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**5th Sem / Mech, Mecatronics, Prod, T&D, CAD/CAM,
Mech. Engg. (Fabrication Tech.) Mechanical Engg.
(CAD/CAM Design) & Robotics**

Subject:- CNC Machines and Automation

Time : 3Hrs. M.M. : 100

SECTION-A

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

- Q.1 _____ controls many machines with single MCU
a) NC b) CNC
c) DNC d) ACO
- Q.2 _____ parts are best suitable for production by CNC machines
a) Complex b) Mass production
c) Large setup d) Only (a) and (c)
- Q.3 The tool magazine contains
a) Photographs of various tools of CNC
b) Specifications of various tools of CNC
c) Various tools of CNC
d) All of the above
- Q.4 _____ type of transducers are more accurate
a) Resistive b) Inductive
c) Optical d) None of the above
- Q.5 LVDT has _____ input and _____ output windings
a) 2,4 b) 1,2
c) 2,1 d) 2,2

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- Q.6 CNC slideways reduce
a) Heat b) Friction
c) Load d) All of the above
- Q.7 Tool offset takes care of
a) Diameter variation b) Length
c) Thickness d) All of the above
- Q.8 Free ranging AGV sense the direction from
a) Trench b) Paint
c) Signal from walls d) All of the above
- Q.9 Advance programming structures help in
a) Reducing the program length
b) For complex part
c) Fast programs
d) Only a and b
- Q.10 Drilling CNC are
a) Linear cutting machines
b) Point to point machine
c) Contouring machines
d) Both a and b

SECTION-B

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

- Q.11 Binary equivalent of 23 is _____
- Q.12 Design of CNC structure which dissipate equal heat in all directions is known as _____ (Aerodynamic/thermosymmetrical)
- Q.13 Backlash is eliminated by _____ component of CNC

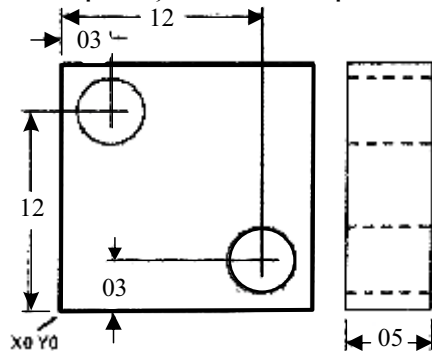
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- Q.14 Normally _____ type of ATC is used in CNCs
 Q.15 Expand ASRS
 Q.16 LVDT measures _____ (scalar/ vector) quantity
 Q.17 Painted line AGV sense direction from _____ color paint
 Q.18 Expand AI
 Q.19 Which type of production is best suited for CNC?
 Q.20 G02 code stands for _____

SECTION-C

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

- Q.21 Explain the types of DNC
 Q.22 What are the basic components of CNC?
 Q.23 Explain LVDT.
 Q.24 Write short note on swarf removal method of CNC.
 Q.25 Classify sensors
 Q.26 Write short note on FMS and AGV
 Q.27 Differentiate between open loop and closed loop control system.
 Q.28 Explain working of linear encoders with diagram.
 Q.29 Write a part program for following drilling part, assume Speed, feed and depth of cut data.



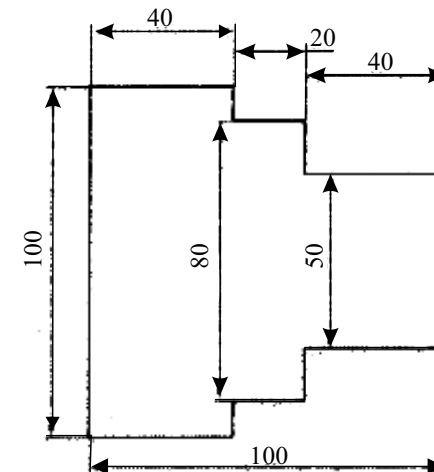
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- Q.30 Explain Canned cycle.
 Q.31 Write short note on safety and guarding devices.
 Q.32 Explain the method of giving cutter radius compensation
 Q.33 Write any five M codes.
 Q.34 Write short note on CIM
 Q.35 Describe axis identification rules

SECTION-D

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

- Q.36 Define Automation. Explain the different types of automation.
 Q.37 What are the common problems of CNC related to mechanical and electrical components? Give their remedies.
 Q.38 Write a part program for following component with step turning, facing from 100 mm dia rod.



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