

Answer any Five questions

- 1(a) Two mild steel blocks are fastened by a hexagonal bolt , washer and a cap nut. Sketch the arrangement. (two views are required) (8)
- (b) With the help of neat sketches explain the difference of a bolt and a screw (6)
- (c) Sketch Gib head key , Woodruff key and Feather key (6)
- 2(a) Define in connection with geometrical tolerance (a) cylindricity and concentricity (6)
- (b) A shaft having dimension $50 \pm .02$ and a hole having dimension $50^{+.03}_{-.01}$. Find the type of fit and represent it graphically. (7)
- (c) Define design datum surface . State four criteria for the selection of this surface. Also name the other datum surfaces. (7)
- 3(a) State and explain the four main characteristics features of an assembly drawing. (6)
- (b) Explain (i) Design Assembly Drawing (ii) Unit (Sub Assembly) Drawing (iii) Working Assembly Drawing (iv) .Installation Assembly Drawing (8)
- (c) Give the symbolic representation of telescopic shaft coupling ,shaft, four way three position direction control valve , strainer (6)

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- 4(a) State **four** advantages of computer graphics over manual graphics (4)
- (b) Explain with neat sketch shadow mask technique to generate color images in color graphic monitor (8)
- (c) With the help of neat sketches distinguish between random scan monitor and raster scan monitor. (8)
- 5(a) With the help of mathematical expressions explain Bresenham's one – eighth circle drawing technique. (8)
- (b) Discuss the advantages of BRESENHAM'S algorithm over DDA algorithm?. Also indicate the full form of DDA . (6)
- (c) Sketch (i) lock nut (ii) tee bolt (6)
- 6(a) In a two dimensional plane (x-y) a point(-4,3) is made to rotate about a point (7,-8) and then reflect with respect to a line whose equation is $3x+7y+9=0$. Find the final co-ordinate of the point after reflection. (8)
- (b) What is balanced scaling and unbalanced scaling ? Explain (6)
- (c) Sketch the following items (i)hook bolt (ii) washer (6)
- 7(a) Briefly discuss the strategy of Cohen and Sutherland two-dimensional line clipping algorithm. Hence develop a flow chart for it. (8)
- (b) Define
i)Aspect Ratio
ii)Resolution
iii)Pixel (6)
- (c) Explain the following :with the help of neat sketch
(i) World Co-ordinate System
(ii) Normalised Co-ordinate System
(iii) Device Co-ordinate System (6)

- 8(a) There are four separate section of a Bèzier curves. The four curves contain 5,3,6 and 4 control points respectively. Discuss briefly with the aid of neat sketches how these curves can be blended to form a single smooth curve. (8)
- (b) Is it possible to generate a closed Bèzier curve? Discuss with sketch in support to your answer. (6)
- (c) Sketch (a) Cup Point Screw (b) Pan Head Rivet (6)