Total No. of Questions : 4]

SEAT No. :

P9643

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Oct.-22/TE/Insem-505

T.E. (Mechanical /Automobile Engineering) (Semester - I)

Elective - I : ADVANCED FORMING AND JOINING PROCESSES

(2019 Pattern) (302045-A)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q. 1 or Q. 2, Q. 3 or Q. 4.***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data, if necessary.***

Q1) a) State and classify the bulk deformation & sheet metal working processes. **[5]**

b) State the assumptions of plasticity theory. **[5]**

c) Define sheet metal formability. State the factors on which formability of sheet metal depends. **[5]**

OR

Q2) a) With a schematic explain deep drawing operation. **[5]**

b) A cup of 50 mm diameter and 110 mm height is to be drawn from 0.8 mm thickness sheet. The tensile strength of the sheet is 310 N/mm^2. Determine i) Blank diameter ii) minimum number of draws required. iii) Force & energy for the first draw with 25% reductions. Assume the corner radius is negligible & constant 'C' for force calculation as 0.6. **[5]**

c) Explain why in a deep drawing % reduction at first stage is limited to maximum to 50%. **[5]**

Q3) a) Describe how high velocity forming (HVF) process is beneficial in comparison to conventional forming process. **[5]**

b) Differentiate between active hydro forming & sheet hydro forming. **[5]**

c) Explain the salient features of electro hydraulic forming (EHF). **[5]**

OR

Q4) a) State with a schematic the principle of incremental sheet forming. **[5]**

b) Explain stand-off technique and contact techniques of explosive forming with schematic. Also state the advantages and limitations of each technique. **[5]**

c) Differentiate between conventional spinning & metal spinning. **[5]**

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