety in die maintenance activities.

Q.31 Discuss the principle of material selection and its significance in tool design.

Q.32 Explain the concept of the 3-2-1 pin principle of location in jigs and fixtures.

Q.33 What are the principles of locating elements, clamping elements, and guiding elements in jigs and fixtures?

Q.34 What are the key design parameters considered in the development of limit gauges?

Q.35 Explain the principle of maximum and minimum material condition in limit gauge design.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Discuss the principles of plastic deformation and forming, including the role of clearance and the phenomenon of spring back, in press tool non-cutting operations.

Q.37 Compare and explain the design considerations for press tool elements between shearing, bending, and drawing operations, highlighting the differences in material selection, geometric tolerances, and construction features.

Q.38 Explain the role of jigs and fixtures in the manufacturing process and discuss their applications in improving productivity and quality. Also Explain the process of analyzing steps in designing jigs and fixtures

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Roll No. .....

2nd Year/Branch : Advance Diploma
In Tool and Die Making
Subject:- Tool Design Theory-I
(Press Tool, Jigs & Fixture)

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 What is the primary purpose of press tools in the mass production of sheet material components?
a) Design aesthetics
b) Material testing
c) Production efficiency
d) Component finishing

Q.2 Which industry commonly uses sheet material components in mass production?
a) Automotive b) Fashion
c) Food d) Entertainment

Q.3 What is the primary function of press tools in cutting operations?
a) Bending metal sheets
b) Forming metal parts
c) Cutting metal sheets
d) Joining metal components

Q.4 What does die and punch clearance refer to in press tools?
a) Distance between the die and punch
b) Material thickness
c) Lubrication used in the process
d) Speed of the press machine

Q.5 Which classification of non-cutting dies involves bending metal sheets?
a) Blanking dies b) Drawing dies
c) Forming dies d) Spring back dies

Q.6 Design parameters for bending include:
a) Material thickness b) Bend radius
c) Die width d) All of the above

Q.7 Drawing operations are essential for forming:
a) Cups b) Bolts
c) Springs d) None of the above

Q.8 What is the primary factor considered when selecting a press for a specific application?
a) Color b) Size
c) Weight d) Tonnage requirement

Q.9 What is the primary function of material feeding and scrap handling equipment in press operation?
a) Enhancing press speed
b) Ensuring operator safety
c) Facilitating efficient material handling
d) Providing decorative finishes

Q.10 Estimation methods in tool design and application primarily aim to:
a) Increase material cost
b) Decrease machine utilization
c) Optimize production efficiency
d) Complicate the manufacturing process

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Hydraulic presses are favored for high-volume production due to their_____and efficiency.

Q.12 In mass production, presses are commonly used for_____Sheet Metal and forming it into desired configurations

Q.13 Press tools are classified based on their function, including_____ operations.

Q.14 Press tool cutting operations involve the use of_____ to shape and separate metal sheets.

Q.15 The concept of_____ involves the tendency of metal to return to its original shape after bending or forming

Q.16 Bending operations are commonly used in the production of_____.

Q.17 Drawing operations are essential for forming_____

Q.18 _____principle is utilized in gravity-based material feeding equipment.

Q.19 Die maintenance, safety, and storage procedures aim to ensure machine longevity and operator_____.

Q.20 The 3-2-1 pin concept of location in jigs and fixtures refers to a specific method of locating work_____.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Define sheet material and provide an example of its use.

Q.22 Explain the concept of press tools in the context of mass production.

Q.23 Explain the concept of die and punch clearance in press tool operations.

Q.24 What are the consequences of inadequate die and punch clearance in press tool cutting operations? Explain in brief.

Q.25 What are the two main classifications of integrated dies?

Q.26 Explain the concept of shut height in presses and its significance in press tool operations.

Q.27 What factors are considered when selecting a press for a specific application?

Q.28 What factors are considered in selecting material feeding and scrap handling equipment?