

X

reviewer1@nptel.iitm.ac.in ▼

Courses » Computer Numeric Control Of Machine Tools And Processes

Announcements Course Ask a Question Progress Mentor

Unit 4 - Week 3: Computer aided offline programming practice, Linear and curvilinear interpolator, Tutorial

Course outline

How to access
the portal ?

Week1-
Computer
Numerical
Control
Machines :
Introduction and
Classification

Week2:
Technologies
and devices
employed in CNC
machines

Week 3:
Computer aided
offline
programming
practice, Linear
and curvilinear
interpolator,
Tutorial

- Lecture 12 :
Computer Aided
Offline
Programming
- Lecture 13 :
Interpolators -
Linear
- Lecture 14 :
Interpolators -
Curvilinear
- Lecture 15 :
Questions on
Programming
and
Interpolation
- Feedback for
week 3
- Notes on
interpolators

Assignment-3

The due date for submitting this assignment has passed. **Due on 2018-03-07, 23:59 IST.**

Submitted assignment

1) One of the main functions of the CNC interpolator is to

1 point

- Move the cutter along the programmed path
- Start the spindle rotation
- Interpolate between two spindle speeds
- None of the others

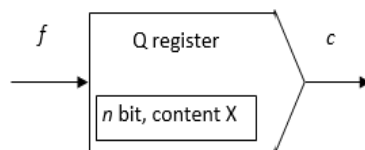
No, the answer is incorrect.

Score: 0

Accepted Answers:

Move the cutter along the programmed path

2) A Digital differential analyzer (DDA, fig given) is to emit $c = 3000$ ppm. X is the content 1 point inside the n bit counter and gets added once to the content of the Q register for every pulse. The input pulse frequency f is 6000 ppm, $n = 4$. In order that the overflow pulses from Q register be 3000 ppm, the content X of the n bit register is nearest to



- 32
- 8
- 16
- 4

No, the answer is incorrect.

Score: 0

Accepted Answers:

8

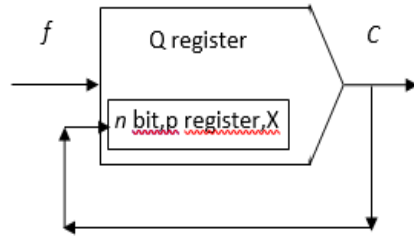
3) A student connects up the output of a DDA to the down-counting input point of the p register with content X . 1 point
As a result, the output C will

- Quiz : Assignment-3
- Assignment 3 Solution

Week 4: 3-D Machining, Curved Surface Geometry and Cutter Path generation, Tutorial

Practice Assignments with their answers and explanations

DOWNLOAD VIDEOS



- Decay exponentially with time (Till X is zero)
- Increase linearly with time (Till X is 2^n-1)
- Decrease linearly with time (till X is zero)
- None of the others

No, the answer is incorrect.

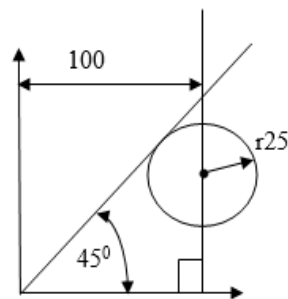
Score: 0

Accepted Answers:

Decay exponentially with time (Till X is zero)

4) The definition of the circle in the figure

1 point



- Is not possible due to insufficient data
- Is possible as sufficient data is provided

No, the answer is incorrect.

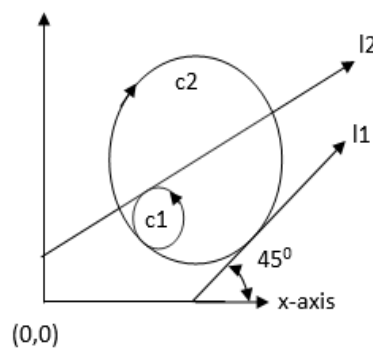
Score: 0

Accepted Answers:

Is possible as sufficient data is provided

5) Assuming that c2 and l2 are already defined, the definition of the counterclockwise circle c1 (of radius 5 mm) as shown in the figure is

1 point



- $c1=c2,l2,r5$
- $c1=-c2,-l2,r5$
- $c1=-l2,-c2,r5$
- $c1=-l2,c2,r5$

None of the others

No, the answer is incorrect.

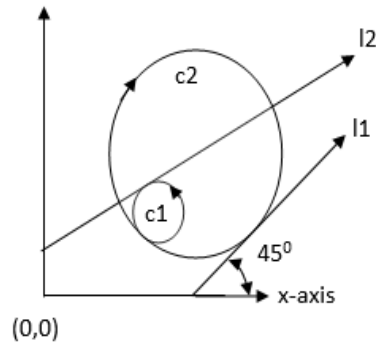
Score: 0

Accepted Answers:

c1=-l2,-c2,r5

6) The definition of the line l1 will be

1 point



- l1=c2,a45
- l1=c1,a45
- l1=-c2,a45
- l1=-c2,a-45
- None of the others

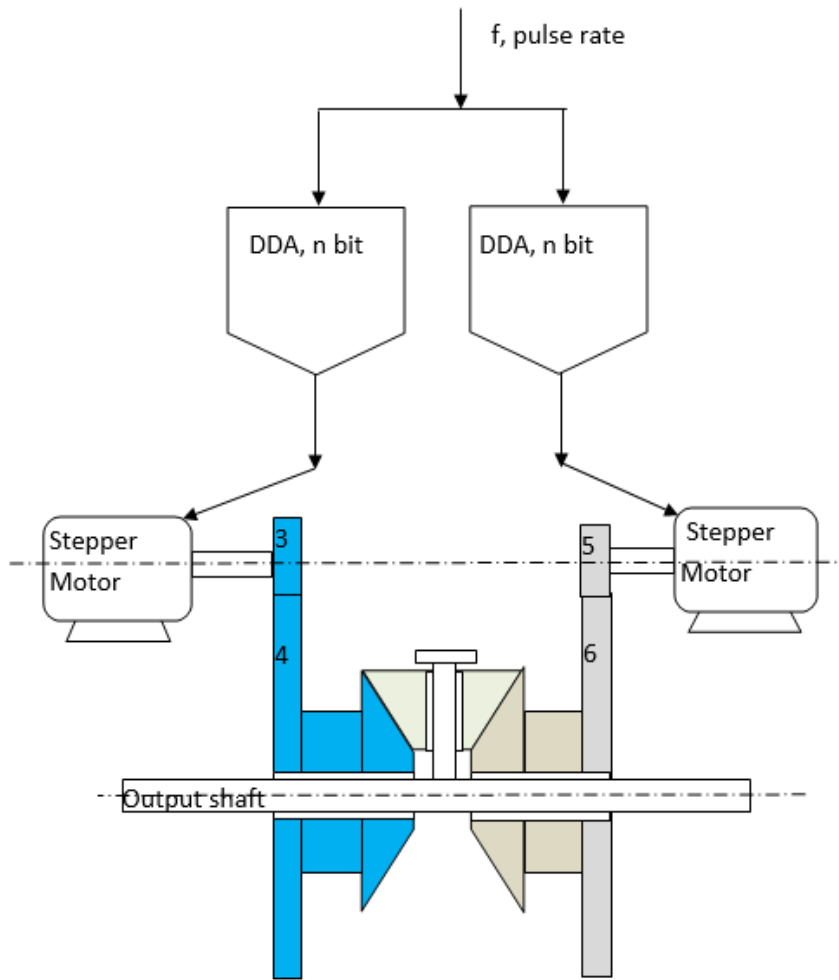
No, the answer is incorrect.

Score: 0

Accepted Answers:

l1=-c2,a45

7) A bevel gear differential is getting two rotation inputs from two stepper motors. These **1 point** rotations are ultimately defining the rotation of the output shaft. It is required that the rpm ratios of the two stepper motors cover all ratios x:y, where x and y can be any single digit integers prime to each other, examples : 1:2, 2:1, 4:5, 8:9, 3:7, 5:7 etc



In that case, the cheapest device that would be able to serve the two stepper motors will be a 2-DDA interpolator as shown

- n=3
- n=4
- n=5
- None of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

n=4

8) In case of 2-axis circular interpolation

1 point

- Speed of one axis motor remains constant while the motor in the other axis varies
- Speed of both the motors are varied
- Speed of the motors are varied but the ratio remains constant
- None of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

Speed of both the motors are varied

9) In a CNC hardware interpolator, the feed DDA starts malfunctioning and has to be replaced.

1 point

An exact replacement is not available in the market and the DDA with nearest specification has registers two bits larger in size than the required one. If that DDA replaces the malfunctioning DDA,

- Profile error will occur
- Actual feed will be 4 times the programmed feed
- Actual feed will be 4 times less than the programmed feed
- None of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

Actual feed will be 4 times less than the programmed feed

10)The highest frequency pulse output from a DDA having n bits and input frequency f, is **1 point** nearest to

- f
- f/2
- $f(2^n-1)/2^n$
- None of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

$f(2^n-1)/2^n$

Previous Page

End

© 2014 NPTEL - Privacy & Terms - Honor Code - FAQs -



A project of



In association with



Funded by

Government of India
Ministry of Human Resource Development

Powered by

