VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY,ODISHA

Mid Semester Examination-B.TECH(Production Engineering)

Sub-TOM | Time-2 Hrs

Full marks -20 | Semester-4th

(Answer 4 Questions including question no. 1)

1. Answer the following in brief. [1 × 5]

a. What is a machine? Differentiate between a machine and a structure.

b. Explain the term LOWER PAIR,HIGH PAIR,KINEMATIC CHAIN,INVERSION.

c. What are the inversions of four bar chain?

d. Define the condition for overhauling and self locking of screws.

e. Derive the expression for maximum efficiency of a screw jack.

2. Sketch and describe the working of crank and slotted lever quick return motion mechanism. [5]

3. A crank and slotted lever mechanism used in a shaper has a centre distance of 300 mm between the centre of oscillation of the slotted lever and the centre of rotation of crank. The radius of the crank is 120 mm. Find the ratio of the time of cutting to the time of return stroke. [5]

4. Sketch and explain any two inversions of a double slider crank chain. [5]

5. Find the effort required to apply at the end of a handle, fitted to the screw head of a screw jack to lift a load of 1500N. The length of handle is 70 cm. The mean dia and pitch of screw jack are 6 cm and 0.9 cm. The coefficient of friction is 0.095. [5]

6. Explain different kinds of kinematic pairs giving example for each one of them. [5]