GANPAT UNIVERSITY

B. TECH SEM- IV (MECHANICAL ENGG. / INTEGRATED MECHANICAL ENGG.)

REGULAR EXAMINATION-- APRIL-JUNE 2016

2ME404 MANUFACTURING TECHNOLOGY

TIME: 3 HRS   **TOTAL MARKS: 60**

Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.

(2) Figures on right indicate marks.

(3) Be precise and to the point in answering the descriptive questions.

SECTION: I

Q.1 **(10)**

a) Define manufacturing process? Enlist advantages of casting process over the other manufacturing processes. **(03)**

b) What is pattern? Explain following patterns with sketch: **(04)**
   i) Gatted pattern, ii) Match plate pattern

c) Explain following pattern allowances in detail: **(03)**
   i) Machining allowance, ii) Draft allowance

OR

Q. 1 **(10)**

a) Explain carbon dioxide molding process along with advantages, limitations and applications. **(04)**

b) What is centrifugal casting process? Differentiate between semi centrifugal and centrifuge casting. **(03)**

c) Differentiate between hot chamber and cold chamber die casting process. **(03)**

Q.2 **(10)**

a) Explain ingredients of molding sand. Also explain important characteristics of molding sand. **(03)**

b) Explain procedural steps of investment casting process along with advantages, limitations and applications. **(04)**

c) Differentiate between top, bottom and parting line gating. **(03)**

OR

Q.2 **(10)**

a) What is gating system? Explain functions of gating system. **(04)**

b) Enlist functions of riser. Also differentiate between open riser and blind riser. **(03)**

c) Define gating ratio. Differentiate between pressurized and unpressurized gating system **(03)**

Q.3 Write short notes on Any two of the following:

i) Defects in casting

ii) Cupola furnace

iii) Core and core making

iv) Riser and directional solidification

SECTION: II

Q.4

a) Define following terms with respect to lathe operations: (10)
i) Cutting speed, ii) Feed iii) Depth of cut (04)

b) Define taper turning? Enlist various taper turning methods and explain in any one method with a neat sketch. (03)

c) Estimate the time required for one complete cut on a work piece of length 600 mm and diameter 60 mm by cutting tool which operates at 30 m/min. Take feed to be 0.30mm/rev. (03)

OR

Q.4

a) Four holes of 20 mm diameter are to be drilled in a 50 mm thick plate of steel. A feed rate of 0.3 mm and a spindle speed of 350 per minutes are chosen to perform the drilling operation. Find the drilling time. (10) (04)

b) List out the drilling machine operations. Explain with neat sketch i) boring operation ii) counter boring iii) counter sinking. (03)

c) List work holding devices used on lathe machines. Also Explain any two work holding device with neat sketch. (03)

Q.5

a) What is quick return mechanism? Explain advantages of hydraulic quick return mechanism over crank and slotted return mechanism. (10) (04)

b) Explain following cutting angles of single point cutting tool:
i) Back rake angle, ii) Side cutting edge angle, iii) End relief angle (03)

c) Explain gear cutting operation on milling machine with indexing. (03)

OR

Q.5

a) Explain process of centre less grinding along with advantages, limitations and applications of the process. (10) (04)

b) Differentiate between push and pull type of Broaching along with advantages and limitations of Broaching operations. (03)

c) Explain principle of thread cutting operation on Lathe machine. How to cut single start and multi start threads on lathe machine? (03)

Q.6 **Write short notes on Any two of the following:**

a) Honing (10)

b) Peripheral milling

c) Milling operations

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