**Semester : 5 th / Branch : Mech, Mecatronics,Prod,T&D,
CAD/CAM,Mech.Engg. (Fabication Tech.) Mechanical Engg.
CCAD/CAM Design & Robotics)**

Subject:- CNC Machines & Automation

Time : 3Hrs.   M.M. : 100

SECTION-A

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

Q.1   Which of the following are not components of flexible Tooling:
   a)   Tool magazine
   b)   Tool changing mechanism
   c)   Encoder
   d)   Work holder

Q.2   Part programming mistakes can be avoided in :
   a)   NC machine tool   b)   CNC machine tool
   c)   Both (a) and (b)   d)   None of the above

Q.3   For increasing the productivity CNC system can be interfaced with:
   a)   CAD/CAM   b)   DNC
   c)   FMS   d)   All of these

Q.4   In modern CNC machine tool the backlash has been eliminated by :
   a)   Pre loaded ball screws
   b)   Slider crank mechanism
   c)   Rack and pinion
   d)   Ratchet and pinion

Q.5   Which of the following code will give XY plane selection
   a)   G17   b)   G18
   c)   G19   d)   G20

Q.6   M-codes are also known as :
   a)   Model codes   b)   Spindle speed codes
   c)   Machine codes   d)   Miscellaneous codes

Q.7   Which is the Tool material property on the basis of cutting tool material
   a)   Solid   b)   Brazed
   c)   Diamond   d)   Inserted Bit

Q.8   Problems in electrical components are :
   a)   Cylinder   b)   Piston
   c)   Valve   d)   Solenoids

Q.9   Which of the following code is used in programming in absolute co-ordinates ?
   a)   G90   b)   G91
   c)   G01   d)   G02

Q.10   _____ is not a type of NC program reader :
   a)   Punched tape reader
   b)   Laser tape reader
   c)   Card reader
   d)   Mechanical tape reader

SECTION-B

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

Q.11   Name two input devices of CNC machine.

Q.12   Expand ATC.

Q.13 Function of Tachometer.

Q.14 A motor used in control with feedback is _____

Q.15 Optical readers use _____ for light sensing.

Q.16 The function of feedback system is to record the data from the sensor and compare it with output data. (True/ False).

Q.17 The punch tape reader in CNC machine is _____

Q.18 Expand CBN.

Q.19 BCD stands for _____

Q.20 Define transducer.

SECTION-C

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

Q.21 Explain close loop control system.

Q.22 Discuss any two swarf removal method in CNC machine.

Q.23 What are the advantages of stepper motor ?

Q.24 Distinguish between G-codes and M-codes

Q.25 Explain the different fault finding techniques

Q.26 Write a finishing cut program of step turning.

Q.27 Differentiate between point to point and continuous path motion of a robot.

Q.28 Describe the term G.T. Explain part families.

Q.29 Define advantages and limitation of LVDT.

Q.30 Write a short note on opto interrupt.

Q.31 Define part programming.

Q.32 Explain automated guided vehicles.

Q.33 Write the components of FMS.

Q.34 Define five types of joints in robot

Q.35 Explain work volume in robots.

SECTION-D

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

Q.36 Explain working of CNC system with the help of block diagram.

Q.37 Explain different types of automation along with advantages and limitations

Q.38 What is a sensor ? Name different types of sensors. Explain any five.