Answer **forty** *questions in this paper:* **all** *the questions in section* A *and* **all** *the* **ten** *questions from* **either** *section* B *Part* I **or** *Part* II **.**

Each question is followed by four options lettered A *to* D. *Find the* **correct** *option for* **each** *question and shade in* **pencil** *on your answer sheet, the answer space which bears the same letter as the option you have chosen. Give only* **one** *answer to* **each** *question. An example is given below.*

The part of a building immediately above a window frame is the
A. wall plate.
B. king post.
C. lintel.
D. wall

The correct answer is lintel *which is lettered* C, *and therefore answer space* C *would be shaded.*

⊏A⊐ ⊏B⊐ ⊏C⊐ ⊏D⊐

Think carefully before you shade the answer spaces; erase completely any answer(s) you wish to change.

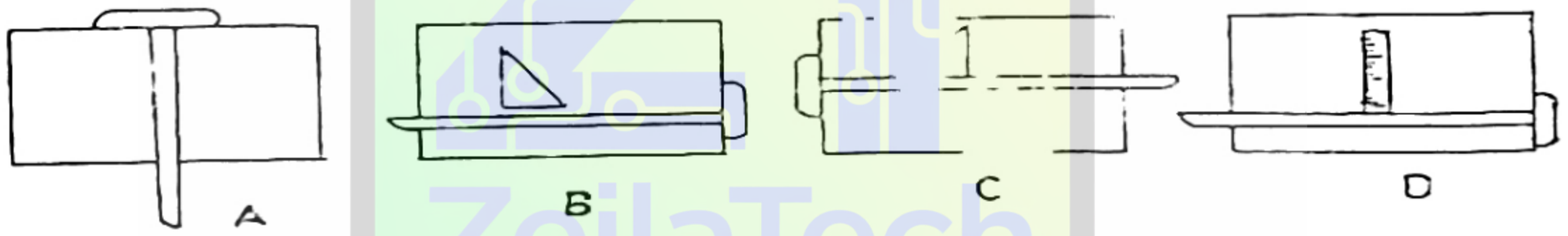
Do all rough work on the question paper.

Now answer the following question

SECTION A

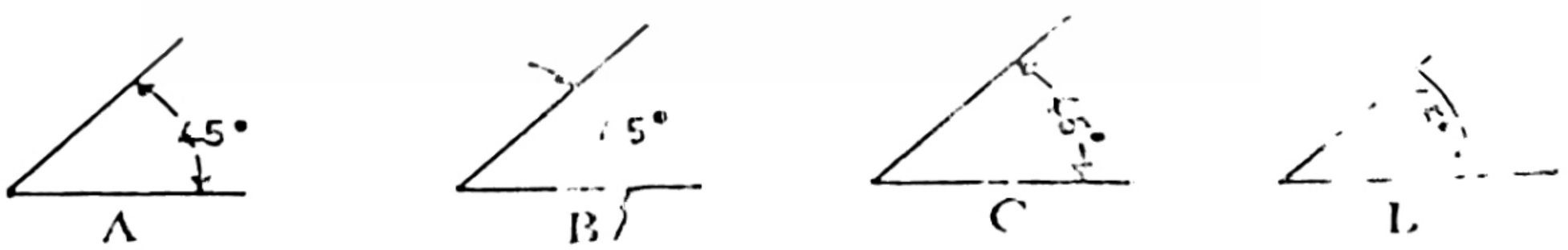
Answer all the questions in this section .

1. Which of the figures below shows the correct method of drawing vertical lines?



2. Thin long chain lines are used in Technical Drawing to indicate
A. break lines.
B. dimensions.
C. centre lines.
D. cutting planes.

3. Which of the angles shown below is not correctly dimensioned?



4 The representative fraction of a plane scale of 5 mm to 2 m is
A. 1:400
B. 1:200
C. 1·5
D. 1:2

5. Which of the following pairs of angles are complementary?
A. 68^0, 52^0
B. 72^0, 18^0
C. 120^0, 60^0
D. 140^0, 20^0

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6. The construction shown in Fig.1 produces a

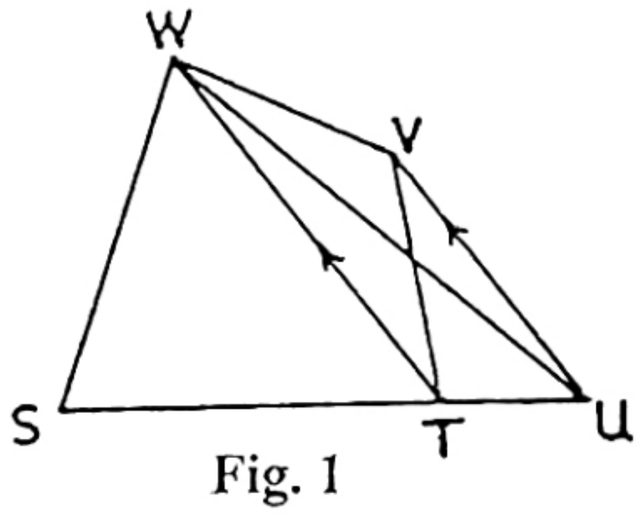

Fig. 1

A. triangle equal in areas to a given quadrilateral.
B. quadrilateral equal in area to a given triangle.
C. polygon.
D. quadrilateral.

7. A line drawn from a vertex of a triangle to the centre of the opposite side is called
A. base.
B. centroid.
C. median.
D. apex.

8. The external angle required to draw an octagon is
A. 75°.
B. 60°.
C. 45°.
D. 30°.

9. To escribe any triangle, it is necessary to bisect
A. one external angle and one external side.
B. two external angles.
C. two external sides.
D. one internal angle and one internal side.

10. A polygon with eleven sides is referred to as
A. nonagon.
B. decagon.
C. dodecagon.
D. undecagon.

11. The shaded portion of the circle labelled **P** in Fig.**2** is formed by the overlapping of a
A. sector and a quadrant.
B. chord and a segment.
C. sector and a segment.
D. segment and a quadrant.

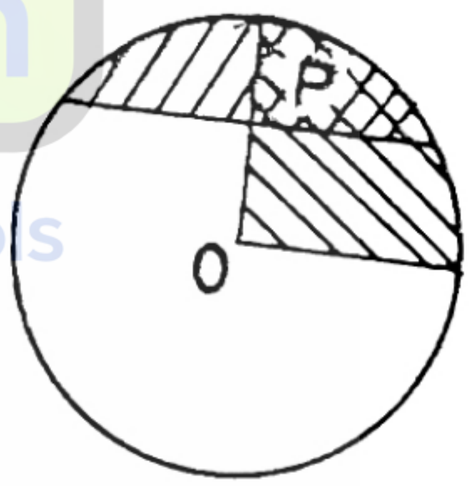

Fig. 2

12. The length **PM** in Fig.3 is

A. $r_1 + r_2$.
B. $r_1 - r_2$.
C. $2r_1 + 2r_2$.
D. $2r_1 - 2r_2$.

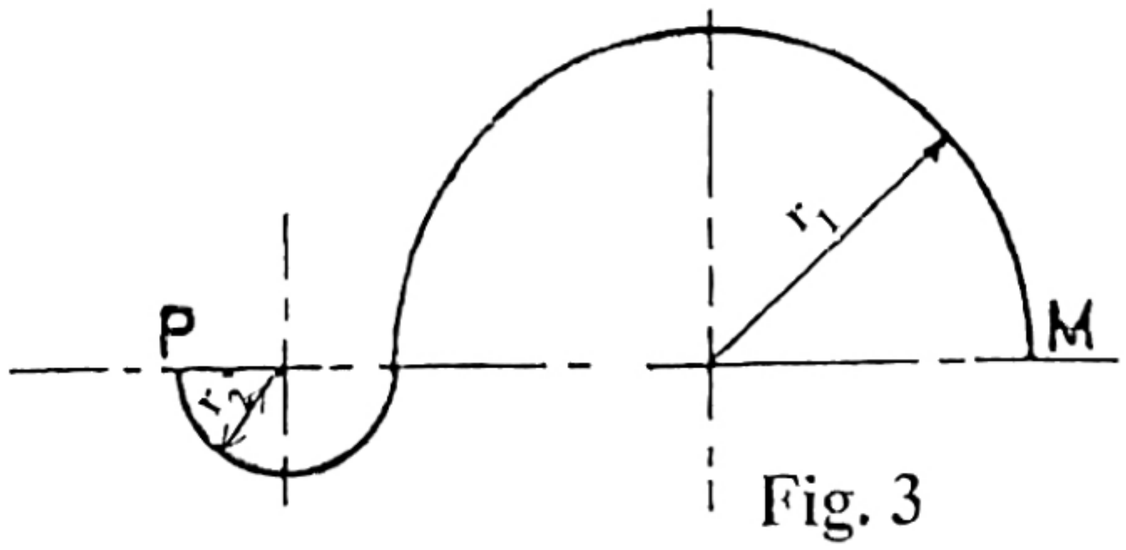

Fig. 3

13. The locus of a point on the perimeter of a square as it unwinds from the perimeter is an
A. ellipse.
B. epicycloid.
C. involute.
D. archimedial spiral.

Turn over

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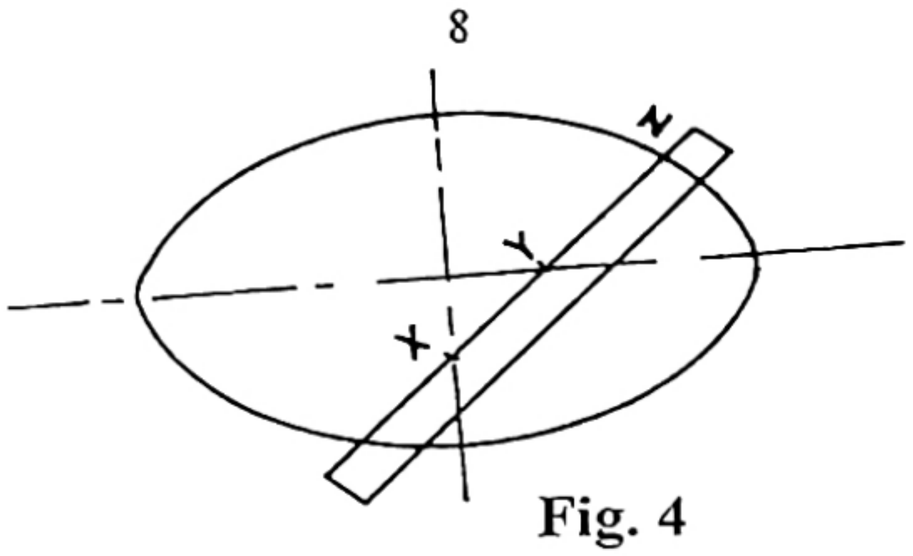


Fig. 4

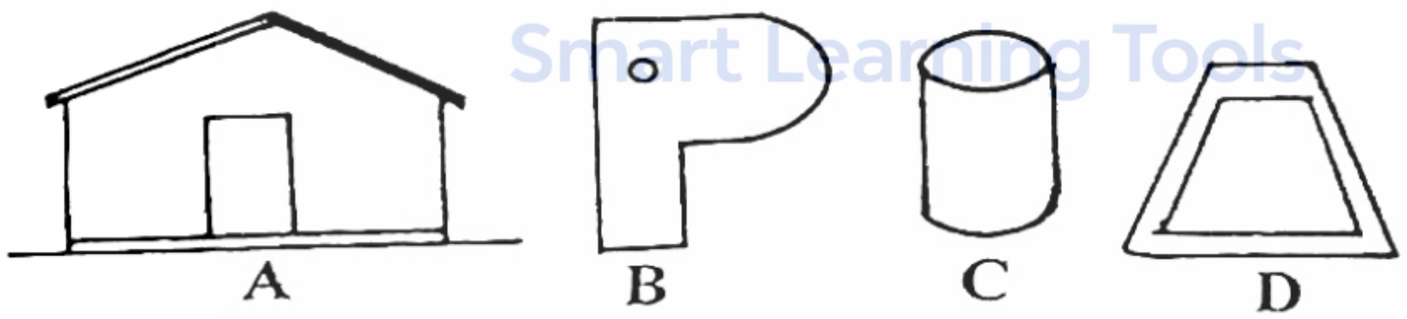
Fig.4 shows a method of constructing an ellipse. *Use it to answer questions* **14** *and* **15**.

14. Which method of construction is shown?
    A. Concentric circle
    B. Auxiliary circle
    C. Line and thread
    D. Trammel

15. The distance **YZ** represents the
    A. minor axis.
    B. major axis.
    C. half minor axis.
    D. half major axis.

16. The drawing produced before the manufacture of a product is called
    A. orthographic projection.
    B. working drawing.
    C. oblique projection.
    D. perspective drawing.

17. Which of the following shows a pictorial drawing?



18. In first angle projection, the left side elevation is drawn
    A. directly below the plan.
    B. directly above the plan.
    C. on the left side of the front elevation.
    D. on the right side of the front elevation.

19. Which of the following is drawn in a plane view?
    A. Orthographic
    B. Isometric
    C. Oblique
    D. Perspective

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20. To draw the first auxiliary elevation in first angle projection, the projection lines are taken from the
A. front elevation.
B. plan.
C. right end elevation.
D. left end elevation.

21. Which of the following sections is **correctly** hatched?

22. The triangular and circular sections can be obtained from
A. right cone.
B. oblique cone.
C. oblique cylinder.
D. right pyramid.

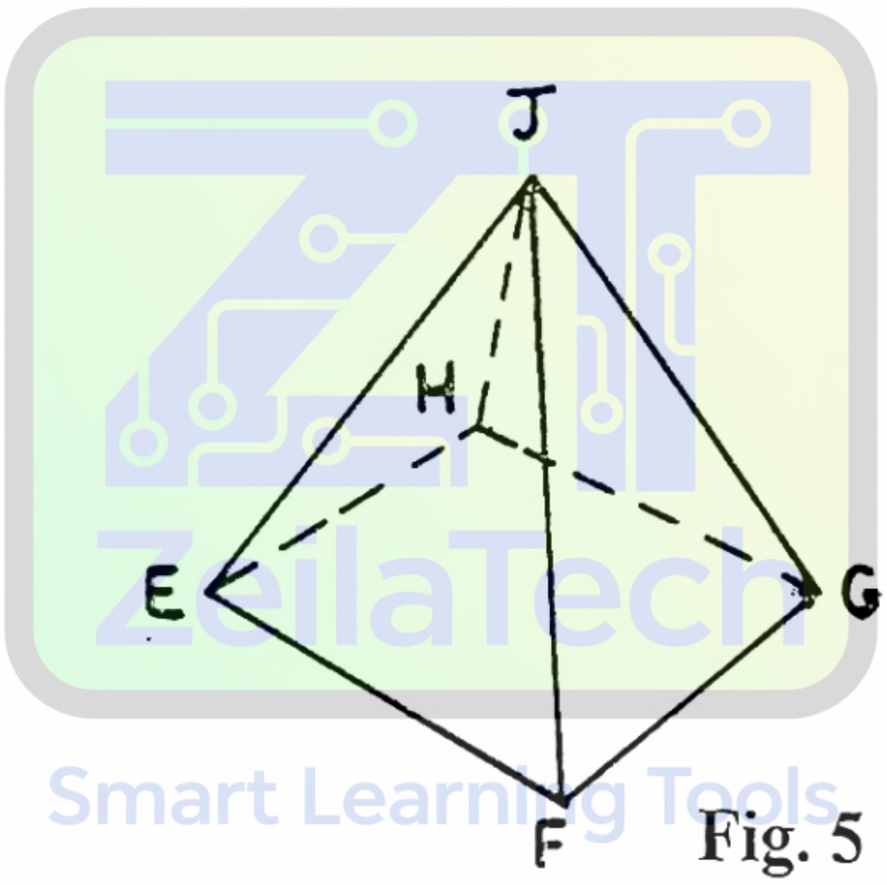
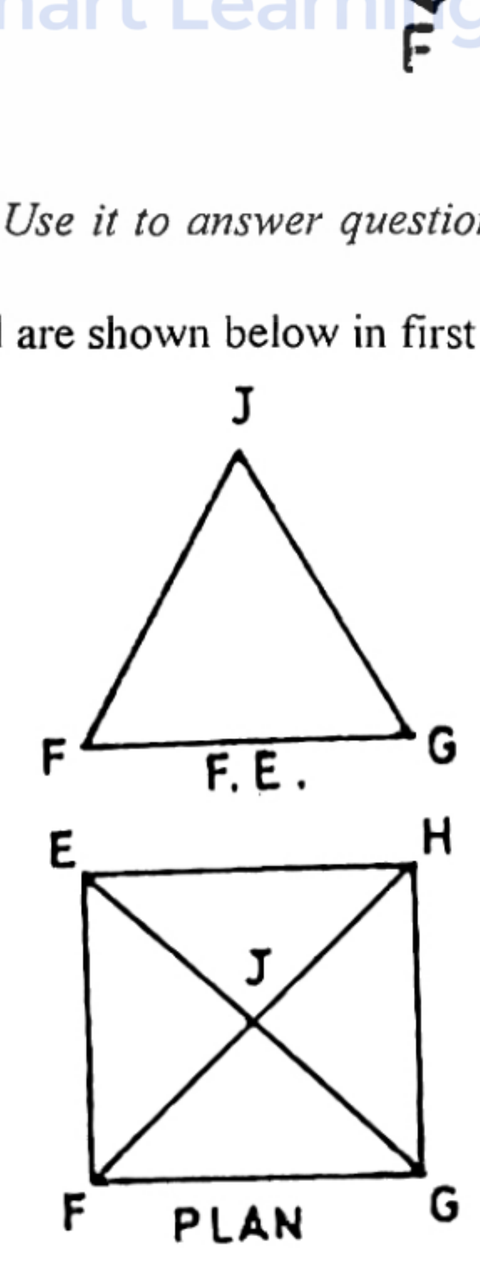


Fig. 5

Fig.5 shows a square pyramid. *Use it to answer questions* 23 *and* 24.

23. Two views of the square pyramid are shown below in first angle.
The right end view is triangle
A. JEF
B. JHG
C. JEH
D. JFG



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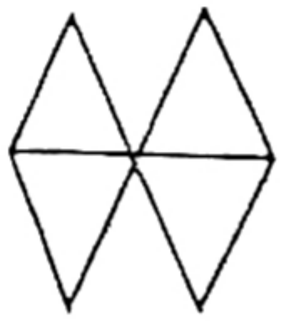
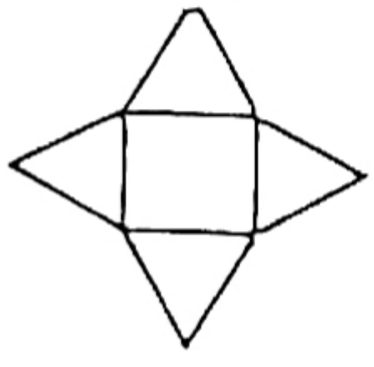
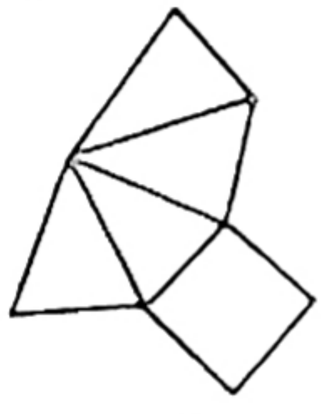
24. Which of the following shows the development of the square pyramid using **JG** as the seam?



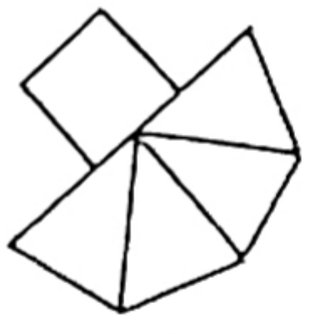
A



B



C



D

25. In cavalier oblique the length of the receeding side is drawn
   A. one quarter full.
   B. full size.
   C. half full.
   D. twice full size.

26. The locus of points on a straight line which rolls round a hexagon without slipping is
   A. an involute.
   B. an epicycloid.
   C. a helix.
   D. a hypocycloid.

27. In Fig.6 line LM is a **common**
   A. chord.
   B. tangent.
   C. secant.
   D. diameter.

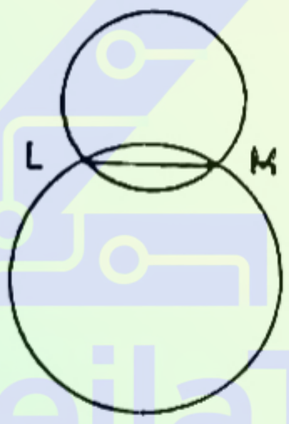


Fig. 6

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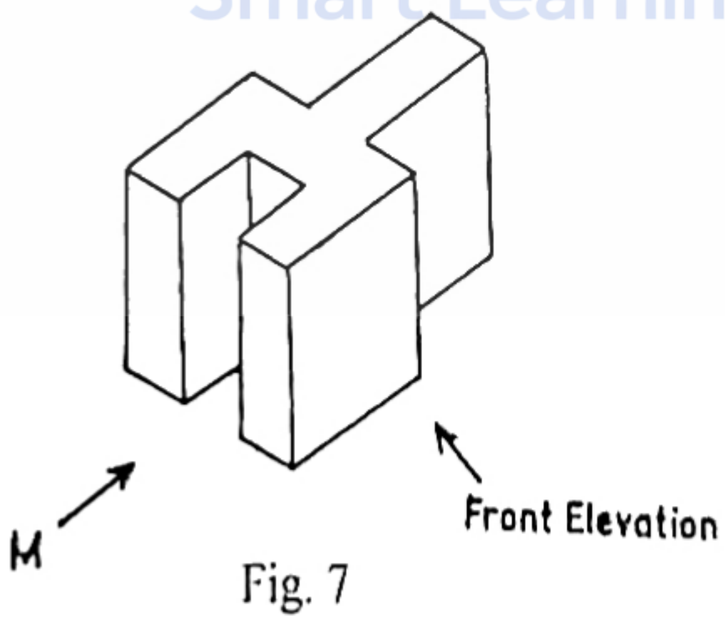
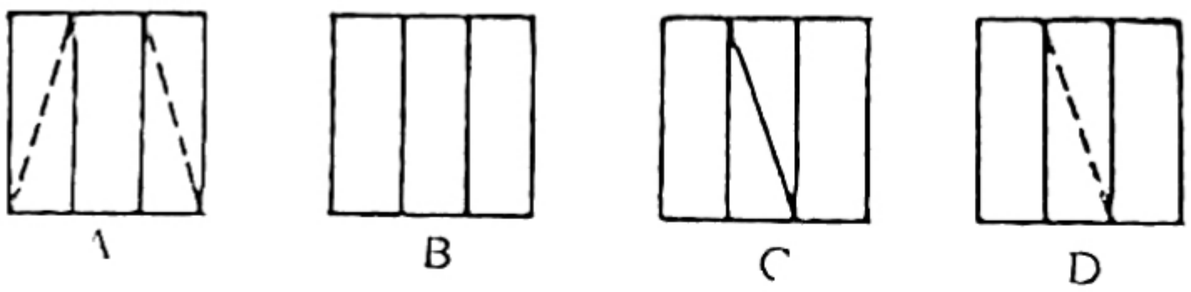


Fig. 7

Fig.7 shows a casting in isometric view. *Use it to answer questions* **28** *and* **29**.

28. Which of the following views represents the end elevation?



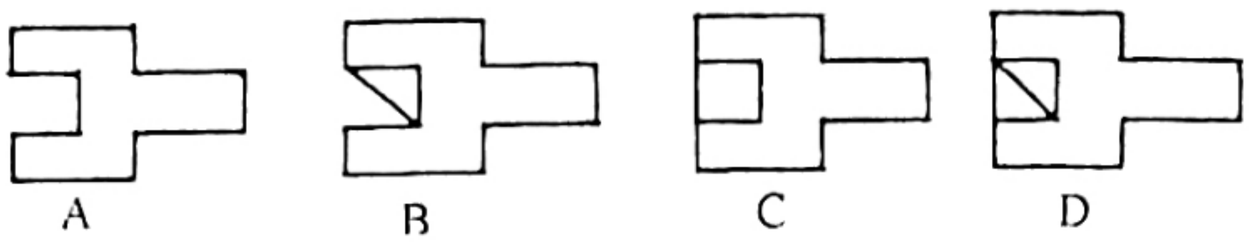
A

B

C

D

29. Which of the following represents the plan?



30. The plan of the triangular pyramid shown in Fig. 8 is

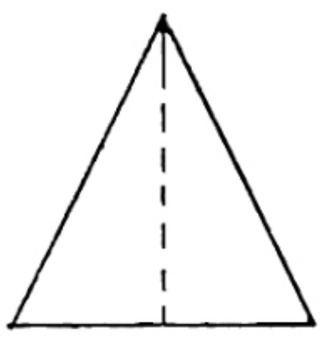
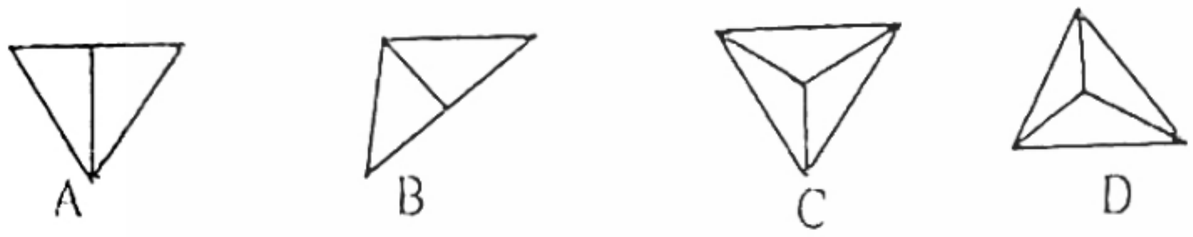


Fig. 8



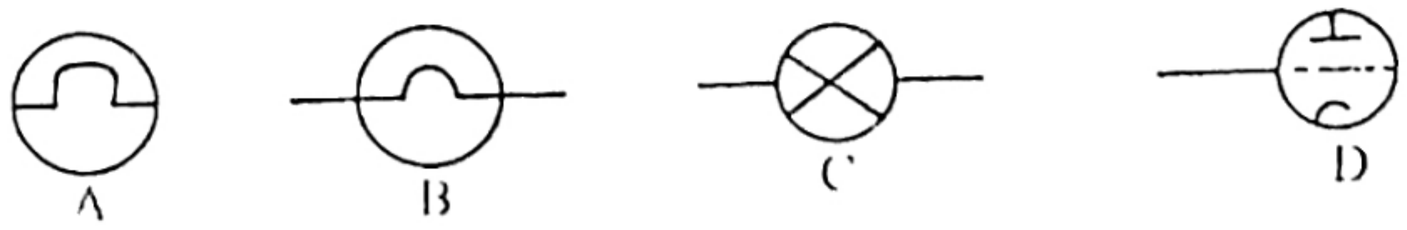
Section B (Part I)
Building Drawing (Optional)

Fig. 9

31. Fig.9 is a conventional representation of
    A. wash basin.
    B. sink.
    C. water closet.
    D. shower.

32. Which part of a building is used to support load above an opening in a wall?
    A. Lintel
    B. Column
    C. Pier
    D. Slab

33. Which of the following conventional symbols represents a filament lamp?



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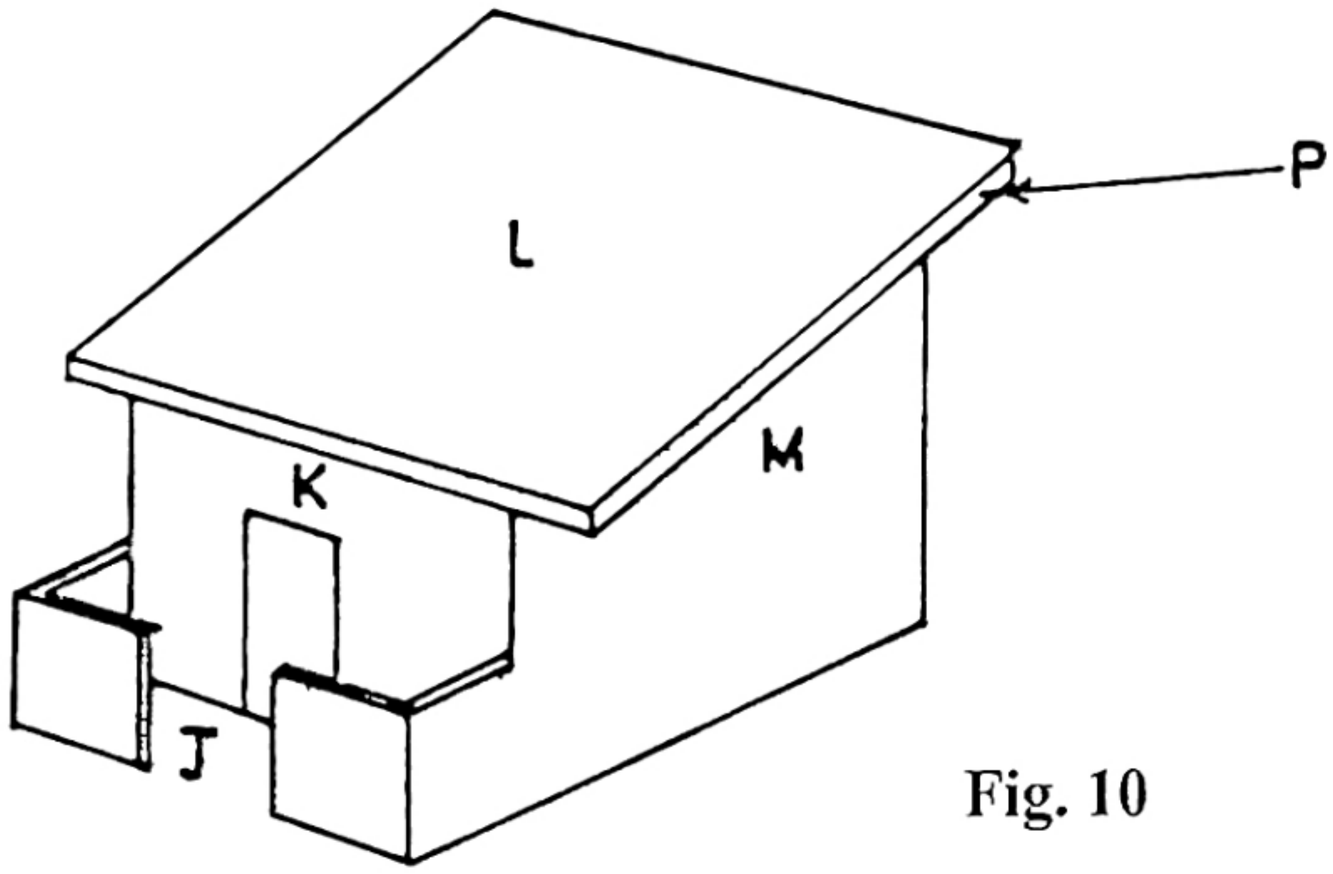

Fig. 10

Fig.10 shows the sketch of a building. *Use it to answer questions* **34** *to* **36**.

34. The part labelled **L** is the
A. ceiling joist.
B. tie beam.
C. king post.
D. roof covering.

35. The part labelled **P** is
A. soffit board.
B. eaves.
C. fascia board.
D. ridge.

36. The external wall of the verandah is a
A. foundation wall.
B. dwarf wall.
C. parappet wall.
D. partition wall.

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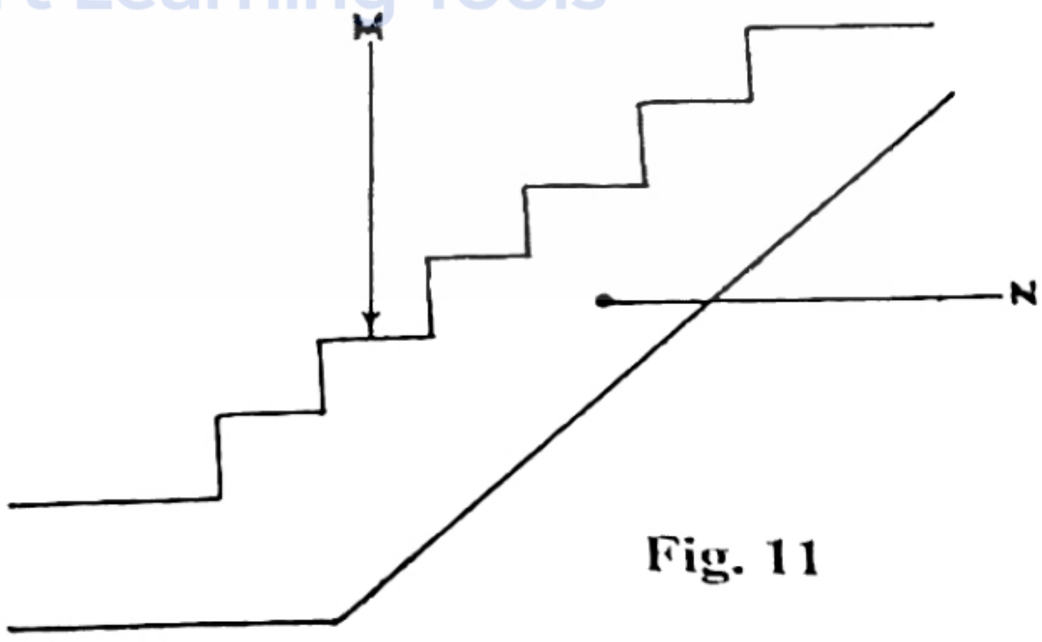


Fig. 11

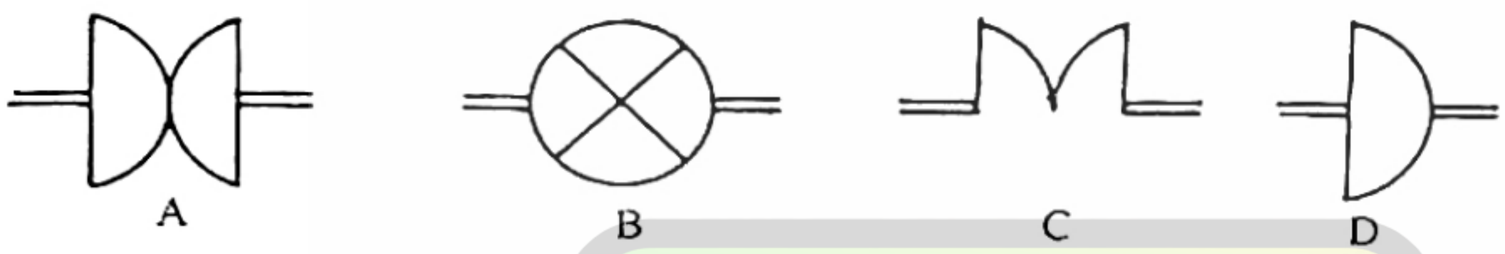
Use the sketch of a staircase in Fig.11 *to answer questions* **37** *and* **38**.

37. The part labelled **M** is
A. tread.
B. riser.
C. going.
D. flight.

38. The part labelled **N** is called
A. headroom.
B. nosing.
C. balustrade.
D. stringer.

39. Which of the following is **not** a roof member?
A. Muntin
B. Rafter
C. Ridge
D. Strut

40. Which of the following symbols represents a revolving door?



PART II
MECHANICAL DRAWING (OPTIONAL)

31. The profile of the groove of a screw thread is
A. elliptical.
B. hyperbolic.
C. parabolic.
D. helical.

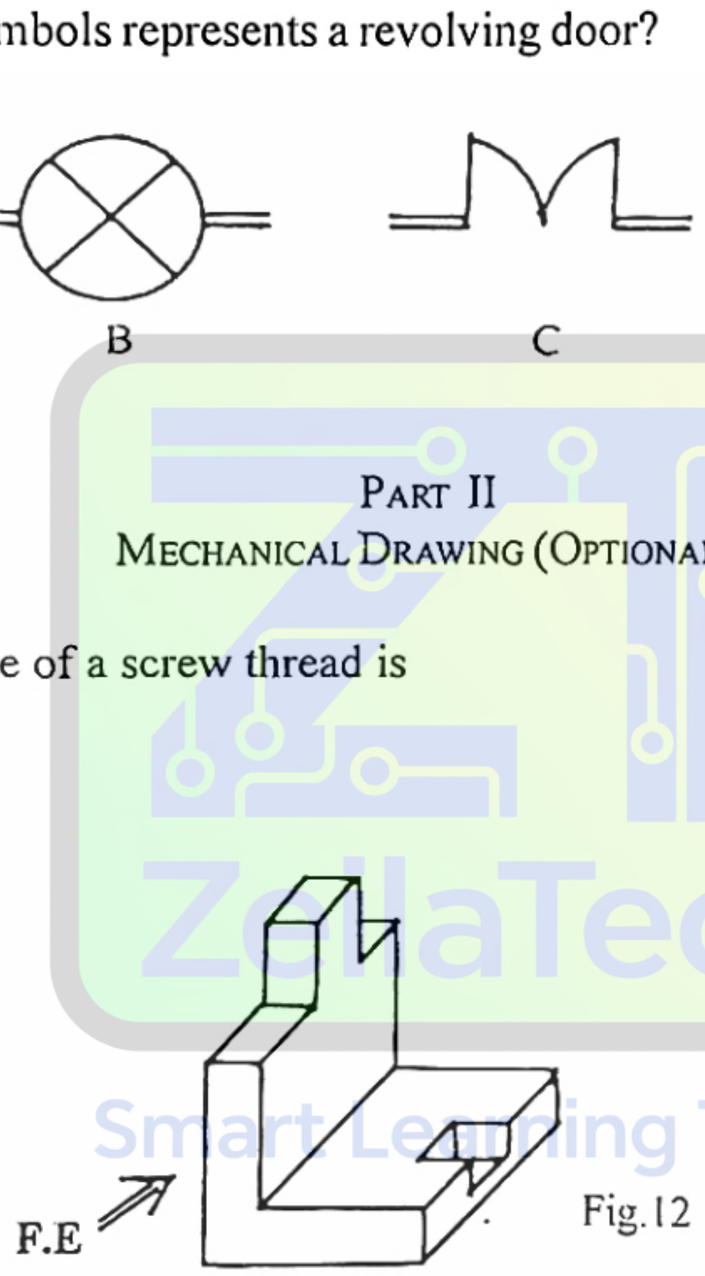
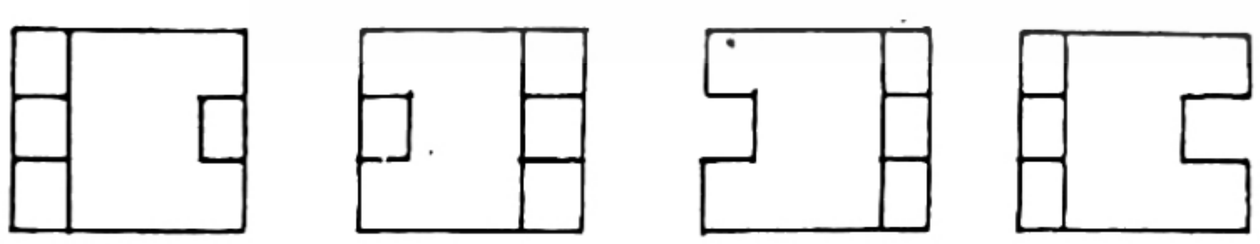


Fig.12

32. Which of the following shows the plan of the block in Fig.12?



33. The tool shown in Fig.13 is **suitable** for driving which of the following types of srew?
A. Phillips
B. Allen
C. Cheese head
D. Counter sunk head

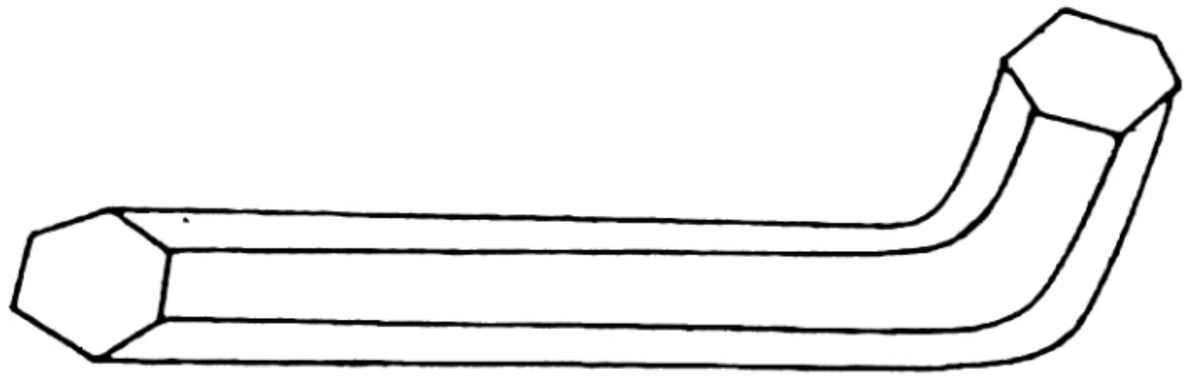


Fig. 13

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34. Fig.14 shows a machined surface. The portion labelled P is called

A. counter bore.
B. undercut.
C. fillet.
D. recess.

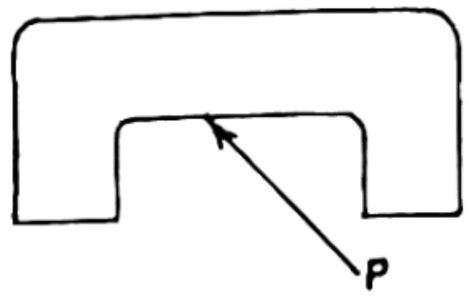


Fig. 14

35. The conventional symbol shown in Fig. 15 represents a

A. semi-elliptical spring.
B. double compression spring.
C. semi-elliptical spring with eyes.
D. double conical tension spring.

Fig. 15

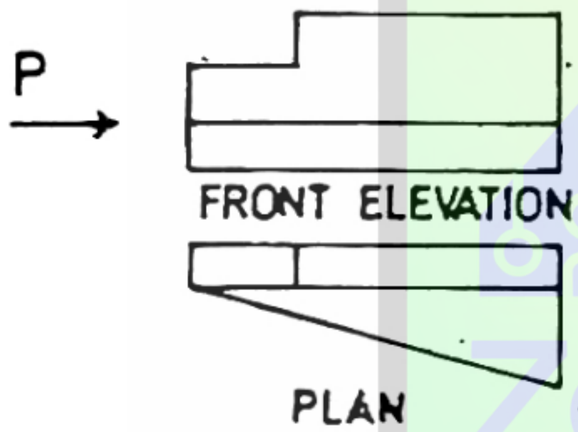
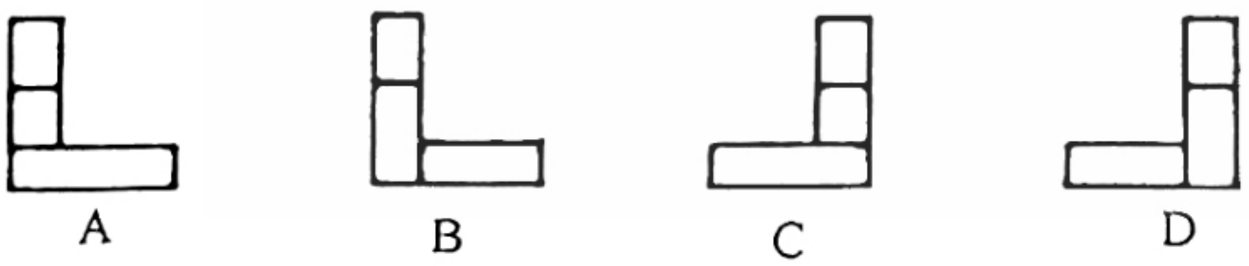
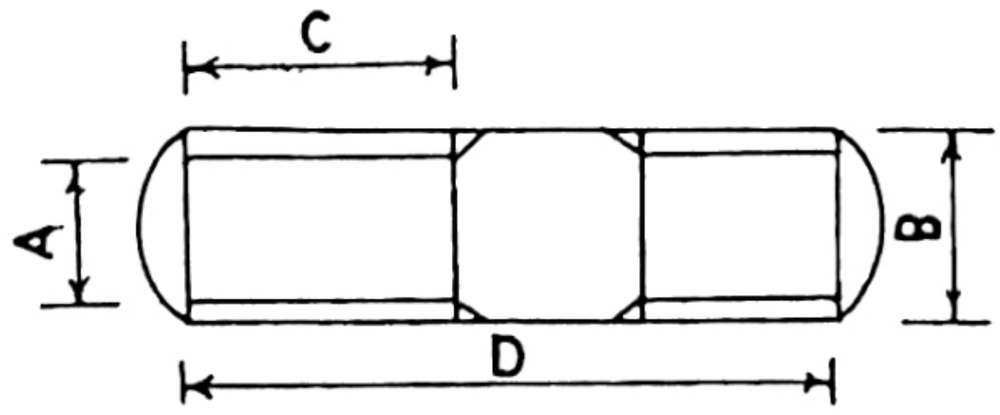


Fig. 16

36. Which of the following views shows the end elevation of the block in Fig.16 in the direction of arrow P?



37. Which of the dimensions on the screw below shows minor diameter?



38. The type of washer shown in Fig.17 is
    A. standard spring washer.
    B. grip washer.
    C. double spring washer.
    D. tab washer.

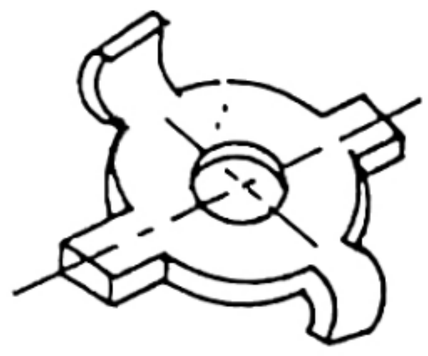


Fig. 17

39. The type of locking device shown in Fig.18 is
    A. taper pin.
    B. feather key.
    C. spline shaft.
    D. stud.

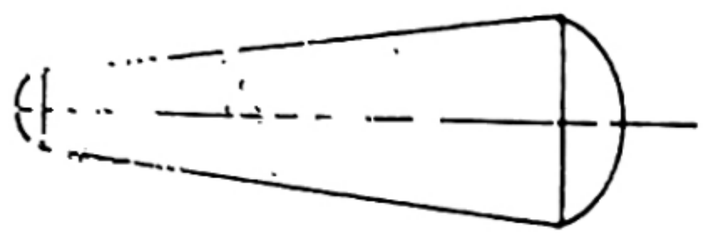


Fig.18

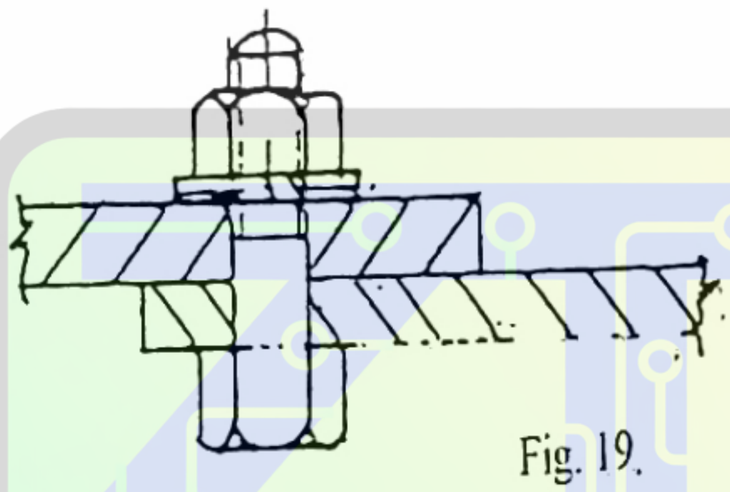


Fig. 19.

40. The two adjacent components shown in Fig.19 are joined by means of
    A. bolt and nut.
    B. bolt, washer and nut.
    C. screw and nut.
    D. stud, washer and nut.

END OF PAPER

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