

**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**  
**SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION**  
**DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION**  
**FIRST SEMESTER EXAMINATION 2018/2019 ACADEMIC SESSION**

**COURSE TITLE: ENGINEERING DRAWING**

**COURSE CODE: ITE 312**

**DURATION: 2 HOURS**

**INSTRUCTION: Answer question ONE and any other THREE questions**

1. Figure 1 shows the parts of a lathe lock lever in orthographic projection. With the parts assembled, draw the following views in first angle projection
  - (a) Sectional front elevation revealed by cutting plane. X-X
  - (b) Right end elevation and
  - (c) Plan
2. A plate cam rotating anti-clockwise is to give an in-line point follower the following motion  $0^{\circ}$ - $180^{\circ}$  lift 24mm with simple harmonic motion  $180^{\circ}$  –  $240^{\circ}$  dwell (rest interval)  $240^{\circ}$ - $360^{\circ}$  fall 24mm with uniform acceleration and retardation. Draw the cam profile if the minimum cam radius is 38mm and the camshaft diameter is 24mm.
3. The figure 2 show a truncated right cylinder copy the given view (full scale) and develop the pattern using the shortest side as the seam
4. Front and end elevation of a prism are shown in figure 3a. Draw an auxiliary plan looking in the direction of the arrow.
  - b. Front elevation and the plan of the prism are shown in figure 3b. Draw an auxiliary elevation looking in the direction of the arrow.
5. Lay out twice full size three (3) teeth of a spur gear with 35 teeth of involute form. Module 5 and  $20^{\circ}$  pressure angle. Use the approximate construction. Give a table showing the number of teeth, module, pressure angle, pitch circle diameter. Circular pitch, addendum and dedendum