T.Y. Diploma : Sem. V
[ME/PG/PT]

Advanced Manufacturing Processes

Time: 3 Hrs.] Prelim Question Paper **[Marks : 100**

Instructions : (1) All questions are compulsory.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.

1. (a) Attempt any **THREE** of the following: **[12]**
(i) Write any four advantages of non-traditional machining over conventional machining.
(ii) Differentiate between absolute and incremental mode.
(iii) Draw the sketch of the boring head. State the conditions under which it is used.
(iv) Compare both EDM and wirecut EDM for its applications.

(b) Attempt any **ONE** of the following: **[6]**
(i) With a neat labeled sketch, describe Laser Beam Machining process w.r.t. its principle, applications and limitations.
(ii) Explain Adaptive Controls.

2. Attempt any **FOUR** of the following : **[16]**
(a) With a neat sketch, describe the principle of PAM.
(b) Explain Axis identification in CNC Milling Machine.
(c) Describe how a grinding wheel is specified with an example.
(d) Two gears are to be manufactured with 25 and 35 teeth. Using simple indexing method, calculate number of turns for indexing. Consider standard sharp & brown plates.
(e) Explain Preventive Maintenance.

3. Attempt any **TWO** of the following : **[16]**
(a) Describe the standard vertical boring mill with neat sketch.
(b) Following are the machining requirements. Select appropriate non-traditional machining method for each with justification
(i) Deep drilling
(ii) Machining of injection moulding mould
(iii) Profile cutting of turbine blade
(iv) Die block used in press tools
(c) Describe construction and working of column and knee type milling machine with neat sketch.

4. (a) Attempt the **THREE** of the following: **[12]**
(i) Differentiate between straddle milling and gang milling.
(ii) State different types of milling cutters mentioning the names of operations for which they are used.
(iii) Explain centreless type grinding machine.
(iv) Write short notes on Repair Complexity.

(b) Attempt any **ONE** of the following: **[6]**
(i) List different types of gear finishing methods. Describe any one in detail.
(ii) Explain Balancing of Grinding Wheel.

5. Attempt any **FOUR** of the following: **[16]**

(a) Write short notes on Repair Cycle Analysis.

(b) With a neat sketch, describe working principle of honing process. State its two applications.

(c) Compare gear shaping and gear hobbing process with respect to accuracy, rate of production, quality and types of gears produced (At least one each)

(d) Define following cutting parameters of milling operation.
- (i) Cutting speed
- (ii) Feed
- (iii) Depth of cut
- (iv) Machine time calculation

(e) State and explain working principle of 'PLANOMILLER' with block diagram.

6. Attempt any **FOUR** of the following: **[16]**

(a) Explain selection criteria of grinding wheel.

(b) State advantages and disadvantages of broaching process.

(c) Explain Maintenance Practices for
- (i) Bearing
- (ii) Coupling

(d) Sketch any four profiles which can be produced by broaching process.

(e) State the significance of – G01, G04, M06, M03 in part programming.

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Paper Discussion Schedule for T.Y. Diploma (Sem. V) – All Subjects

Date	Day	Timing	Centres
14 Nov. 2016	Monday	9 a.m. to 11 a.m.	Dadar, Nerul
14 Nov. 2016	Monday	12 noon to 2 p.m.	Thane