

Enrollment No: _____

Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Advanced Manufacturing Processes and Analyses

Subject Code: 5TE02AMP2

Branch: M.Tech Mechanical (CAD/CAM)

Semester: 2 Date:25/04/2019

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

SECTION-I

- Q-1 Attempt the following questions: (07)**
- a) List the various considerations in press tool design. **01**
 - b) State probable causes of casting defect misrun. **01**
 - c) Write applications of advance welding techniques. **01**
 - d) What is recrystallization? **01**
 - e) What do you mean by functional design? **01**
 - f) What do you mean by “warm working”? **01**
 - g) Define: isothermal forming **01**
- Q-2 Attempt all questions (14)**
- a) Explain Design procedure for Blanking Die. **07**
 - b) How residual stresses in welding can be controlled? **03**
 - c) Describe the workability of forming. **04**
- OR**
- Q-2 Attempt all questions (14)**
- a) Classify metal forming processes and give complete analysis of any one process. **07**
 - b) Explain continuous casting with neat sketch. **07**
- Q-3 Attempt all questions (14)**
- a) Explain and analyze flask-less molding process. **07**
 - b) Explain the slab method for analysis of metal forming process and derive its equation. **07**
- OR**
- Q-3 Attempt all questions (14)**
- a) Explain Vacuum casting with neat sketch. **07**
 - b) Determine the maximum reduction per pass in a wire drawing operation using the following data. Coefficient of friction = 0.12, Dia angle =18°. **07**



SECTION-II

- Q-4** **Attempt the following questions:** **(07)**
- a) What are the advantages of metal spinning as compared to stamping and deep drawing? **01**
 - b) What is mixing ratio in abrasive jet machining? **01**
 - c) What is Standoff Distance (SOD) in AJM? **01**
 - d) What is FDM process? **01**
 - e) Draw flow chart of RP process. **01**
 - f) What is cryogenic machining? **01**
 - g) What are the typical tolerances that can be achieved with metal spinning? **01**
- Q-5** **Attempt all questions** **(14)**
- a) Describe micro machining with neat sketch. **05**
 - b) Describe the effects of various parameters in abrasive jet machining. **05**
 - c) In a RC type generator, the maximum charging voltage is 80 V and the charging capacitor is 100 μ F. Determine spark energy. **04**
- OR**
- Q-5** **Attempt all questions** **(14)**
- a) Write a short note on metal spinning. **07**
 - b) Describe the effect of frequency, amplitude, grain size and concentration of abrasive in the slurry on material removal rate in ultra sonic machining. **07**
- Q-6** **Attempt all questions** **(14)**
- a) Narrate Laminated Object manufacturing in detail with a neat sketch. **07**
 - b) Explain the basic principle of operation of wire cut EDM with neat sketch. **07**
- OR**
- Q-6** **Attempt all questions** **(14)**
- a) Explain the applications of rapid prototyping. Summarize the applications in engineering, analysis, aerospace industry, medical and bioengineering. **07**
 - b) “Which rapid prototyping processes are best suited for production of ceramic parts” Justify your statement. **07**

