

Duration: 3 hours

Max. Marks: 80

- N.B. (1) Question No. **ONE** is compulsory.
(2) Attempt any **THREE** Questions from remaining **FIVE** questions.
(3) Support your answer with sketch wherever necessary.
(4) All questions carry equal marks.
- Q.1. Explain in brief :- 20
(a) Band saw and circular saw.
(b) Lathe specifications.
(c) Nomenclature of circular broach.
(d) Thread whirling process.
- Q2. (a) Describe different types of grinding machines. 10
(b) Describe the working and construction of a crank and slotted arm quick return mechanism of a shaper. 10
- Q3. (a) A mild steel plate 400 mm x 800 mm x 30 mm is to be shaped along its wider face. The ratio of return time to cutting time is 2:3 and the feed per cycle is 2 mm. Tool approach and the over-travel respectively are 50 mm each. The cutting speed for MS is selected as 24 m/min. Calculate the machining time required for machining the given plate with H.S.S. tools. 05
(b) Briefly, explain the process of thread rolling with its advantages, limitations and applications. 10
(c) A hollow workpiece of 60 mm outside diameter and 150 mm length is held on a mandrel between centers and turned all over in 4 passes. If the approach length = 20 mm, over-travel = 12 mm, Average feed = 0.8 mm/rev., and cutting speed = 30 m/min., calculate the machining time. 05
- Q4. (a) With neat sketches briefly describe any two types of dividing heads. 10
(b) Explain loading, glazing, truing and dressing of grinding wheels. 10
- Q5. (a) Describe various types of milling cutters. 10
(b) Elaborate various types of operations performed on a lathe. 10
- Q6. (a) Enlist various advantages, limitations and applications of broaching. 10
(b) Describe various types of drilling machines. 10
