Q.29 What are Canned Cycles? Why are they provided in the CNC Machine?

Q.30 Differentiate between Absolute and incremental System of Programming.

Q.31 Explain the common aults in Electrical Components of CNC Machine.

Q.32 Define Automation. Explain various types of Automation.

Q.33 What are DO-Loops? Why are they used?

Q.34 What are Pallets? Why are they used in CNC Machines?

Q.35 Write the various advantages and disadvantages of Automations.

SECTION-D

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

Q.36 Prepare a Part program for following Turning Operation as shown in Fig 1.

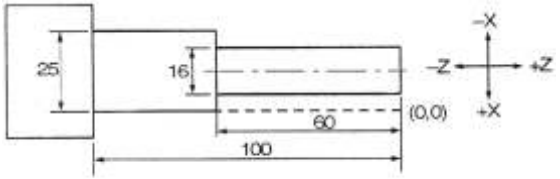

Fig 1

Take Feed=100mm /min., Speed=950rpm, depth of cut=1mm per cut. Take incremental system of dimensioning.

Q.37 With the help of neat sketch, explain the construction and working of Tachometer. Also give the applications of Tachometer.

Q.38 Explain the various online Fault Diagnosis Tools used in CNC Machines.

No. of Printed Pages : 4

Roll No. .....

202452

5th Sem / Branch : Mechatronics

Subject:- CNC Machines and Automation

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Incremental encoder is capable of sensing

a) Speed of rotation of lead screw
b) Speed of movement of the table
c) Speed of rotation of spindle motor
d) Direction of movement of the table

Q.2 CNC machines lathes have built-in coordinate measuring system. The zero position on the co-ordinate system is called;

a) Reference point b) Machine zero point
c) Work zero point d) Program zero point

Q.3 A machine is said to have CNC control if

a) The dimensions of the work piece are measured by sensors while cutting is going on.
b) The tool motion is guided by drum cams and disc cams.
c) The loading and unloading of the work piece ON and OFF the machine respectively is made automatic.
d) Control is achieved by employment of alphanumeric data

Q.4 Code G91 describes;

a) Absolute position b) Incremental position

c) Circular interpolation clockwise
d) Circular interpolation counter clockwise

Q.5 Which type of motor is not suitable for rotary axis of spindle drives of CNC machine tools;
a) Induction motor b) DC Servo motor
c) Stepper motor d) Linear motor

Q.6 In a CNC machine, a command
a) Starts with a numerical value and ends with a alphabet
b) Start with a numerical value and ends with two alphabets
c) Starts with a alphabet and ends with a numerical value
d) None

Q.7 What does an Encoder do;
a) Senses mechanical motion
b) Provides information concerning position, velocity and direction
c) Converts analog into digital information
d) All of the above

Q.8 An ATC plays a significant role in reducing;
a) Tool change time b) Idle time
c) Machining time d) Control time

Q.9 The Machine Control Unit (MCU) is
a) Brain of the machine b) Heart of the machine
c) Both (a) & (b) d) None

Q.10 In a CNC machine, which kind of switches examine or detect the presence of an item or object without making contact with item;
a) Proximity Switches b) Limit Switches
c) Photo-electric Switches d) Mechanical Switches

SECTION-B

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

Q.11 Coefficient of Friction is reduced in CNC machine due to _____ action.
Q.12 A Punch Tape contain _____.
Q.13 CNC Machine is mostly used for _____ Production.
Q.14 _____ Axis is parallel to Spindle Axis.
Q.15 Servo system is an example of _____ Loop system.
Q.16 _____ Motor is generally used to control the Axis in CNC Machine.
Q.17 PLC Stands for _____
Q.18 Automation increases the _____
Q.19 _____ Codes prepare the MCU to perform miscellaneous function.
Q.20 DNC Stands for _____

SECTION-C

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

Q.21 Define NC Machine. Name different input devices used in NC Machine.
Q.22 What is MCU? Describe its different parts.
Q.23 Describe how X, Y and Z Axis of a CNC Machines are designated.
Q.24 Describe the re circulating Ball Screw type Slideways.
Q.25 What are Actuators? Explain Mechanical type Actuators.
Q.26 Differentiate between Preset and Qualified Tools.
Q.27 Explain the working of Automatic Tool Changer.
Q.28 Describe the construction and working of Servo Motor.