Register Number……

B.E. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

MECHATRONICS ENGINEERING

U07MH504: CNC Technology

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1) Which is the CNC hardware

a) microprocessor b) PLC c)feed drive d) servo control

2) In CNC machine _____ is the principal motion direction in the positioning plane of the cutting tool

a) Y axis b) Z axis c) X axis d) X and Y axis

3) In medium size of CNC machine positioning accuracies in 'arc sec' are

a) 22–25 b) 35–40 c) 50–55 d) 10–15

4) What is the helix angle of ball screw?

a) (2 º–5º) b) (13 º–15 º) c) (17 º–20 º) d) (7 º –10v)

5) What is the property of diamond?

a) High thermal expansion b) low heat conductivity

c) high heat conductivity d) Good conductor of electricity

6) What is the principle used for locating a work piece in jig

a) Four point location b) 2-3-1 principle c) six point location d) 1-2-3 principle

7) Write down the G –code for dimensioning in inch units

a) G50 b) G70 c) G91 d) G 81

8) Write down the M- code for spindle stop

a) M76 b) M04 c) M05 d) M06

9) In CNC machines training level needed are

a) Programmer level b) Marketing level c) HR level d) Managing level

10) Which knowledge is required for arithmetic and geometric operations in CNC system?

a) Machine operation b) Programme editing

c) Mathematics d) Spatial visualization

PART B (10 x 2 = 20 Marks)

11) List out the different types of CNC machines.

12) Mention the disadvantages of CNC machine.

13) What is meant by pre-loading of ball screw?

14) What are all the requirements of spindle in CNC machine?

15) What are the types of interpolators?

16) What is mean by APT language?

17) State the types of Positional Control.

18) State any 4 features that an ideal working holding device would passes for CNC applications.

19) What are all costs involved in operation of CNC machines?

20) What are all the factors which influencing the selection of CNC machines?

PART C (5 x 14 = 70 Marks)

21 (a) (i) Describe the principle of working of CNC Laser Beam Machine. (7)

(ii)Explain with neat block diagram typical configuration of Adaptive control machining system. (7)

(OR)

(b) (i) Discuss with neat block diagram general configuration of a DNC system. (7)

(ii) Explain the working principle of Electronic discharge machining. (7)

22 (a) What are the different aspect to be considers in designing a CNC machine?

(OR)

(b) (i) What are the classification of ATC and explain briefly with the neat sketch. (8)

(ii) What are the aspects for the selection of ball screws? (6)

23 (a) What are the different types of control system available in NC machine tool and explain any two.

(OR)

(b) What are the types of measuring system used in CNC machine explain them briefly.

24 (a) What are the different types of work holding devices and explain five.

(OR)

(b) What are the different methods of CNC part programming and explain briefly about CAPP.

25 (a) What are thee factors influencing selection of CNC machines.

(OR)

(b) (i) What are the preventive measure to maintain the CNC machine? (7)

(ii) Explain the practical aspect to introducing the CNC machine. (7)

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