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**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - APR 2023**

Semester : Semester VI -2020

Course Code : MEC3034

Course Name : Sem VI - MEC3034 - Computer Integrated Manufacturing

Program : MEC

Date : 17-APR-2023

Time : 11:30AM - 1PM

Max Marks : 60

Weightage : 30%

Instructions:

- (i) Read all questions carefully and answer accordingly.
 - (ii) Question paper consists of 3 parts.
 - (iii) Scientific and non-programmable calculator are permitted.
 - (iv) Do not write any information on the question paper other than Roll Number.
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PART A

ANSWER ALL THE QUESTIONS

(10 X 1 = 10M)

1. Automation uses control systems to control the industrial machinery and process. Reason for automation is
a) Less labour (CO1) [Knowledge]
b) Improve productivity
c) Reduce MLT
d) All of the above
e) Default option text
2. Time taken by machine to complete raw material into finished product on a machine is called process time. The unit of process time is
a) min/pc (CO1) [Knowledge]
b) min/hr
c) min/sec
d) min/meter
3. Automation system are used in manufacturing industries to reduce defect, errors and lead time in production line. Which automation system is most suitable for batch production in manufacturing industries?
a) Fixed automation (CO1) [Knowledge]
b) Flexible automation
c) Programmable automation
d) None of the above

4. Different mechanism are used to convert rotary to linear or rotary to linear motion. Rack and pinion mechanism used to convert rotary motion in to
a) Rotary (CO1) [Knowledge]
b) Linear
c) Angular
d) All of the above
5. CAQ is basically software tool used in manufacturing system. What is the function of CAQ application?
a) Inspection of quality of products (CO2) [Knowledge]
b) Inspection of machine
c) Inspection of services
d) Inspection of tools
6. Machine performs a sequence of machining operations on several work parts simultaneously and parts are fixtured on a horizontal circular table or dial are called
a) Single station machine (CO2) [Knowledge]
b) Rotary
c) Trunnion
d) Centre column
7. In work-part transport system, material will be transported from one place to other by different machines. In _____, parts that are not properly oriented will be reoriented and allowed to pass through to feed track
a) Orienter (CO2) [Knowledge]
b) Vibratory bowl feeder
c) Selector
d) Escapement
8. A production machine operates 80 hr/wk (two shifts,5 days) at full capacity.Its production rate is 20 units/hr.During a certain week,the machine produced 1000 parts and was idle the remaining time. Determine the production capacity of machine.
a) 1600 units/wk (CO2) [Knowledge]
b) 2600 units/wk
c) 6600 units/wk
d) 1800 units/wk
9. Workstations numbers will be increased or decreased depending upon the production rate to suit the requirement. A processing workstations with four or more workstations are called
a) Flexible machine cell (CO2) [Knowledge]
b) Flexible manufacturing system
c) Single machine cell
d) None of the above
10. In work-part transportation system, placing the components in a correct location is very important. The Device which removes the parts from feed track at time interval that are consistent with the cycle time of assembly head.
a) Escapement device
b) Vibratory device (CO2) [Knowledge]
c) Placement device
d) None of the mentioned

PART B

ANSWER ALL THE QUESTIONS

(5 X 6 = 30M)

11. Elaborate the objectives of the use of transfer lines in a manufacturing industry.
(CO1) [Comprehension]
12. What is the need for adding buffer storage in a manufacturing industry?
(CO1) [Comprehension]
13. Discuss about how CAM mechanisms are used in indexing the dial.
(CO1) [Comprehension]
14. Computer Integrated Manufacturing systems uses different computer techniques to manufacture a product. How can CIM and CAQ techniques aid in producing the products?
(CO2) [Comprehension]
15. Different automation system are used in manufacturing sector to suit the production demand. Discuss how programmable automation differ from the flexible automation.
(CO2) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(2 X 10 = 20M)

16. Discuss the method of transferring workparts by using the walking beam transfer bar system
(CO1) [Application]
17. Write about any two types of pick-and-place mechanisms for transferring base parts from feeders to work carriers by using escapement and placement Devices
(CO2) [Application]