

B.Tech. SEM -VII Production 2014 Course (CBCS) : WINTER - 2018

SUBJECT: MACHINE TOOL CONTROL

W-2018-2579

Day : Monday
Date : 26/11/2018

Time : 02.30 PM TO 05.30 PM
Max Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labeled diagram **WHEREVER** necessary.
 - 4) Assume suitable data, if necessary.
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Q.1 Define working motions and auxiliary motions. Show the same for lathe, drilling and slotting machine. **(10)**

OR

Q.1 What are the techno economical pre-requisites for undertaking the design of new machine tool? **(10)**

Q.2 List the various laws of stepped regulation. Why geometric progression is commonly used for speed gear box design. **(10)**

OR

Q.2 Design a 9 speed gear box with speed ranging from 30 rpm. Given that $\phi = 1.41$. Draw the structural diagram, best ray diagram, layout and deviation diagram. **(10)**

Q.3 Discuss in detail material for machine tool structures. **(10)**

OR

Q.3 Explain in detail the design criteria used for machine tool structures. **(10)**

Q.4 a) State the functions and types of Guideways. **(05)**

b) Discuss in detail the material for slideways **(05)**

OR

Q.4 Explain in detail with neat sketches the various shapes of slideways. **(10)**

Q.5 Discuss in detail the preloading of the antifriction type of bearings. **(10)**

OR

Q.5 Discuss in detail the design calculations of spindle units. **(10)**

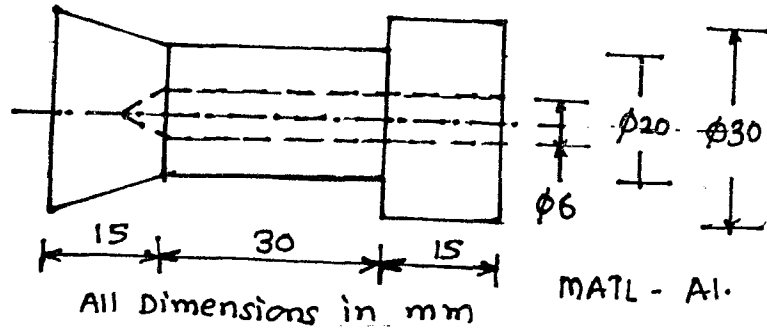
Q.6 a) Define transfer devices. What are the advantages and limitations of transfer devices? **(05)**

b) Explain with neat sketch the mechanical in-process gauging. **(05)**

P. T. O.

OR

Q.6 Design a cam set for a single spindle automat for the machining of component (10) shown in figure.



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