BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - VI MECHANICAL :SUMMER- 2022
SUBJECT : MACHINE TOOL DESIGN

Day : Thursday
Date : 23-06-2022

S-13454-2022

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Use of non – programmable **CALCULATOR** is allowed.
4) Draw neat and labeled diagram **WHEREVER** necessary.
5) Assume suitable data if necessary.

Q.1 Explain with neat flow diagram the engineering design process applied to machine tool. **(10)**

OR

Q.1 Give the classification of machine tools. Also define the working motions and auxiliary motions for lathe, drilling and milling machine. **(10)**

Q.2 Discuss the design consideration for VFD drives. Also state its advantages and limitations. **(10)**

OR

Q.2 Draw the structural diagrams of a machine tool speed box for Nmin = 16 rpm, Nmax = 770 rpm and $\phi = 1.26$ Discuss which structural diagrams is best and why? **(10)**

Q.3 Discuss in detail the different materials used for machine tool structures. **(10)**

OR

Q.3 What are the factors affecting stiffness of machine tool structures? Discus the methods of improve it. **(10)**

Q.4 Explain with neat sketch the various shapes of slide ways used in machine tools. **(10)**

OR

Q.4 Discuss in detail with neat sketch the methods of adjusting clearance in slide ways. Also discuss the protecting devices used in sideways. **(10)**

Q.5 Compare the rolling friction and sliding friction bearing as the spindle supports and state their advantages. **(10)**

OR

Q.5 Discuss the procedure for acceptance test used for milling machine. **(10)**

Q.6 Discuss the various automatic feeding devices for work piece in production machines. **(10)**

OR

Q.6 Explain in detail breakdown and preventive maintenance with appropriate examples. **(10)**

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