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Roll No. .... 031755

# **5<sup>th</sup> Sem / Mech, Mecatronics, Prod, T&D, CAD/CAM, Mech. (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 Full form of CAD

  - a) Computer aided Design
  - b) Computer aided Dimension
  - c) Computer aided Drafting
  - d) None of the above

Q.2 Do-loops always are implemented on

  - a) Incremental mode    b) Absolute mode
  - c) Both A and B mode    d) None of the above

Q.3 M00 code use for

  - a) Spindle stop                b) Coolant stop
  - c) Programme stop            d) End of programme

Q.4 Manual data input (MDI) os also known as

  - a) Controller                  b) Control panel
  - c) Reader unit                d) Machine control unit

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- Q.5 The setting of tools in advance at a place away from the machine tool is known

  - a) Qualified tool      b) Semi-qualified tools
  - c) Inserted bit tool    d) Pre-set tools

Q.6 In close tools control system

  - a) Feedback system is present
  - b) Feedback system is not present
  - c) Tool offset is present
  - d) None of the above

Q.7 .....device works upon resistance .

  - a) Potentiometer      b) Tachometer
  - c) LVDT                d) None of the above

Q.8 AGVs are material.....system that can be independently operated.

  - a) Control              b) Handling
  - c) Manufacturing        d) None of the above

Q.9 Design feature of CNC tooling is that .

  - a) Tool has to withstand higher cutting forces
  - b) Variety of operations are to be done
  - c) Flexibility
  - d) All of the above

Q.10 A robot must always obey the order given to it by human beings, according Which of the following .

  - a) Robotics third law    b) Robotics first law
  - c) Robotics second law d) None of the above

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## **SECTION-B**

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

- Q.11 Miscellaneous operations are addressed by ....codes.  
Q.12 The tool magazines are of.....and.....types  
Q.13 There are ....axis from which a tool is qualified.  
Q.14 Clearance in threads of lead screw cause....defect.  
Q.15 The two type of NC systems are ....and .....  
Q.16 Explain FMS.  
Q.17 (27)10=(?)<sub>2</sub>  
Q.18 Define O-joints in robotics .  
Q.19 Define AGV  
Q.20 G-41 code is used for cutter radius compensation from left. (True or False )

## **SECTION-C**

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

- Q.21 Differentiate between NC and CNC machines.  
Q.22 What are the advantages and applications of stepper motor ?  
Q.23 Write a short note on tool room management .  
Q.24 Explain with neat sketch , opto-interruptors.  
Q.25 How will you define NC co-ordinate system ?

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- Q.26 Differentiate between absolute and incremental dimensioning with neat sketch.  
Q.27 Explain L.V.D.T ?  
Q.28 Describe What is stick-slip motion and its effect?  
Q.29 Enlist the various disadvantages of Automation .  
Q.30 Brief explain various law of robotics .  
Q.31 Compare CNC and DNC system .  
Q.32 Write the various Applications of Open loop control system .  
Q.33 What is a tool magazine ? Explain its types.  
Q.34 Write short note on  
a) ASRS Systems      b) FMS  
Q.35 Explain Swing around MCU with diagram, also write its advantages .

## **SECTION-D**

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

- Q.36 Discuss Principle, construction and working of Automatic tool changer.  
Q.37 What are the common problems in CNC machines and their remedies ?  
Q.38 With the help of sketches, explain different types of slide - way .

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