Seat No.	

SV-86

Total No. of Pages : 3

T.E. (Mechanical) (Semester - V) (Revised) Examination, April - 2018
MANUFACTURING ENGINEERING (Paper - III)
Sub. Code: 66245

Day and Date : Saturday, 28 - 04 - 2018 **Total Marks : 100**

Time : 9.30 a.m. to 1.30 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume if necessary suitable data and state them clearly.**
4) **Use of non programmable calculators is permissible.**

SECTION - I

Q1) Solve any two :

a) Draw neat sketch of a Single point cutting tool and explain different angles provided on single point cutting tool. **[8]**

b) Explain Orthogonal & Oblique Cutting Operation with neat sketch. **[8]**

c) During orthogonal turning operation of, following observations were made. Cutting force (Fh) = 15 Kg, Feed force (Fv) = 6 Kg, Rake angle (α) = 10°, Feed (t_1) = 0.2 mm, Chip thikness (t_2) = 0.4 mm. Cutting Speed (V) = 60 m/min. Find out : **[8]**

i) Shear angle.

ii) Workdone in shear and

iii) Shear strain.

Q2) Solve the following questions :

a) Explain concept of Heat generation in metal cutting & use of coolants. **[8]**

OR

a) Explain with sketch various types of drill. **[8]**

b) The tool life of a Single point cutting tool is 10 minutes when it is operated at 240 m/min. At what speed it should be operated in order to have a tool life of 180 minutes. Assume $n = 0.3$. **[8]**

P.T.O.

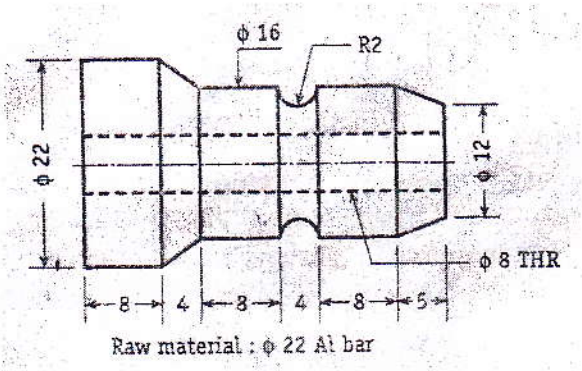
Q3) The component shown in fig. is to be processed on a single spindle automat. Study the component and prepare : **[18]**

a) Detailed process sheet.

b) Tool Layout.

c) Cam profile for drilling operation ϕ8 through

d) Calculate Production rate per hour.



Material – Al bar of O 22. All dimensions are in mm.

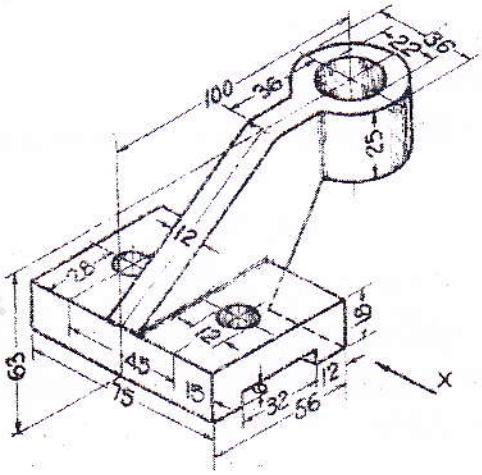
SECTION - II

Q4) Design & draw neat dimensional drawing in three views with one sectional view of jig for drilling two holes ϕ12 as shown in figure. **[26]**

OR

Desing & draw neat dimensional drawing in three views with one sectional view of Milling fixture for face milling of ϕ36 to maintain the height of 25 mm.

Also Justify the selection of location, clamping & guiding elements.



Q5) Solve any two :

a) Explain with sketch nomenclature of Press Tool. [6]

b) Write design considerations for die element. [6]

c) Explain different types of strippers. [6]

Q6) Write short notes on any three : [12]

a) Construction & working of CNC.

b) Automatic Tool Changer.

c) Modular Tooling System.

d) Comparison between NC and CNC machines.