

# SRINIX COLLEGE OF ENGINEERING, BALASORE

Subject-CIM/FMS (6<sup>th</sup> semester Mechanical Engineering)-MCQ

Faculty-Sri Manas Ranjan Sahoo

1. Which does CNC stand for with respect to machine related manufacturing?

- a) Computer Numb control
- b) Computer Number control
- c) Computer Numerical control**
- d) Computerized Numerical controller

2. Which is a false statement on CIM (Computer integrated manufacturing)?

- a) Quality of the final goods produced is better
- b) The cost of production is less
- c) Quantity of produced goods can be changed easily
- d) The cost of initial setup is less**

3. When did the 'digital manufacturing' concept became prominent?

- a) Early 1950's
- b) Early 1970's**
- c) Late 1940's
- d) Late 1960's

4. What is the full form of CAD?

- a) Computer aided Design**
- b) Computer arts Design
- c) Computer arts Designing
- d) Computer assisted Design

5. CIM (Computer integrated manufacturing) system is same as "lights-out factory".

- a) True
- b) False**

6. "Lights-out factory" is a factory where there is no need any kind of light source.

- a) True**
- b) False

*7. Which does DNC stand for with respect to machine related manufacturing?*

- a) Direct Numb control
- b) Direct Number control
- c) Direct Numerical control**
- d) Directed Numerical controller

*8. Which does PLC stands for with respect to machine related manufacturing?*

- a) Programmed Logic Controller
- b) Programmable Logic Controller**
- c) Programmed Logic Control
- d) Programmable Low-key Controller

*9. What is the full form of CAPP?*

- a) Computer aided processed plans
- b) Computer arts process planning
- c) Computer aided process planning**
- d) Computer assisted process planning

*10. Which is an example of PLC (Programmable Logic Controller)?*

- a) MSP430G2ET
- b) CMCP793V-500
- c) SR3B261BD**
- d) BMP180

*11. Which software cannot be used for 3D modeling and CAD (Computer aided design)?*

- a) Creo
- b) Ansys
- c) Blender
- d) Adobe premium pro**

*12. CIM (Computer integrated manufacturing) implies that there should be at least two computers between which information is interchanged.*

- a) True**
- b) False

13. Who coined the term CAE (Computer aided engineering)?

- a) **Jerome H. Lemelson**
- b) Jason Lemon
- c) Charles manes
- d) Samuel Hunter Christie

14. Stress analysis can be performed using “ansys” CAD (Computer aided design) software.

- a) **True**
- b) False

15. When was the first attempt of lights-out manufacturing made?

- a) 1950
- b) 1970
- c) **1784**
- d) 1860

16. During the execution of a CNC part program block NO20 GO2 X45.0 Y25.0 R5.0 the type of tool motion will be

- a) **circular Interpolation – clockwise**
- b) circular Interpolation – counterclockwise
- c) linear Interpolation
- d) rapid feed

17. In an NC machining operation, the tool has to be moved from point (5, 4) to point (7, 2) along a circular path with centre at (5, 2). Before starting the operation, the tool is at (5, 4). The correct G and N codes for this motion are

- a) N010GO3X7.0Y2.0I5.0J2.0
- b) **N010GO2X7.0Y2.0I5.0J2.0**
- c) N010GO1X7.0Y2.0I5.0J2.0
- d) N010GOOX7.0Y2.0I5.0J2.0

18. The tool of an NC machine has to move along a circular arc from (5, 5) to (10, 10) while performing an operation. The centre of the arc is at (10, 5). Which one of the following NC tool path command performs the above mentioned operation?

- a) **N010 GO2 X10 Y10 X5 Y5 R5**
- b) N010 GO3 X10 Y10 X5 Y5 R5

c) N010 GO1 X5 Y5 X10 Y10 R5

d) N010 GO2 X5 Y5 X10 Y10 R5

*19. NC contouring is an example of*

**a) continuous path positioning**

b) point-to-point positioning

c) absolute positioning

d) incremental positioning

*20. In a CNC program block, N002 GO2 G91 X40 Z40....., GO2 and G91 refer to*

a) circular interpolation in counterclockwise direction and incremental dimension

b) circular interpolation in counterclockwise direction and absolute dimension

**c) circular interpolation in clockwise direction and incremental dimension**

d) circular interpolation in clockwise direction and absolute dimension

*21. Numerical control \_\_\_\_\_*

a) applies only to milling machines

b) is a method for producing exact number of parts per hour

**c) is a method for controlling by means of set of instructions**

d) none of the mentioned

*22. Computer will perform the data processing functions in*

a) NC

**b) CNC**

c) DNC

d) None of the mentioned

*23. Control loop unit of M.C.U is always*

**a) a hardware unit**

b) a software unit

c) a control unit

d) none of the mentioned

*24. The repeatability of NC machine depends on*

a) control loop errors

**b) mechanical errors**

c) electrical errors

d) none of the mentioned

*25. Rotation about Z-axis is called*

a) a-axis

b) b-axis

**c) c-axis**

d) none of the mentioned

*26. Rotation of spindle is designated by one of the following axis:*

a) a-axis

b) b-axis

c) c-axis

**d) none of the mentioned**

*27. The linking of computer with a communication system is called*

**a) networking**

b) pairing

c) interlocking

d) assembling

*28. The process of putting data into a storage location is called*

a) reading

**b) writing**

c) controlling

d) hand shaking

*29. The process of copying data from a memory location is called*

**a) reading**

b) writing

c) controlling

d) hand shaking

*30. Who developed FMS (Flexible manufacturing system)?*

**a) Jerome H. Lemelson**

b) Charles Wheatstone

c) Charles manes

d) Samuel Hunter Christie

*31. When did Jerome H. Lemelson set up his factory based on FMS (Flexible manufacturing system)?*

a) Early 1950's

b) Early 1940's

c) Late 1940's

**d) Late 1960's**

*32. What is done in make-to-order production?*

a) Production is ordered by the owner

b) Regular production

c) Production stops due to less order

**d) Production is done according to customer requirements**

*33. Which is a false statement on FMS (Flexible manufacturing system)?*

a) Accuracy in the final goods produced is high

b) The cost of production is less

c) Quality and quantity of produced goods can be changed easily

**d) The cost of initial setup is less due to less labour cost**

*34. Flexible manufacturing system (FMS) lowers the company's production cost.*

**a) True**

b) False

*35. Anyone can operate FMS (Flexible manufacturing system).*

a) True

**b) False**

*36. What was the original design of Jerome H. Lemelson which he patented for FMS (Flexible manufacturing system)?*

**a) Robot based system**

b) Conveyer

c) Motor based pulley

d) Shredder

*37. Which is not a property of FMS (Flexible manufacturing system)?*

a) High accuracy

b) Less production cost

**c) Less initial cost**

d) Flexibility in production

*38. What happens to labor workforce when FMS (Flexible manufacturing system) concept is used?*

a) Increases

**b) Decreases**

c) Remains same

d) Gradually increases with time

*39. Which development board uses energies IDE (Integrated development environment) for its programming?*

**a) MSP430G2ET Launchpad**

b) Arduino UNO

c) Arduino nano

d) NodeMCU

*40. Which work cannot be done by Jerome H. Lemelson's first robot based system?*

**a) Manufacturing product**

b) Welding

c) Inspecting the product

d) Convey the product

*41. FMS (Flexible manufacturing system) consist of a single machine that controls everything.*

a) True

**b) False**

*42. FMS (Flexible manufacturing system) is not suitable if production quantity is less.*

**a) True**

b) False

43. Which does SMC stand for with respect to machine related manufacturing?

- a) Single machine control
- b) Singular machine control
- c) Slot machine cell
- d) Single machine cell**

44. The expansion cost of FMS (Flexible manufacturing system) is less.

- a) True
- b) False**

45. Which is the first robot to get citizenship in any country?

- a) Eskimo
- b) Ansino
- c) Asimo
- d) Sophia**

46. What does "AI" stand for?

- a) Artificial Intelligence**
- b) Artificial Intellect
- c) Automatic intellect
- d) Automatic intelligence

47. What does "PUMA" stand for in context to robotics?

- a) Programmable used machine to assemble
- b) Programmed utility machine for assembly
- c) Programmable universal machine for assembly**
- d) Programmed utility machine to assemble

48. What is the root word of "robot", which is derived from Slavic language?

- a) Robot
- b) Robota**
- c) Roboto
- d) Robust

49. How many degrees of freedom do an industrial delta robot has?



- a) 3
- b) 5
- c) 7
- d) 9

*50. How many degrees of freedom do an industrial SCARA (Selective Compliance Assembly Robot Arm) has?*

- a) 3
- b) 5
- c) 4
- d) 9

*51. What is the use of proximity sensor?*

- a) It's used for sensing humidity
- b) It's used for sensing heat
- c) It's used for measuring distance
- d) It's used for sensing the presence of nearby objects**

*52. Which of the following code will give point to point movement?*

- a) G00**
- b) G01
- c) G56
- d) G94

*53. Which of the following code will give linear interpolation movement?*

- a) G00
- b) G01**
- c) G78
- d) G65

*54. Which of the following code will give circular interpolation in a clockwise direction?*

- a) G56
- b) G01
- c) G02**

d) G47

*55. Which of the following code will give circular interpolation in Counterclockwise direction?*

a) G00

b) G56

c) G69

**d) G03**

*56. Which of the following code is used to give input of cutter offset data?*

a) G30

b) G20

**c) G10**

d) G04

*57. Which of the following code is used to return to a reference point?*

a) G23

**b) G28**

c) G14

d) G19

*58. Which of the following code is used in thread cutting in turning?*

**a) G32**

b) G89

c) G20

d) G74

*59. Which of the following code is used to specify feed per revolution in turning?*

**a) G99**

b) G98

c) G78

d) G45

*60. CAD/CAM is the relationship between*

a) science and engineering

b) manufacturing and marketing

c) **design and manufacturing**

d) design and marketing

*61. The process in which the detailed specifications materials, dimensions, tolerances and surface rough is made is known as*

a) decision process

b) analysis process

c) **implementation process**

d) refinement process

*62. Which two disciplines are tied by a common database?*

a) documentation and geometric modeling

b) **CAD and CAM**

c) drafting and documentation

d) none of the mentioned

*63. The term that is used for geometric modelling like solid modelling, wire frame modelling and drafting is known as*

a) **software package**

b) operating system

c) application software

d) none of the mentioned

*64. The system environment in a mainframe computer consists of*

a) central processing

b) storage devices

c) printers and plotters

d) **both central processing and storage devices**

*65. The nerve center or brain of any computer system is known as*

a) **CPU**

b) Storage device

c) ALU

d) Monitor

*66. Locating devices are classified as*

- a) text input device
- b) graphic device**
- c) all of the mentioned
- d) none of the mentioned

*67. The basic geometric building blocks provided in a CAD/CAM package are*

- a) points
- b) lines
- c) circles
- d) all of the mentioned**

*68. CNC machining centres do not include operations like \_\_\_\_\_*

- a) milling
- b) boring
- c) welding**
- d) tapping

*69. In CNC systems multiple microprocessors and programmable logic controllers work \_\_\_\_\_*

- a) in parallel**
- b) in series
- c) one after the other
- d) for 80% of the total machining time

*70. Which of the following is not the advantage of CNC machines?*

- a) Higher flexibility
- b) Improved quality
- c) Reduced scrap rate
- d) Improved strength of the components**

*71. In how many ways CNC machine tool systems can be classified?*

- a) 2
- b) 3**
- c) 4
- d) 5

72. In part programming, interpolation is used for obtaining \_\_\_\_\_ trajectory.

- a) **helicoidal**
- b) pentagonal
- c) triangular
- d) zig-zag

73. For CNC machining skilled part programmers are needed.

- a) **True**
- b) False

74. An absolute NC system is one in which all position coordinates are referred to one fixed origin called the zero point.

- a) **True**
- b) False

75. Designs are periodically modified to

- a) improve product performance
- b) strive for zero-based rejection and waste
- c) make products easier and faster to manufacture
- d) **all of the mentioned**

76. The expected qualities of a product are

- a) it satisfies the needs and expectations of the customer
- b) it has a pleasing appearance and handles well
- c) it has high reliability and functions safely over its intended life
- d) **all of the mentioned**

77. The life cycle of a product includes

- a) extraction of natural resources
- b) processing of raw materials
- c) manufacturing of products
- d) **all of the mentioned**

78. Life-cycle engineering is also called

- a) **green design**

- b) expensive design
- c) easy design
- d) none of the mentioned

*79. Considerations of costing systems are*

- a) life cycle costs
- b) machine usage
- c) cost of purchasing machinery
- d) all of the mentioned**

*80. The physical properties of good product material are*

- a) density
- b) melting point
- c) specific heat
- d) all of the mentioned**

*81. Sustainable manufacturing is required for*

- a) conserving resources
- b) proper maintenance
- c) reuse
- d) all of the mentioned**

*82. Wrist motion of y involves*

- a) right to left rotation of the object**
- b) up and down rotation of the object
- c) twisting of the object about the arm axis
- d) none of the mentioned

*83. Robots are specified by*

- a) pay load
- b) dimension of work envelope
- c) degree of freedom
- d) all of the mentioned**

*84. Hydraulic drives are used for a robot when*

- a) high torque is required
- b) high power is required
- c) rapid motion of robot arm
- d) all of the mentioned**

*85. The following type of robot is most suitable for pick and place operations*

- a) rectangular**
- b) cylindrical
- c) spherical
- d) jointed arm type

*86. A computer program that contains expertise in a particular domain is called an*

- a) automatic processor
- b) intelligent planner
- c) expert system processor**
- d) operations symbolize

*87. A robot's arm is also known as its*

- a) actuator
- b) end effector
- c) manipulator**
- d) servomechanism

*88. Which type of actuator generates a good deal of power but tends to be messy?*

- a) electric
- b) hydraulic**
- c) pneumatic
- d) none of the mentioned

*89. If a robot can alter its own trajectory in response to external conditions, it is considered to be*

- a) intelligent**
- b) mobile
- c) non servo

d) open loop

*90. Programming a robot by physically moving it through the trajectory you want it to follow is called*

a) contact sensing control

**b) continuous path control**

c) pick and place control

d) robot vision control

*91. Which device is mostly associated with automation?*

a) flexible manufacturing

**b) robots**

c) computer graphics workstation

d) NC machine

*92. Choose the basic element for an automated machine tool*

**a) logic**

b) NC tape programming

c) software

d) workstation

*93. Choose the robot component from the following*

a) micro computer

b) coaxial cable

**c) arm**

d) software

*94. A configuration for a robot is*

a) octagonal

b) oblong

c) square

**d) spherical**

*95. Forecasting is used for*

a) dependent demand items



**b) independent demand items**

- c) all of the mentioned
- d) none of the mentioned

*96. Capacity planning is concerned with*

- a) how many machines required
- b) how much labour required

**c) all of the mentioned**

- d) none of the mentioned

*97. For a small scale industry, the fixed cost per month is Rs. 5000. The variable cost per product is Rs. 20 and sales price is Rs. 30 per piece. The break even production per month will be*

- a) 300
- b) 40
- c) 500**
- d) 1000

*98. Two alternatives can produce a product. First has a fixed cost of Rs. 2000 and a variable cost of Rs. 20 per piece. The second method has a fixed cost of Rs. 1500 and a variable cost of Rs.30. The break even quantity between the two alternatives is*

- a) 25
- b) 50**
- c) 75
- d) 100

*99. Just in time manufacturing philosophy emphasizes on*

- a) man power
- b) manufacturing
- c) profit
- d) inventory**

*100. Inventory record file gives the following information*

- a) lot size**
- b) machine details

- c) customer name
- d) none of the mentioned

101. *Which of the following is not associated with Agile Manufacturing?*

- a) Operational Flexibility
- b) Bottom-up innovation
- c) Operator augmentation
- d) Slow approach**

102. *Agile Manufacturing focuses on faster response to customer demands.*

- a) True**
- b) False

103. *Which of the following is not an example of changing customer expectations which essentially leads us to focus on agile manufacturing?*

- a) Product customization
- b) Slow delivery**
- c) Fast delivery
- d) Cheaper production

104. *Which of the following is not a reason for organizations switching to agile manufacturing?*

- a) Constant technological development
- b) Increasing complex supply chain
- c) Higher customer standards
- d) Increased manpower**

105. *Which of the following is not a common idea between lean manufacturing and agile manufacturing?*

- a) Productivity
- b) Empowering people
- c) Response to customer demands
- d) Reduction in waste**

106. *\_\_\_\_\_ refers to replacing workers with machines and \_\_\_\_\_ refers to enhancing workers' capabilities through technology.*

- a) Innovation, augmentation

**b) Automation, augmentation**

- c) Augmentation, automation
- d) Innovation, automation

*107. The acronym PLC stands for:*

- a) Pressure Load Control

**b) Programmable Logic Controller**

- c) Pneumatic Logic Capstan
- d) PID Loop Controller

*108. In a PLC, the scan time refers to the amount of time in which .....*

- a) transmitted data communications must finish
- b) the technician enters the program
- c) the entire program takes to execute**
- d) one “rung” of ladder logic takes to complete

*109. Who has known as the Father of PLC?*

- a) Steve Jobs
- b) Bill Gates
- c) Dick Morley**
- d) None of these

*110. Abbreviate CPU?*

- a) Central Peripheral Unit
- b) Central Protecting Unit
- c) Central Processing Unit**
- d) None of these

*111. One cycle through the program in a PLC unit is called a \_\_\_\_\_.*

- a) Period Time
- b) Scan Time**
- c) Cycle Time
- d) None of these

*112. Errors occurring during program execution in the PLC \_\_\_\_\_.*

- a) Execution Error
- b) Runtime Error**
- c) Programming Error
- d) None of these

*113. In break-even analysis, total cost consists of*

- a) Fixed cost
- b) Variable cost
- c) Fixed cost + variable cost**
- d) Fixed cost + variable cost + overheads

*114. Routing is essential in the following type of industry*

- a) Assembly industry**
- b) Process industry
- c) Job order industry
- d) Mass production industry

*115. Bin card is used in*

- a) Administrative wing
- b) Workshop
- c) Foundry shop
- d) Stores**

*116. The production scheduling is simpler and high volume of output and high labour efficiency are achieved in the case of*

- a) Product layout**
- b) Process layout
- c) Fixed position layout
- d) A combination of line and process layout

*117. The disadvantage of product layout is*

- a) High initial investment for the specialized facilities**
- b) Skilled labor to operate machines
- c) Production time is longer, requiring more goods in inventory

d) High cost of inspection

*118. Product layout is used for*

a) Job production

b) Batch production

**c) Mass production**

d) Any one of these

*119. What precise movement does CMM have?*

a) Precise movement in x coordinates

b) Precise movement in x and y coordinates

c) Precise movement in y and z coordinates

**d) Precise movement in x, y and z coordinates**

*120. Which type of CMM is most suited for large heavy work pieces?*

a) Cantilever type

b) Bridge type

**c) Horizontal boring mill type**

d) Floating bridge type

*121. Which direction is sensed by a linear measurement transducer used in CMM?*

a) Positive direction only

b) Negative direction only

**c) Both positive and negative direction**

d) Not used to sense directions

*122. What is the accuracy of present day co-ordinate measuring machine?*

**a) 10 microns**

b) 5 microns

c) 2 microns

d) 1 micron

*123. What is the name of an element which uses inductive coupling?*

a) Inducto conduct

**b) Inductosyn**

- c) Conductosyn
- d) Conducto induct

*124. Which principle is used in the three master guide ways and probe location?*

- a) Principle of dynamic design
- b) Principle of static design
- c) Principle of kinematic design**
- d) Principle of effective design

*125. What is the cause of translational errors in CMM?*

- a) Error in scale division
- b) Error in straightness**
- c) Twisting error
- d) Roll error

*126. Which of the following is not related to the geometrical accuracy of CMM?*

- a) Straightness of axes
- b) Squareness of axes
- c) Position accuracy
- d) Axial length measuring accuracy**

*127. How many measurement parameters are considered in checking axes accuracy of straightness in CMM?*

- a) 2
- b) 4
- c) 6**
- d) 8

*128. How many reference gauges are measured for volumetric length measuring accuracy in CMM?*

- a) 2
- b) 3**
- c) 4
- d) 5

*129. Which of the following is true for trigger type probe system used in computer controlled CMM?*

- a) Bucking mechanism is a 2 point bearing
- b) Current coordinate position stored when circuit is close
- c) Contacts of point bearing arranged at 90 degree
- d) Contacts of point bearing act as electrical micro switches**

*130. CMM" stands for what?*

- a) Computer Mechanism Machine
- b) Computer Mechanism Machine
- c) Co-ordinate Measuring Machine**
- d) Coordinate Machine Mechanism

*131. What do QA and QC stand for?*

- a) Quality Assurance and Queuing Control
- b) Quality Adjustment and Quality completion
- c) Quality Assurance and Quality control**
- d) Quality Adjustment and Queuing control

*132. What is QA?*

- a) It is the measurement of degree to which a product satisfies the need
- b) Any systematic process used to ensure quality in the process**
- c) Process of identifying defects
- d) It is a corrective tool

*133. Which of the following option is correct regarding QA and QC?*

- a) QC is an integral part of QA**
- b) QA is an integral part of QC
- c) QA and QC are independent to each other
- d) QC may or may not depend on QA

*134. Which of the following option involves material and component control?*

- a) Development of standards
- b) Development of specification

c) **Quality control**

d) Feedback

*135. Arrange the steps of QA in ascending order?*

a) Customer needs, material control, design development, process control, marketing

b) Material control, process control, customer need, design development, finished product

c) **Customer needs, design development, material control, process control, finished product**

d) Material control, servicing, process control, material control, design development

*136. What is the first step of QA?*

a) Development of standards

b) **Identification of customer need**

c) Servicing

d) Material control

*137. Which of the following is an example of QA?*

a) **Verification**

b) Software testing

c) Validation

d) Documentation

*138. Which of the following option is not correct regarding QA and QC?*

a) **Process capabilities should be monitored on intermittent basis**

b) Measuring equipment's must have a calibration certificate

c) Normally many inspections are done during the process of manufacturing

d) QA depends on the activities of the entire company

*139. Where the nodal point for National Measurement System is located?*

a) Bangalore

b) Patna

c) Bombay

d) **New Delhi**

*140. What is quality control?*

a) Process of recognition of entire manufacturing process



b) Concerned with the integration of all the efforts in organisation

c) **Detection of defects in a product**

d) Minimization of material level

SRINIX COLLEGE OF ENGINEERING, BALASORE