

Production Engineering

1. The main objective of production planning is:

- (A) Minimizing cost
- (B) Maximizing output
- (C) Efficient resource utilization
- (D) All of these

Answer: D) All of these

2. The process of removing material from a workpiece to give it a desired shape is called:

- (A) Casting
- (B) Machining
- (C) Forging
- (D) Rolling

Answer: B) Machining

3. In casting, the cavity into which molten metal is poured is called:

- (A) Mold
- (B) Pattern
- (C) Core
- (D) Sprue

Answer: A) Mold

4. The most common metal joining process is:

- (A) Welding
- (B) Brazing
- (C) Soldering
- (D) Riveting

Answer: A) Welding

5. The tool used for cutting internal threads is:

- (A) Drill
- (B) Tap
- (C) Die
- (D) Reamer

Answer: B) Tap

6. The allowance given for shrinkage in pattern making is called:

- (A) Machining allowance
- (B) Shrinkage allowance
- (C) Draft allowance
- (D) Distortion allowance

Answer: B) Shrinkage allowance

7. Which is a mass production system?

- (A) Assembly line
- (B) Job shop
- (C) Batch production
- (D) Project production

Answer: A) Assembly line

8. Lean manufacturing aims to:

- (A) Increase waste
- (B) Eliminate waste
- (C) Reduce quality
- (D) Increase inventory

Answer: B) Eliminate waste

9. The process of heat treating steel to increase hardness is:

- (A) Annealing

- (B) Tempering
- (C) Hardening
- (D) Normalizing

Answer: C) Hardening

10. In lathe operation, reducing the diameter of a workpiece is called:

- (A) Facing
- (B) Turning
- (C) Drilling
- (D) Tapering

Answer: B) Turning

11. The process of surface finishing without using abrasives is called:

- (A) Honing
- (B) Lapping
- (C) Burnishing
- (D) Polishing

Answer: C) Burnishing

12. The process of joining metals using a non-ferrous filler metal below 450°C is:

- (A) Welding
- (B) Soldering
- (C) Brazing
- (D) Riveting

Answer: B) Soldering

13. The casting process suitable for making hollow pipes is:

- (A) Centrifugal casting
- (B) Investment casting
- (C) Die casting
- (D) Sand casting

Answer: A) Centrifugal casting

14. The primary cutting motion in milling is:

- (A) Rotary motion of tool
- (B) Linear motion of work
- (C) Linear motion of tool
- (D) Volumetric motion of table

Answer: A) Rotary motion of tool

15. Jigs are used for:

- (A) Guiding the tool
- (B) Holding workpiece
- (C) Both A and B
- (D) Only measuring

Answer: C) Both A and B

16. The process of making large sheets into smaller workpieces is:

- (A) Punching
- (B) Blanking
- (C) Shearing
- (D) Coining

Answer: C) Shearing

17. In powder metallurgy, the process of compaction is followed by:

- (A) Melting
- (B) Sintering
- (C) Quenching
- (D) Forging

Answer: B) Sintering

18. The tool used for making holes in sheet metal is:

- (A) Reamer
- (B) Drill bit
- (C) Punch
- (D) Chisel

Answer: C) Punch

19. The main function of fixture is to:

- (A) Guide the tool
- (B) Locate and hold workpiece
- (C) Measure dimensions
- (D) Supply coolant

Answer: B) Locate and hold workpiece

20. The type of production which manufactures standardized products on a large scale is:

- (A) Job production
- (B) Batch production
- (C) Mass production
- (D) Project production

Answer: C) Mass production

21. The basic raw material for glass production is:

- (A) Quartz
- (B) Alumina
- (C) Silica sand
- (D) Feldspar

Answer: C) Silica sand

22. In sheet metal work, a hem is:

- (A) Groove on edge
- (B) Fold on edge
- (C) Hole on edge

(D) Cut on edge

Answer: B) Fold on edge

23. In forging, the metal is shaped by:

(A) Bending

(B) Hammering or pressing

(C) Cutting

(D) Drawing

Answer: B) Hammering or pressing

24. The tool used in reaming is:

(A) Chisel

(B) File

(C) Reamer

(D) Tap

Answer: C) Reamer

25. The main function of a core in casting is to:

(A) Form the cavity

(B) Form holes in casting

(C) Retain shape of casting

(D) Provide shape

Answer: B) Form holes in casting

26. The process to remove burrs from metal parts is:

(A) Grinding

(B) Deburring

(C) Polishing

(D) Drilling

Answer: B) Deburring

27. The technique that helps in smooth material flow and continuous improvement is:

- (A) Lean manufacturing
- (B) Benchmarking
- (C) CAD/CAM
- (D) Concurrent engineering

Answer: A) Lean manufacturing

28. The main product of cupola furnace is:

- (A) Wrought iron
- (B) Cast iron
- (C) Stainless steel
- (D) Pig iron

Answer: B) Cast iron

29. The machine that produces gears is called:

- (A) Lathe
- (B) Milling machine
- (C) Gear shaper
- (D) Drilling machine

Answer: C) Gear shaper

30. The joining process using high heat and melting base metal is:

- (A) Welding
- (B) Soldering
- (C) Brazing
- (D) Adhesive bonding

Answer: A) Welding

31. The process to improve ductility and relieve internal stresses in metal is:

- (A) Hardening
- (B) Annealing

(C) Tempering

(D) Quenching

Answer: B) Annealing

32. The operation of removing layers from a large forging is called:

(A) Chipping

(B) Machining

(C) Grinding

(D) Planning

Answer: A) Chipping

33. The term "line balancing" is related to:

(A) Assembly line production

(B) Machine design

(C) Material testing

(D) Surface finishing

Answer: A) Assembly line production

34. The number of cutting edges in a standard twist drill is:

(A) 1

(B) 2

(C) 4

(D) 6

Answer: B) 2

35. The process of obtaining flat surfaces from rolled sheets is called:

(A) Leveling

(B) Rolling

(C) Straightening

(D) Blanking

Answer: C) Straightening

36. The operation to cut internal screw threads is done by:

- (A) Die
- (B) Tap
- (C) Milling cutter
- (D) File

Answer: B) Tap

37. The die casting process uses:

- (A) Permanent metal molds
- (B) Sand molds
- (C) Wax molds
- (D) Ceramic molds

Answer: A) Permanent metal molds

38. The most common type of abrasive used in grinding wheels is:

- (A) Silicon carbide
- (B) Aluminum oxide
- (C) Boron carbide
- (D) Glass

Answer: B) Aluminum oxide

39. The phase where design changes are implemented in product development is:

- (A) Concept phase
- (B) Launch phase
- (C) Production phase
- (D) Development phase

Answer: D) Development phase

40. Material handling systems are designed to:

- (A) Minimize cost

- (B) Reduce damage
- (C) Maximize efficiency
- (D) All of these

Answer: D) All of these

41. The process of cutting out a piece from a metal sheet is known as:

- (A) Blanking
- (B) Punching
- (C) Piercing
- (D) Notching

Answer: A) Blanking

42. The device that applies force for pressing sheet metal into dies is:

- (A) Press
- (B) Lathe
- (C) Shaper
- (D) Grinder

Answer: A) Press

43. The system used in flexible manufacturing is:

- (A) Robot
- (B) Conveyor
- (C) CNC machine
- (D) All of these

Answer: D) All of these

44. The feeding device for automatic welding is called:

- (A) Wire feeder
- (B) Trolley
- (C) Chuck
- (D) Spool

Answer: A) Wire feeder

45. The main advantage of CNC machines is:

- (A) Low accuracy
- (B) High productivity
- (C) Hard programming
- (D) Manual control

Answer: B) High productivity

46. The process of applying threads on bolts is:

- (A) Tapping
- (B) Thread cutting
- (C) Thread rolling
- (D) Rolling

Answer: C) Thread rolling

47. Machine tools are used for:

- (A) Cutting metals
- (B) Shaping materials
- (C) Finishing operations
- (D) All of these

Answer: D) All of these

48. ISO 9001 is related to:

- (A) Product design
- (B) Quality Management System
- (C) Environmental safety
- (D) Worker safety

Answer: B) Quality Management System

49. The process of removing stock by feeding the work against a rotating cutter is:

- (A) Drilling
- (B) Milling
- (C) Turning
- (D) Reaming

Answer: B) Milling

50. The process operation for smoothing surfaces to fine tolerances is:

- (A) Planing
- (B) Grinding
- (C) Polishing
- (D) Lapping

Answer: D) Lapping

51. In forging, the temperature of billet is generally:

- (A) Room temperature
- (B) Above recrystallization temperature
- (C) Below recrystallization temperature
- (D) Frozen

Answer: B) Above recrystallization temperature

52. The process that uses wax pattern and ceramic shell is:

- (A) Sand casting
- (B) Investment casting
- (C) Die casting
- (D) Shell molding

Answer: B) Investment casting

53. Ceramic cutting tools are mainly used for:

- (A) High-speed machining
- (B) Manual machining
- (C) Only grinding

(D) Roughing only

Answer: A) High-speed machining

54. The fixture is generally fixed to:

(A) Chuck

(B) Table of a machine

(C) Spindle

(D) Tailstock

Answer: B) Table of a machine

55. Total Quality Management (TQM) stands for:

(A) Only quality inspection

(B) Company-wide quality approach

(C) Quality only in production

(D) Supplier qualification

Answer: B) Company-wide quality approach

56. The operation of forcing metal to flow into a die by external pressure is:

(A) Forging

(B) Extrusion

(C) Drawing

(D) Casting

Answer: B) Extrusion

57. The color coding of gas cylinders is related to:

(A) Type of gas

(B) Cylinder size

(C) Cylinder material

(D) Manufacture date

Answer: A) Type of gas

58. The tool used to make large diameter holes is:

- (A) Drill
- (B) Boring tool
- (C) Chisel
- (D) Reamer

Answer: B) Boring tool

59. The most widely used casting process is:

- (A) Sand casting
- (B) Die casting
- (C) Shell molding
- (D) Investment casting

Answer: A) Sand casting

60. 5S is a Japanese technique for:

- (A) Shop-floor management
- (B) Cutting tools
- (C) Welding
- (D) Pattern making

Answer: A) Shop-floor management

61. The welding process which does not need filler is:

- (A) Gas welding
- (B) TIG welding
- (C) Resistance welding
- (D) Arc welding

Answer: C) Resistance welding

62. The principle of lean manufacturing is to:

- (A) Maximize value, minimize waste
- (B) Maximize waste, minimize value

(C) Increase inventory

(D) Increase defects

Answer: A) Maximize value, minimize waste

63. In CNC machining, G-code is used for:

(A) Programming motion

(B) Programming tool changes

(C) Programming feed rate

(D) All of these

Answer: D) All of these

64. The common operation on shaper is:

(A) Surfacing

(B) Turning

(C) Boring

(D) Slotting

Answer: A) Surfacing

65. In product design, DFMA stands for:

(A) Design For Manufacture and Assembly

(B) Design for Maximum Agility

(C) Design for Mechanical Analysis

(D) Design for Modularity And Assembly

Answer: A) Design For Manufacture and Assembly

66. The process of pouring molten metal in a mold is called:

(A) Casting

(B) Forming

(C) Forging

(D) Quenching

Answer: A) Casting

67. PERT and CPM are tools for:

- (A) Quality Assurance
- (B) Production Planning
- (C) Project Management
- (D) Inventory control

Answer: C) Project Management

68. The main principle in value engineering is to:

- (A) Increase value by reducing cost
- (B) Increase cost by reducing value
- (C) Increase both cost and value
- (D) None of these

Answer: A) Increase value by reducing cost

69. The main advantage of robots in manufacturing is:

- (A) High speed and accuracy
- (B) Low cost
- (C) Unlimited flexibility
- (D) Self-programming

Answer: A) High speed and accuracy

70. The term "job production" refers to:

- (A) Custom-made products
- (B) Assembly line production
- (C) Mass production
- (D) Batch manufacturing

Answer: A) Custom-made products

71. In sheet metal operations, die clearance is provided to:

- (A) Facilitate proper cutting

- (B) Reduce tool life
- (C) Increase pressure
- (D) Make shapes

Answer: A) Facilitate proper cutting

72. The process of cleaning casting surfaces is called:

- (A) Fettling
- (B) Lathing
- (C) Tapping
- (D) Sanding

Answer: A) Fettling

73. The most important criterion for plant layout is:

- (A) Minimum material handling
- (B) Maximum distance
- (C) Highest cost
- (D) Random placement

Answer: A) Minimum material handling

74. The cycle time in production signifies:

- (A) Time for one cycle of operation
- (B) Sum of all process times
- (C) Setup time
- (D) Idle time

Answer: A) Time for one cycle of operation

75. The technique to reduce downtime of machines is:

- (A) Preventive maintenance
- (B) Reactive maintenance
- (C) Predictive maintenance
- (D) Both A and C

Answer: D) Both A and C

76. The term “bottleneck” in production refers to:

- (A) The process with lowest capacity
- (B) First operation
- (C) Most expensive process
- (D) Machine at the end

Answer: A) The process with lowest capacity

77. The type of welding best suited for joining thin sheets is:

- (A) MIG welding
- (B) TIG welding
- (C) Gas welding
- (D) Laser welding

Answer: C) Gas welding

78. Work-in-progress (WIP) inventory means:

- (A) Products being processed
- (B) Finished products
- (C) Raw materials
- (D) Products in design phase

Answer: A) Products being processed

79. The ideal batch size for batch production depends on:

- (A) Set-up cost and holding cost
- (B) Product value
- (C) Worker skill
- (D) Machine speed

Answer: A) Set-up cost and holding cost

80. The process capability index (Cpk) measures:

- (A) Machine health
- (B) Product quality
- (C) Process capability
- (D) Operator efficiency

Answer: C) Process capability

81. Six Sigma focuses on:

- (A) Zero defects
- (B) High production speed
- (C) Flexible processes
- (D) Price reduction

Answer: A) Zero defects

82. Kaizen in production means:

- (A) Continuous improvement
- (B) Maintenance
- (C) Cost reduction
- (D) Layout plan

Answer: A) Continuous improvement

83. In process charts, 'O' refers to:

- (A) Operation
- (B) Move
- (C) Inspection
- (D) Delay

Answer: A) Operation

84. The common defect in sand casting is:

- (A) Blow hole
- (B) Crack
- (C) Misrun

(D) All of these

Answer: D) All of these

85. Inventory turnover ratio is:

(A) Cost of goods sold/Average inventory

(B) Inventory/Cost of goods sold

(C) Assets/Liabilities

(D) Debt/Asset

Answer: A) Cost of goods sold/Average inventory

86. The formula for Economic Order Quantity (EOQ) is:

(A) $\sqrt{(2DS)/H}$

(B) $\sqrt{2DS/H}$

(C) $2DS/H$

(D) D/S

Answer: B) $\sqrt{2DS/H}$

87. The method to forecast demand in production is:

(A) Regression analysis

(B) Moving average

(C) Trend analysis

(D) All of these

Answer: D) All of these

88. The main limitations of Gantt charts are:

(A) Cannot handle complex projects

(B) Poor at showing interdependence

(C) Not effective for big organizations

(D) All of these

Answer: D) All of these

89. The abbreviation JIT stands for:

- (A) Just In Time
- (B) Joint Inventory Testing
- (C) Job Inventory Tool
- (D) Joints in Tables

Answer: A) Just In Time

90. Pokayoke is a concept for:

- (A) Error proofing
- (B) Flexible manufacturing
- (C) Project planning
- (D) Product design

Answer: A) Error proofing

91. The operation of shaping sheet metal using a punch and die is called:

- (A) Drawing
- (B) Blanking
- (C) Piercing
- (D) Stamping

Answer: D) Stamping

92. The minimum number of workers required in cellular manufacturing is:

- (A) 1
- (B) 2
- (C) 3
- (D) Flexible

Answer: D) Flexible

93. The factor not considered for process selection is:

- (A) Product design
- (B) Material flow

(C) Land price

(D) Volume

Answer: C) Land price

94. Kanban in manufacturing refers to:

(A) Signboard for inventory control

(B) Special quality process

(C) Robot programming

(D) Welding technique

Answer: A) Signboard for inventory control

95. The main purpose of bills of material (BOM) is:

(A) List all components of a product

(B) Show production cost

(C) List all suppliers

(D) List all machines used

Answer: A) List all components of a product

96. The “bottleneck” operation sets the:

(A) Maximum output

(B) Minimum output

(C) Output of the whole system

(D) Standard output

Answer: C) Output of the whole system

97. In queuing models, arriving pattern is usually assumed as:

(A) Poisson distribution

(B) Normal distribution

(C) Binomial distribution

(D) Uniform distribution

Answer: A) Poisson distribution

98. The process of mixing two metals in liquid state is:

- (A) Alloying
- (B) Quenching
- (C) Sintering
- (D) Tempering

Answer: A) Alloying

99. The main objective of product layout is:

- (A) Minimize material movement
- (B) Maximize idle time
- (C) Increase cost
- (D) Reduce product quality

Answer: A) Minimize material movement

100. The “drum, buffer, rope” is a concept from:

- (A) Theory of Constraints (TOC)
- (B) Lean manufacturing
- (C) Six Sigma
- (D) Kaizen

Answer: A) Theory of Constraints (TOC)
