**CODE NO:- Z-410**

**FACULTY OF ENGINEERING & TECHNOLOGY**
**B.E (Mech)Year Examination - June– 2015**
**EL-II -Machine Tool Design**
**(Revised)**

[Time:  Three *Hours*]                                                                 [Max. Marks: 80]

"Please check whether you have got the right question paper."

*N.B*          i)   Solve <u>any three</u> questions from each section.
              ii)  Assume suitable additional data if required.

### SECTION-A

| | | | |
|---|---|---|---|
| Q.1 | a) | What are the basic requirements of machine tool drives? | 06 |
| | b) | Explain the economics of machine tool selection. | 07 |
| Q.2 | a) | Explain with neat sketch the layout of any one machine tool. | 06 |
| | b) | What are the accaptance's tests for machine tool? | 07 |

Q.3          Design a speed box when spindle speed ranging from 45rpm to 2000rpm and number of speed       13
             z =18. Calculate the structural formulas and draw the structural diagram.

| | | | |
|---|---|---|---|
| Q.4 | a) | What are basic requirements and function of machine tool structures? | 06 |
| | b) | Explain design of column. | 07 |

Q.5          Solve <u>any two</u> questions of the following                                             14
       a)    Hydraulic transmission and its elements.
       b)    Static and dynamic stiffness.
       c)    Design of bed

### SECTION -B

| | | | |
|---|---|---|---|
| Q.6 | a) | Derive an expression for design of antifrication slideways. | 07 |
| | b) | What are the combination guider ways and their applications? | 06 |
| Q.7 | a) | What are the various methods of adjusting clearances in guider ways? | 07 |
| | b) | What are the function and requirements of finder and spindle puppets? | 06 |

Q.8          Derive an expression for effect of machine tool compliance on machining accuracy.           13

| | | | |
|---|---|---|---|
| Q.9 | a) | What are the dynamic characteristics of cutting process? | 06 |
| | b) | What are the materials of spindlier? | 07 |

Q.10         Solve <u>any two</u> questions.                                                            14
         a) Various shapes of guideways
         b) Forced vibration of machine tool
         c) Sliding braving and its application in machine tools

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