

B. Voc Automotive Manufacturing
Computerised Numerical Control (CNC) Machines
BBME-213
Semester-3rd
Theory (External): 35
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 1 mark.
3. **Section B** comprises 6 essay type questions out of which students need to do any 5. Each question carries 5 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 (OBJECTIVE TYPE QUESTIONS)

(10x1=10 Marks)

1. What do you understand by chip formation and chip load?
Briefly explain with diagram.
2. Explain the meaning of numerical control? What are the areas where numerical control can be used?
3. What are the additional features available in CNC machine tools over conventional NC machine tools?
4. What are the factors to be considered in selecting the tooling for CNC machines?
5. Sketch the parts of a twist drill.
6. Differentiate between PLC's and microcontrollers.
7. What is the basic principle of tool design?
8. What are solid tools and brazed tool used in CNC machining operations?
9. What types of software programs used in CNC systems?
10. What do you understand by ATC? Explain briefly.

SECTION –B (ESSAY TYPE QUESTIONS)

(5x5=25 Marks)

1. Explain the basic components of CNC machines. Also explain the various factors which are very much important to maintain proper environmental conditions.
2. What are the cutting tools? Explain the different types of tool materials with applications. Also explain: -
 - a) Preset tools
 - b) Qualified tools
 - c) Semi qualified tools.
3. Explain the turning center work holding methods.
4. What are the special devices used in CNC machines and why?
5. Explain the sequential cycle of tool change with neat diagram.
6. Explain the following: -
 - a) Slide ways
 - b) Guide ways
 - c) Feedback devices and
 - d) Safety devices.

****END OF PAPER****