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

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, M.Tech. - Mechanical Engineering (MCIM)

Semester End Examination; May / June - 2019

Flexible Manufacturing System

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

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|------|--|----|
| 1 a. | Define FMS. Explain the components of FMS. | 10 |
| b. | Discuss the advantages and disadvantages of FMS. | 10 |
| 2. | Explain FMS layouts with suitable sketch. | 20 |

UNIT - II

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|------|--|----|
| 3 a. | Explain various types of AGV's. | 10 |
| b. | Explain vehicle guidance technologies used in AGV's. | 10 |
| 4 a. | Describe basic components of an AS / RS. | 10 |
| b. | List the assumptions made in throughput AS / RS analysis. | 4 |
| c. | Differentiate between AS / RS and Carousel storage system. | 6 |

UNIT - III

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|------|---|----|
| 5 a. | With a neat sketch, explain DNC system. | 10 |
| b. | Explain tool management areas of FMS. | 10 |
| 6 a. | Explain various tool identification system used in FMS. | 10 |
| b. | Explain types of CMM based on its structure. | 10 |

UNIT - IV

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|------|---|----|
| 7 a. | Define GT. Explain implementation of GT in a company. | 10 |
| b. | List part design attributes and part manufacturing attributes used in GT. | 10 |
| 8 a. | Explain the benefits of GT. | 8 |
| b. | With sketches, explain Petrinets for the following operation : | |
| | i) Sequential | 12 |
| | ii) Concurrent | |
| | iii) Conflicting | |

UNIT - V

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|-------|--|----|
| 9. | With a case study, explain the implementation of FMS is technically and economically viable. | 20 |
| 10 a. | Discuss HNH FMS with an example. | 10 |
| b. | Explain features of FAS. | 10 |