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B. E. (Seventh Semester) Examination,

Nov.-Dec., 2017

(New Scheme)

(Mechatronics Engg. Branch)

**AUTOMATED MANUFACTURING-I**

*Time Allowed : Three hours*

*Maximum Marks : 80*

*Minimum Pass Marks : 28*

*Note : All questions are compulsory. Part (a) is compulsory. Attempt any two parts from (b), (c) and (d). Draw neat sketches wherever necessary. Assume suitable data if necessary.*

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1. (a) What is Automation? 2
- (b) What are the advantages, disadvantages and limitation of CNC systems. 7

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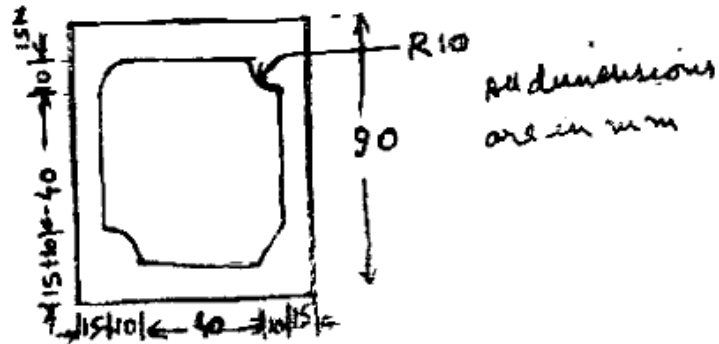
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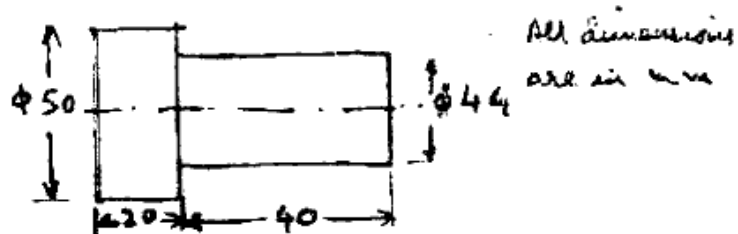
- (c) Describe the execution system of a CNC machine. 7
- (d) What is Intelligent Manufacturing? 7
2. (a) Name the different types of machine elements used in CNC machine. 2
- (b) Name the different types of motor used in CNC machine. Explain how precise motion control is achieved in CNC machines. 7
- (c) Describe the use and the working of Encodes as feedback device. 7
- (d) Write a note on "Linear Glass Scales". 7
3. (a) Name any four peripherals used in CNC machines. 2
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- (b) Write a note on Automatic pallet changes. 7
- (c) Describe the working of a co-ordinate measuring machine. 7
- (d) Write a note on In-process measuring instruments. What are Touch probes? 7
4. (a) Name the formats used for writing part programs. 2

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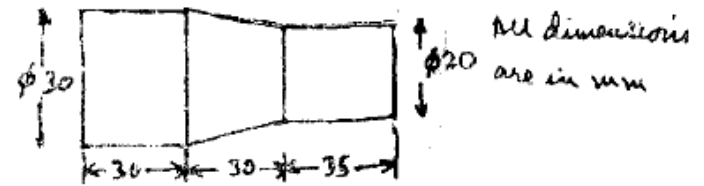
(b) The component to be machined is shown below. Write a part program using line and circular interpolations. The thickness of the component is 10 mm.



(c) Write a part program to turn the component in a CNC lathe machine.



(d) Write a part program to perform taper turning in the component using CNC lathe machine.



5. (a) What is Rapid Prototyping? 2
- (b) Describe the process of stereo lithography. 7
- (c) Explain the process of Fused Depositions Modelling (FDM). 7
- (d) Explain the process of Selective Laser Printing. 7