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BME-057

DIPLOMA IN MECHANICAL ENGINEERING (DME)

Term-End Examination

June, 2016

00290

BME-057 : CNC MACHINES

Time : 2 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. All questions carry equal marks.*

1. (a) What are the basic components of an NC system ? Explain.

(b) Describe about the NC co-ordinate system for milling and drilling operations with a neat sketch. *5+5*

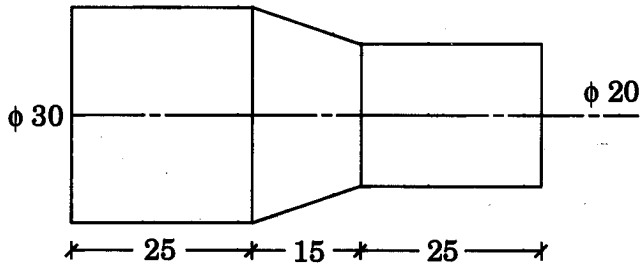
2. (a) Explain the working of encoders and linear scales used in CNC machines for feedback.

(b) Explain open-loop and closed-loop control systems for NC machines. *5+5*

3. (a) How can you identify 3-axes of NC machines ? Explain with examples.

(b) Write at least five differences between NC, CNC and DNC machines. *5+5*

4. (a) Write manual part program for machining component on CNC lathe. All dimensions are in mm.



(b) Describe about the Rapid Positioning with a suitable sketch. *5+5*

5. (a) How do you control the environmental factors for the CNC machines ? Explain in brief.

(b) Explain the operation of Direct Numerical Control (DNC) machines with a neat sketch. *5+5*

6. (a) Describe about the Tape Programming format in CNC machines with suitable examples.

(b) Explain about 'Preset Tools' with a neat sketch. *5+5*

7. Write short notes on any ***two*** of the following : *5+5*

(a) Feedback Devices

(b) Driving Systems

(c) Design Features for CNC Machine Tool

8. (a) Explain the design features of CNC tooling and automatic tool changers (ATC).

(b) Explain about the machine tool zero point setting with suitable examples. *5+5*

9. (a) Can the utility of NC machines be justified for mass production ? Justify your answer with suitable examples.

(b) What do you understand by alphanumeric functions ? Explain five preparatory and miscellaneous codes with examples. *5+5*