Exercise 19.1

1. Least number of Planes that can enclose a solid are four. i.e Tetrahedron.

2. (i) No

   (ii) Yes, A tetrahedron as 4 triangles as its faces

   (iii) Yes, A Square pyramid has a square and four triangles as its faces.

3. Yes, If the number of faces is four or more.

4. Yes, a square Prism same as a cube.

5. No, Polyhedron doesn't have 10 faces, 20 edges and 15 Vertices.

6. (i) F = Number of faces = 7

E = Number of edges = 15

V = Number of vertices = 10

Clearly F + V = E + 2.

(ii) F = Number of faces = 10

E = Number of edges = 17.

V = Number of vertices = 9

clearly, F + V = E + 2.

(iii) F = Number of faces = 9

E = Number of edges = 20.

V = Number of vertices = 13

clearly, F + V = E + 2.

(iv) F = Number of faces = 8

E = Number of edges = 12.

V = Number of vertices = 6

clearly F + V = E + 2.

(v) F = Number of faces = 10

E = Number of edges = 17

V = Number of vertices = 9

clearly F + V = E + 2.

7. (i) Faces = x (or) F.

Vertices = 6

Edges = 12

$\therefore E + 2 = F + V$

$F = E + 2 - V$

$= 12 + 2 - 6$

$= 14 - 6$

$= 8$

$\therefore$ 8 Faces

(ii) $F = 5, V = 7, E = 9$

$9 + 2 = 5 + V$

$\Rightarrow V = 11 - 5 = 6.$

Vertices - 6.

Exercise 19.2

1. (d), (e) and (f) are nets for a cube.

2. (i) Square pyramid

   (ii) Triangular prism

   (iii) Triangular prism.

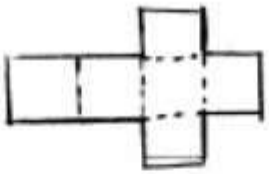
   (iv) Hexagonal prism.

   (v) Hexagonal pyramid

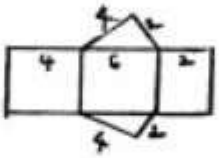
   (vi) cube.

3. (i) is dice because cubes where the numbers on the opposite faces must total 7.

4. (i) Net pattern for a cuboid.



(ii) Net pattern for a Triangular Prism.



(5) (a) — (iv)

(b) — (i)

(c) — (ii)

(d) — (iii).