

BACHELOR OF VOCATION**Automotive Mechatronics****Subject: Computer Integrated Manufacturing****Subject Code: CBME-304****Semester: Fifth****January 2021****Theory (External): 70 Marks****Time: 03 Hours****Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory:
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

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SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x2=20 Marks)

- A. The elements of CIM are
- Manufacturing elements such as CNC/DNC/FMS
 - Material handling devices
 - Tool handling devices
 - All of the above
- B. The components of a manufacturing system is/are
- Production machines and material handling system
 - Computer system
 - Human workers
 - All of the above
- C. Tool management system involves
- Tool coding system
 - Tool supply system
 - Tool monitoring system
 - All of the above
- D. Grouping the production equipment into machine cells, where each cell specializes in the production of a part family, is
- Cellular manufacturing
 - Batch manufacturing
 - Machine cell manufacturing.
 - None of the above
- E. _____ is a highly automated group of GT machine cell.
- Flexible manufacturing system
 - Group technology
 - Automated system
 - None of the above

F. Opitz classification system is made of:

- a) 8 digits
- b) 11 digits
- c) 13 digits
- d) 16 digits

G. What do Flexible Manufacturing Systems (FMS) do?

- a) Moves and manipulates products, parts or tools
- b) Moves materials between operations
- c) Co-ordinates the whole process of manufacturing and manufactures a part, component or product
- d) Completely manufactures a range of components without significant human intervention during the processing

H. One of the classifications of FMS based on the number of machines in the system is

- a) Flexible manufacturing cell
- b) Random-order FMS
- c) Dedicated FMS
- d) None of the above

I. The capability of the machines to a wide range of products of operations and part cycles is known as _____.

- a) Product flexibility
- b) Production flexibility
- c) Routing flexibility
- d) Machine flexibility

J. The main objective(s) of industrial robot is to

- a) To minimize the labour requirement
- b) To increase productivity
- c) To enhance the life of production machines
- d) All of the above

SECTION -B (ESSAY TYPE QUESTIONS)
(5 x 10 = 50 Marks)

1. What is computer integrated manufacturing (CIM)? Discuss the various functions and benefits of CIM.
2. Discuss the basic elements of an automated system.
3. (a) Discuss various levels of automation.
(b) Explain Optiz parts classification and coding system generally used in group technology.
4. (a) What is group technology? State the benefits of group technology.
(b) What are the production conditions under which group technology and cellular manufacturing are most applicable?
(c) State the objectives of implementing the cellular manufacturing.
5. What are the basic components of a flexible manufacturing system (FMS)? Discuss in detail.
6. Discuss the different types of layout configurations of FMS.
7. (a) What is the significant advantage of using a robot in a computer integrated manufacturing system?
(b) Discuss the importance of proper presentation of work parts to the robots.
8. Write short notes on the following:
(a) Types of manufacturing system
(b) Tool monitoring system

*****END OF PAPER*****