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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

First Semester, M. Tech – Mechanical Engineering (MCIM)

Semester End Examination; Jan/Feb. - 2016

Computer Control of Manufacturing Systems

Time: 3 hrs

Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each **unit**.

UNIT - I

- 1 a. List the various levels of Automation. With block diagram explain the feed forward control. 12
- b. Briefly explain the various capabilities of computer process control. 8
- 2 a. With block diagram explain direct digital control for the development of computer process control. 10
- b. With block diagram explain distributed control system. What are its advantages? 10

UNIT - II

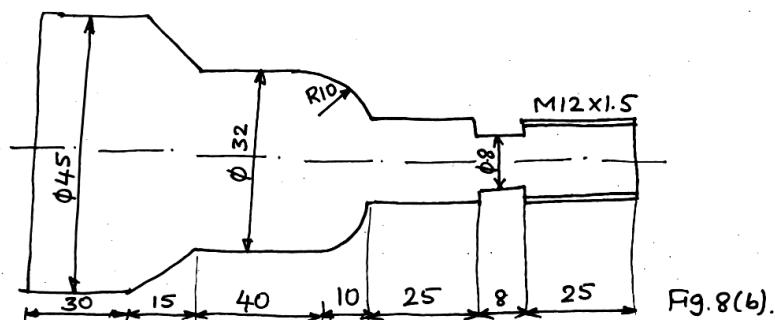
- 3 a. Briefly explain the components of total production time of any machining job. 8
- b. List the various common switches available on the MCV controller panel. 12
- 4 a. With a block diagram explain incremental open loop control system for PTP application. 10
- b. Briefly explain various types of feed driver used in CNC machine tools. 10

UNIT - III

- 5 a. Briefly explain the major categories of CNC turning centres. 10
- b. Write a brief note on High Speed Machining. 5
- c. Write a short note on digitising using touch trigger probes. 5
- 6 a. With a neat sketch explain the typical tool setting system used in machining centre. 10
- b. Briefly explain the ISO coding system for tungsten carbide inserts used in Turning. 10

UNIT - IV

- 7 a. With flow chart explain the steps involved in the development of a part program. 10
- b. With neat sketches explain the importance of cutter radius compensation and tool length compensation. 10
- 8 a. What are canned cycles? Briefly the canned cycles for grooving and thread cutting operations. 10
- b. For the part shown in Fig. 8(b), write the programme for getting the contour. 10



UNIT - V

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| 9 | a. | With block diagram explain reference - pulse Technique for a CNC system. | 12 |
| | b. | List the advantages of CNC over NC system. | 8 |
| 10 | a. | With block diagram explain Adaptive control with constraints system for turning operation. | 10 |
| | b. | With block diagram explain on - line adoptive control system for grinding. | 10 |

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