



B.E DEGREE EXAMINATIONS: APRIL / MAY 2024

(Regulation 2018)

Fourth Semester

AUTOMOBILE ENGINEERING

U18AUI4204: Machine Drawing

COURSE OUTCOMES

- CO1: Interpret the conventional representation of components.
 CO2: Construct part drawings with required views and dimensions.
 CO3: Apply the knowledge of Limits, Fits and Tolerances in the drawings.
 CO4: Build part and assembly drawings according to BIS with Bill of Materials.
 CO5: Identify and draw the different types of Screwed Fastenings.

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions: -
 PART A (10 x 2 = 20 Marks)
 (Answer not more than 40 words)**

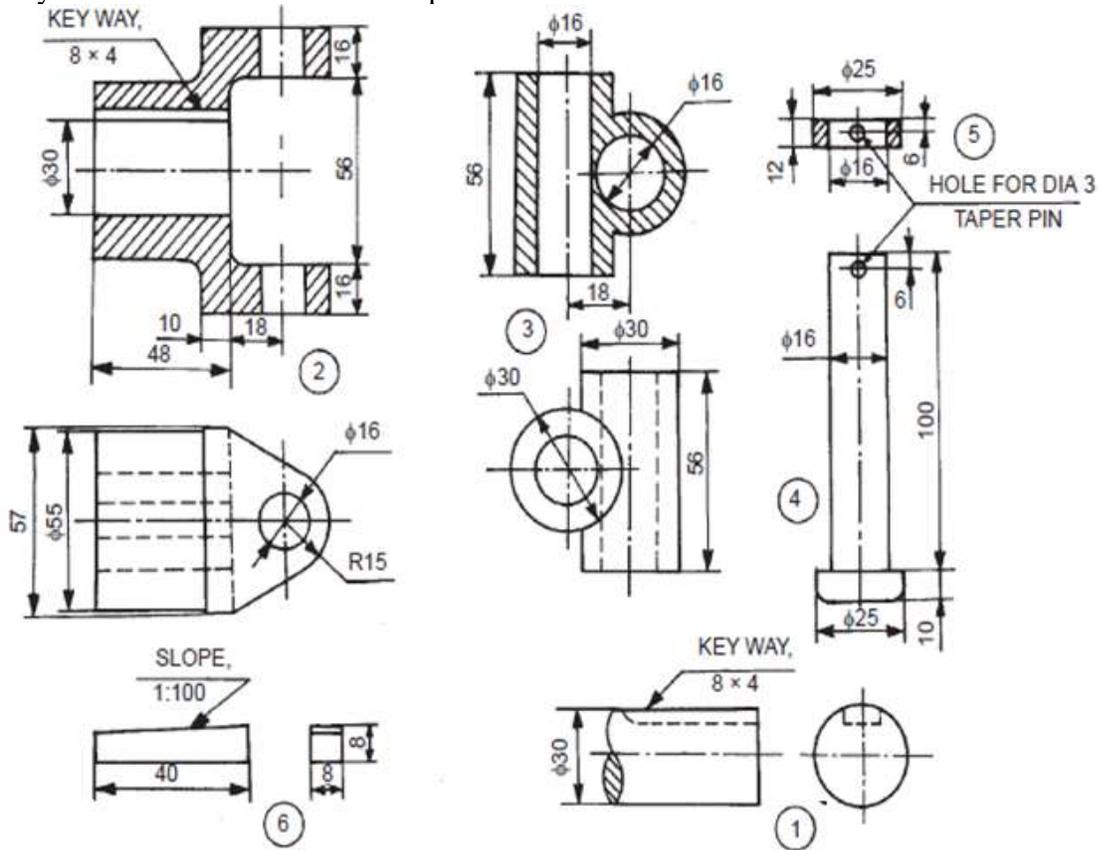
- | | |
|---|-----------------------|
| 1. Classify the various types of drawings used in the mechanical engineering field. | CO1 [K ₂] |
| 2. Sketch the five types of lines used in Machine drawing. | CO1 [K ₂] |
| 3. What does the third angle projection mean? | CO2 [K ₁] |
| 4. Compare the difference between permanent and temporary fasteners. | CO5 [K ₂] |
| 5. Describe the aligned dimensioning system. | CO3 [K ₃] |
| 6. When is a shaft basis system preferred to a hole basis system? | CO4 [K ₃] |
| 7. In what way is the BOM important in the material requirement planning phase? | CO4 [K ₃] |
| 8. List out the various types of assembly drawings. | CO4 [K ₃] |
| 9. Why rivets, bolts nuts, and keys are not sectioned? | CO5 [K ₃] |
| 10. Examine the distinctions between fasteners that are temporary and permanent. | CO5 [K ₄] |

**Answer any FIVE Questions: -
 PART B (5 x 16 = 80 Marks)**

- | | |
|--|-----------------------|
| 11. Explain the types of fits and terminology used in fits and tolerances. | CO3 [K ₃] |
|--|-----------------------|

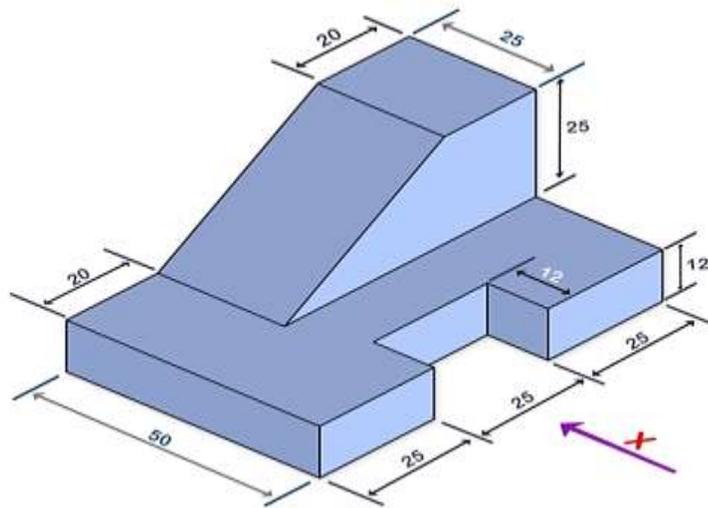
12. Identify and draw the assembled components' front view in a suitable scale.

CO4 [K₄]



13. Draw the front view, top view, and side view of the given object below. All dimensions are in mm.

CO2 [K₄]



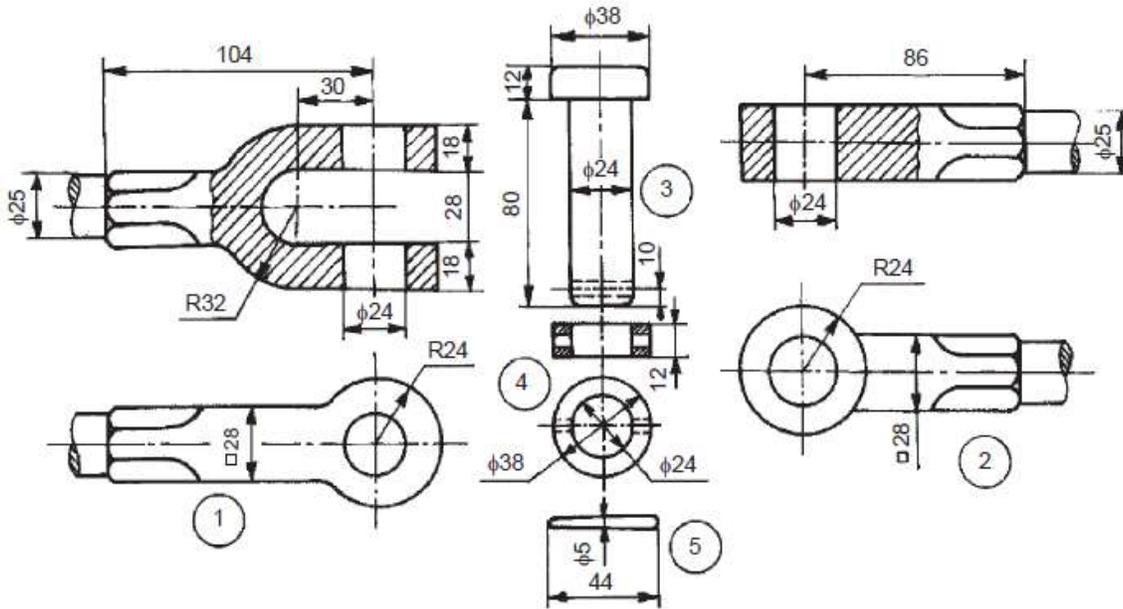
14. a) Draw the isometric view of hexagonal and square-headed bolts by assuming the D and W values in mm.
- b) Draw the conventional representation of the following materials:
- (a) Steel
 - (b) Wood
 - (c) Concrete

(10) CO5 [K₄]

(6) CO1 [K₄]

15. The details of parts of a KNUCKLE JOINT are given, Assemble the parts and show the front view of components in a 1:1 scale. Show the important dimensions on the assembly drawing.

CO4 [K₃]



16. A hole and shaft have a basic size of 25 mm and are to have a clearance fit with a maximum clearance of 0.02 mm, and a minimum clearance of 0.01 mm. The hole tolerance is to be 1.5 times the shaft tolerance. Determine limit for both hole and shaft. (a) using a hole basis system. (b) Using a shaft basis system.

CO3 [K₄]
