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1. In machining of a workpiece, the material is removed by_____

a) drilling action

b) melting action

c) shearing acting

d) using brittleness of the material

View Answer

Answer: c
Explanation: There are different machining processes, such as turning, milling, boring etc. In all these cases metal is removed by a shearing process, which occurs due to the relative motion between the workpiece and the tool. Generally, one of the two rotates at designated and generally high speed, causing the shearing of material (known as chips), from the workpiece. The other moves relatively slowly to effect removal of metal throughout the workpiece.

2. The depth that the tool is plunged into the surface is called as _____

a) feed

b) depth of cut

c) depth of tool

d) working depth

View Answer

Answer: b
Explanation: The depth of cut, DOC is the depth that the tool is plunged into the surface. Feed defines the relative lateral movement between the cutting tool and the workpiece. Thus, together with the depth of cut, feed decides the cross section of the material removed for every rotation of the job or the tool.

3. Feed is measured in units of _____

a) length/revolution

b) degree/revolution

c) length

d) velocity

View Answer

Answer: a
Explanation: Feed is the amount of material removed for each revolution or per pass of the tool over the workpiece and is measured in units of length/revolution, length/pass or other appropriate units for the particular process.

4. CNC machining centres do not include operations like _____

a) milling

b) boring

c) welding

d) tapping

View Answer

Answer: c
Explanation: CNC machining centres are developed for machining prismatic components combining operations like milling, drilling, boring and tapping. Gradually machines for manufacturing cylindrical components, called turning centres are also developed.

5. 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

View Answer

Answer: a
Explanation: In CNC systems multiple microprocessors and programmable logic controllers work in parallel for simultaneous servo position and velocity control of several axes of a machine for contour cutting as well as monitoring of the cutting process and the machine tool.

6. 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

View Answer

Answer: d
Explanation: CNC machines offer the following advantages in manufacturing:
• Higher flexibility
• Increased productivity
• Improved quality
• Reduced scrap rate
• Reliable and Safe operation
• Smaller footprint.

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

a) 2

b) 3

c) 4

d) 5

View Answer

Answer: b
Explanation: CNC machine tool systems can be classified in various ways such as:
• Point-to-point or contouring: depending on whether the machine cuts metal while the workpiece moves relative to the tool
• Incremental or absolute: depending on the type of coordinate system adopted to parameterise the motion commands
• Open-loop or closed-loop: depending on the control system adopted for axis motion control.

8. Point-to-point systems are used for _____

a) reaming

b) parting

c) grooving

d) facing

View Answer

Answer: a
Explanation: Such systems are used, typically, to perform hole operations such as drilling, boring, reaming,

tapping and punching. In a PTP system, the path of the cutting tool and its feed rate while traveling from one point to the next are not significant, since, the tool is not cutting while there is motion.

9. In part programming, interpolation is used for obtaining _____ trajectory.

a) helicoidal

b) pentagonal

c) triangular

d) zig-zag

View Answer

Answer: a
Explanation: Interpolation consists of the calculation of the coordinated movement of several axes using the programmed parameters, in order to obtain a resulting trajectory, which can be of various types, such as:
– Straight line
– Circular
– Helicoidal.

10. For CNC machining skilled part programmers are needed.

a) True

b) False

View Answer

Answer: a
Explanation: The main disadvantages of NC systems are:
• Relatively higher cost compared to manual versions
• More complicated maintenance due to the complex nature of the technologies