Q.29 What are canned Cycles? Why are they provided in the CNC machine? (CO5)

Q.30 Differentiate between absolute and incremental system of programming. (CO4)

Q.31 Explain the common faults in Electrical Components of CNC machine. (CO5)

Q.32 What are DO-Loops? Why and where are they used? (CO5)

Q.33 Write the various advantages and disadvantages of Automation. (CO6)

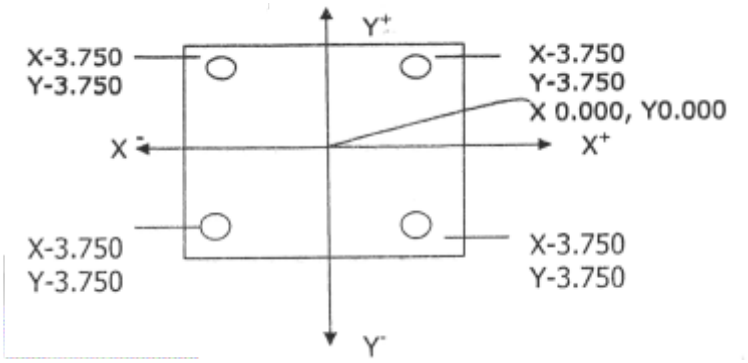
Q.34 Write short note on FMS. (CO6)

Q.35 Explain the working of Automatic Tool Changer. (CO2)

SECTION-D

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

Q.36 Write a complete drill program for the following part. Assume any missing data of dimension. (CO4)



Q.37 With the help of neat sketch, explain the construction and working of Tachometer. Also give the applications of Tachometer. (CO3)

Q.38 Explain various online Fault Diagnosis Tools used in CNC Machine. (CO3)

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5th Sem / 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 (CO3)

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 In modern CNC machine the backlash has been eliminated by; (CO1)

a) Pre-loaded ball screws
b) Slider crank mechanism
c) Rack and pinion
d) Ratchet and pinion

Q.3 For increasing the productivity CNC system can be interfaced with; (CO6)

a) CAD/CAM b) DNC
c) FMS d) All of these

Q.4 Which of the following code will give XY plane selection; (CO4)

a) G17 b) G18
c) G19 d) G20

Q.5 Code G19 describes; (CO4)

a) Absolute position

b) Incremental position
c) Circular interpolation clockwise
d) Circular interpolation counter clockwise

Q.6 What does an encoder do; (CO3)
a) Senses mechanical motion
b) Provides information concerning position, velocity and direction
c) Converts analog into digital Information
d) All of the above

Q.7 _____ is not a type of NC program reader: (CO4)
a) Punched tape reader
b) Laser tape reader
c) Card reader
d) Mechanical tape reader

Q.8 The Machine Control Unit (MCU) is; (CO1)
a) Brain of the machine b) Heart of the machine
c) Both a and b d) None

Q.9 The CNC control system which has no feedback is also called as; (CO3)
a) Uncontrolled system
b) Controlled system
c) Closed systems
d) Open systems

Q.10 Which type of feedback device used in CNC machine? (CO3)
a) Positional feedback device
b) Velocity feedback device
c) Both a and b
d) None of the above

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. (CO1)
Q.12 Give binary equivalent of 54. (CO1)
Q.13 Expand ATC. (CO2)
Q.14 State the function of tachometer. (CO3)
Q.15 Optical readers use_____ for light sensing. (CO3)
Q.16 Servo system is an example of_____ Loop system. (CO3)
Q.17 _____ Code is used for DWELL function. (CO4)
Q.18 What is SCARA? (CO6)
Q.19 The function of feedback system is to record the data from the sensor and compare it with output data. (CO3)
Q.20 Define transducer. (CO3)

SECTION-C

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

Q.21 Enlist the advantages of CNC machine. (CO1)
Q.22 Explain the concept of tool offsets in CNC. (CO2)
Q.23 Describe the re circulating Ball Screw type Slide-ways. (CO1)
Q.24 What are Actuators? Explain Mechanical type Actuators. (CO3)
Q.25 Describe, how X. Y and Z Axis of a CNC machine are designed? (CO4)
Q.26 Differentiate between Preset and Qualified Tools. (CO4)
Q.27 Describe the construction and working of servo motor. (CO3)
Q.28 What are actuators? Explain Mechanical type actuators. (CO3)