

PART III

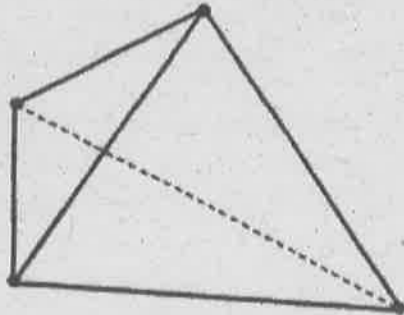
23 — PRODUCTION AND INDUSTRIAL ENGINEERING

(Answer ALL questions)

56. The force of friction which occurs when an object is in motion is known as
- static friction
 - dynamic friction
 - limiting friction
 - fluid friction
57. The type of stress that results in a bolt, when subjected to an external load, is called
- shear stress
 - compressive stress
 - thermal stress
 - residual stress
58. Which of the following type of cam is used, in order to minimize jerks?
- flat
 - involute
 - simple harmonic
 - cycloidal
59. The unbalanced force acting vertically upward or downward due to balancing of the reciprocating parts in a locomotive varies
- directly with the speeds
 - directly with the square of the speeds
 - inversely with the speeds
 - inversely with the square of the speeds
60. Which one of the following is the transmission dynamometer?
- prony brake dynamometer
 - fluid friction dynamometer
 - torsion dynamometer
 - band brake dynamometer
61. Hot-die forging is also known as
- Embossing
 - Roll forging
 - Precision forging
 - Isothermal forging
62. Which of the following operations can be used to provide insulation on cables?
- Upset forging
 - Swaging
 - Embossing
 - Roll forging
63. Which of the following forging operations is also known as precision forging?
- Open-die
 - Impression-die forging
 - Roll forging
 - Flashless forging
64. Which of the following metal is best suitable for extrusion, either hot or cold?
- Zinc
 - Magnesium
 - Copper
 - Aluminium
65. Compound die performs
- Only one operation and that too at one work station
 - Two or more operations at one station in one stroke
 - Two or more operations at different station in one stroke
 - Two operations at two different work station in the same stroke
66. In metal subjected to cold working, strain hardening is due to
- Fracture mechanism
 - Twinning mechanism
 - Dislocation mechanism
 - Slip mechanism

67. In arc welding, the current value is decided by which factor
- Thickness of the plate
 - Size of the electrode
 - Length of the welding portion
 - Voltage across the arc
68. In MIG welding, the metal is transferred in the form of
- A fine spray of metal
 - Molten drops
 - Weld pool
 - Very fine metal
69. Which of the following process could produce strongest components?
- Die-casting
 - hot rolling
 - Extrusion
 - Forging
70. Which of the following is not a casting defect?
- Hot tear
 - Blow hole
 - Scab
 - Decarburization
71. Which of the following international standard is made of a bronze bar (82% Cu, 13% Tin, 5% Zn)?
- International prototype meter
 - International standard yard
 - Meter Des Archives
 - Henry VII yard
72. The algebraic difference between the result of measurement and the conventional true value of the quantity measured is known as
- Characteristic error
 - Relative error
 - Loading error
 - True absolute error
73. The main purpose of a steel cube reflector in an autocollimator is:
- To provide a 90 degree standard in 3 planes
 - For measuring concavity
 - Calibrate surface plate
 - For setting but not checking parallels and perpendiculars
74. Which of the following is not true for the method of measurement of surface finish by micro interferometer?
- Usage of Optical flat
 - Depth of defect can't be measured
 - Usage of monochromatic light
 - The Interference bands and their width plays an important role in identification of the defect
75. _____ is the type of pitch error in screw thread where the pitch of the screw thread is perfect but the form is not:
- Periodic error
 - Progressive error
 - Drunken error
 - Effective error
76. The machine that is used for conducting rolling tests is:
- Parkinson's gear tester
 - Tooth caliper
 - Base pitch measuring instrument
 - Involute profile testing machine
77. Which of the following technique is not suitable to measure large diameter of parts or large gaps?
- Laser triangulation sensor
 - Scanning laser technique
 - Photodiode array imaging
 - Diffraction pattern technique

78. Find the metal removal rate (MRR) from the given data (in $\text{mm}^3/\text{minute}$). cutting speed (cs) = 50 mm/minute, depth of cut(d) = 10mm, feed(f) = 0.1 mm/revolution.
- 50
 - 500
 - 5000
 - 15000
79. Graphical optimal value for Z can be obtained from
- Corner Points of feasible region
 - Corner points of infeasible region
 - Corner points of the solution region
 - Center points of the infeasible region
80. In a departmental store customers arrive at a rate of 18 customers per hour. The average number of customers that can be handled by cashier is 5.5 per 15 minutes. What is the service rate?
- 18
 - 0.305
 - 22
 - 3.27
81. A steel with 0.8 percent carbon is known as
- Eutectoid steel
 - Hypereutectoid steel
 - Hypo eutectoid steel
 - Eutectic steel
82. The chemical bonds formed due to the forces between atoms are _____ in nature.
- electromagnetic
 - electrostatic
 - gravitational
 - None of the above
83. Addition of magnesium to cast iron increases its
- hardness
 - creep strength
 - corrosion resistance
 - ductility and strength in tension
84. Thermoplastic materials are those materials which
- are formed into shape under heat and pressure and results in a permanently hard product
 - do not become hard with the application of heat and pressure and no chemical change occurs
 - are flexible and can withstand considerable wear under suitable conditions
 - are used as a friction lining for clutches and brakes
85. The process of growing large molecules from small molecules is known as,
- Polymerization
 - Polymorphism
 - Hysteresis
 - allotropy
86. Number of degree of freedom of a workpiece in space is equal to
- 10
 - 12
 - 14
 - 16
87. _____ helps in establishing the interchangeability of products
- Standardization
 - Simplification
 - Diversification
 - Specialization
88. The following is also known as overhead costs or on costs.
- Cost of direct labour
 - Cost of indirect labour
 - Direct expenses
 - Indirect expenses

89. The following type of jig is used to drill a series of equidistant hole along a circle
- Index jig
 - Plate type jig
 - Open type jig
 - Pot type jig
90. Life-cycle engineering is also called
- Green design
 - Application oriented
 - Creative design
 - Matured Product Design
91. An analysis and estimation method of cost, by classifying cost accounts as fixed or variable with respect to specific output level is considered as
- manufacturing analysis method
 - price analysis method
 - unit analysis method
 - account analysis method
92. An MRP system that provides feedback to the capacity plan, master production schedule, and production plans is called
- lot-sizing
 - load report
 - closed-loop MRP
 - system nervousness.
93. The correct order of procedure in the method study is
- Select - Record - Examine - Develop - Define - Install - Maintain
 - Select - Define - Examine - Develop - Record - Install - Maintain
 - Select - Record - Develop - Examine - Define - Install - Maintain
 - Select - Record - Examine - Define - Develop - Install - Maintain
94. Formal methods of work measurement exclude which of the following?
- Time study method
 - Predetermined data approach
 - Systems approach
 - Work sampling method
95. If natural light is used as the principal means of illumination at workspace, windows area needs to be equal to _____ percent of the floor area.
- 20
 - 30
 - 40
 - 50
96. Which one of the following is a neutral file format?
- IGES
 - OpenGL
 - GKS
 - VDM
97. _____ is the Euler's equation for the part shown in figure below, Where F is the number of faces, E is the number of edges and V is the number of vertices
- 
- $F + E + V = 2$
 - $F - E + V = 2$
 - $F - E + V = 4$
 - $F + E - V = 4$

98. Which one among the following transformations can be done using vector addition?
- Scaling
 - Reflection
 - Translation
 - Rotation
99. Stacking thin sheets built layer by layer on top of each other and then parts are cut according to the part's cross section is known as
- Powder Bed Fusion
 - Sheet Lamination
 - Vat Polymerization
 - Material Jetting
100. The tool of a CNC machine has to move along a circular arc in clock-wise direction from (5,5) to (10,10) while performing an operation. The centre of the arc is at (10,5). Which one of the following CNC tool path command performs the above mentioned operation?
- N010 G02 X5 Y5 R5
 - N010 G03 X5 Y5 R5
 - N010 G03 X10 Y10 R5
 - N010 G02 X10 Y10 R5
101. When the rough turning cycle G71 is used, which letters identify the amount of stock to leave for finish pass X-axis and Z-axis respectively?
- U and V
 - U and W
 - X and Z
 - P and Q
102. The positioning accuracy of robotic arm is the highest in the following type/configuration of a robot
- Cartesian robot
 - Cylindrical Robot
 - Articulated jointed arm robot
 - Spherical co-ordinate robot
103. A pallet is used for
- automating material handling and fixture
 - storing the job
 - guiding the job
 - automating job rejection
104. Group Technology uses the following coding system
- GRPS
 - OPTIM
 - ADQS
 - OPITZ
105. Which one of the following is not a part of FMS data file?
- Part program file
 - Routing file
 - Pallet reference file
 - Maintenance file
106. Malcolm Baldrige national quality award (MBNQA) is for
- Total Quality Management
 - International Standard Organization
 - Total Productive Maintenance
 - Total Quality Control

107. Which of the following is for Environment management?
- ISO-9000
 - ISO-14000
 - ISO-26000
 - ISO-31000
108. What is ISO?
- Indian organization for standard
 - International standards organization
 - International organization for standard
 - Indian standards organization
109. When cpk is less than one,
- Process is not capable
 - Process is stable
 - Process is highly capable
 - cpk is not related to process capability
110. Technically speaking, Six Sigma involves driving towards how many defective parts per million?
- 1
 - 6200
 - 230
 - 3.4
111. The time elapsed from the point the machine fails to perform its function to the point it is repaired and brought into operating condition is known as
- Down time
 - Break Down time
 - Both (a) and (b)
 - Idle time
112. For a system composed of 400 interdependent components that each have individual reliability of 0.99, the overall system will be working for less than _____ of the time.
- 50%
 - 5%
 - 25%
 - 75%
113. If a batch of 200 electronic components is tested for 400 hours and 5 fail during the test, what is the failure rate as a percentage?
- 1.25%
 - 10%
 - 2.5%
 - 5%
114. The number of failures over a period of time is called:
- The failure rate
 - The average failure point
 - The mean time between failure
 - None of the above
115. Average amount of time that a device or product functions before failing
- Mean Time To Repair(MTTR)
 - Mean Time Between Failures(MTBF)
 - Mean Time To Failures(MTTF)
 - Time Between Failure (TBF)