

[03 – 3212]

III/IV B.E. DEGREE EXAMINATION.

Second Semester

Mechanical Engineering

MANUFACTURING TECHNOLOGY — III

(Effective from the admitted batch of 2006–2007)

Time : Three hours

Maximum : 70 marks

Question No. 1 is compulsory.

Answer any FOUR from the remaining.

All questions carry equal marks.

Answer to question No. 1 must be at one place.

Assume suitable data wherever necessary.

1. Answer the following in brief:
  - (a) How does numerical control increase the precision of a machine tool?
  - (b) What are the significant advantage of using a robot in a computer integrated manufacturing system?
  - (c) What is the task of a computer in computer aided part programming?

- (d) What are the elements of screw thread which control the quality of the thread?
  - (e) Discuss Various optical methods of flatness testing.
  - (f) Indicate how various surface roughness specifications are placed relative to the symbol.
  - (g) What is the effect upon the work if tail stock center line is parallel to but slightly above the head stock spindle axis?
2. (a) In what way is the structure of NC machine tools different from conventional machine tools? Why?
- (b) How do you classify robots? Describe the elements of a robotic system.
3. (a) What do you understand by canned cycle? Explain some of the milling canned cycles.
- (b) Differentiate between manual and computer aided part - programming.
4. (a) With a neat sketch illustrate how the effective diameter of a screw thread may be checked using the three - wire method.
- (b) With the help of neat sketches, state the essential conditions for (i) Clearance fit and (ii) Interference fit.

5. (a) Briefly outline the steps involved in manufacture of slip gauges. Also discuss the concept of wringing of slip gauges.
- (b) Explain with a neat sketch the working principle of Co-ordinate Measuring Machine (CMM).
6. (a) Describe the working principle of tool maker's microscope.
- (b) What is flatness? What are the various methods of checking flatness of surfaces? Describe procedure for determining flatness of surfaces in laboratory.
7. (a) What are the advantages and limitations of stylus probe?
- (b) Discuss on usage of laser equipment for machine tool acceptance tests.
8. Discuss any FOUR of the following briefly:
- (a) Data input devices and programme editing
- (b) Areas affected by FMS
- (c) Functions of machine control unit
- (d) Inter changeability
- (e) Straightness measurement
- (f) Sampling length related to surface texture.