

Seat No. _____

GANPAT UNIVERSITY
B.Tech Semester - V Mechatronics Engineering
Regular Examination: - November/December 2012
2MC501-Casting and Manufacturing Process

[Total Marks: 70]

[Time: 3 Hour]

Instructions:...

- (1) Attempt all questions.
- (2) Assume suitable data if necessary.
- (3) Figures to the right indicate full marks

SECTION - I

Q-1 Answer the following question

12

- A Define sand casting process and give the advantages and area of applications of casting process in industries and also list out the raw material requirement for sand casting process.
- B Briefly explain the importance of different pattern making allowances
- C Define patterns and explain its function in casting process. List out all kind of patterns and explain: 1) Split pattern 2) Loose piece pattern 3) Sweep pattern

OR

Q-1 Answer the following question

12

- A List out the properties of molding sand and their effects on casting product.
- B What is gating ratio? Also list out different objectives from gating system.
- C Discuss different characteristics of gate used in gating system and explain different top gates with help of the neat sketch.

Q-2 Answer the following question

11

- A List main parts of column & knee type milling machine and state function of each part.
- B Among all ingredients of molding sand briefly explain the principal ingredient of molding sand with details.
- C List main parts of simple engine lathe and state function of each part.

OR

Q-2 Answer the following question

11

- A Define following terms used in drilling operations. (i) cutting speed (ii) feed (iii) depth of cut
- B With the help of neat sketch explain different types of multiple gates with their typical features for casting.
- C Explain work holding devices in planner machine.

Q-3 Write short notes on : (Any three)

12

- A Explain standard marking system of grinding wheels.
- B What is tool signature? Explain
- C Continuous casting process with neat sketch
- D Pressure die casting process with neat sketch

SECTION-II

- Q-4 Answer the following question** 11
- A Explain the different operation performed on lathe
 - B A brass pin is of 800 mm length and 50 mm diameter. Find the turning time to reduce the pin to 40 mm in one pass, when cutting speed is 50 metres/minute and feed is 0.5 mm/min.
 - C Write a short note on : “ Apron Mechanism”

OR

- Q-4 Answer the following question** 11
- A Estimate the time required for one complete cut on a work piece of length 600mm and diameter 60mm by cutting tool which operates at 30m/mim. Take feed to be 0.30mm/rev.
 - B List out the various work holding devices of drilling machine. Describe any two with neat sketch.
 - C Sketch and describe in brief of a radial drilling machine

- Q-5 Answer the following question** 12
- A Describe the principal of quick return mechanism as used in shaper in brief.
 - B List out the type of operation performed on planner and explain it.
 - C Explain various type of milling operations using neat sketches.

OR

- Q-5 Answer the following question** 12
- A Write advantages, limitation and application of broaching.
 - B What is centre less grinding? Describe centre less grinding operation.
 - C List out cutter holding device, and explain any two with neat sketch.

- Q-6 Write shorts note on:(Any three)** 12
- A Differentiate: shaper and planner
 - B Explain up milling and down milling
 - C Different type of chuck used in lathe machine
 - D Explain the process of lapping

END OF PAPER