STEP files can be opened in Notepad for viewing the 3-D model data in textual form. These files can also be opened in any 3-D modelling system supporting STEP AP-203 format
to view the 3-D model (For example, Pro/E, UG, CATIA, Ideas, etc.). A partial list of a STEP file (ProE_STEP_File.stp), is given below for explanation purpose.

#165=DIRECTION('',(-1.E0,0.E0,0.E0));
#166=VECTOR('',#165,5.E1);
#167=CARTESIAN_POINT('',(-1.64E2,-3.E0,9.882E1));
#168=LINE('',#167,#166);
#361=CARTESIAN_POINT('',(-7.8E1,-3.E0,8.082E1));
#362=DIRECTION('',(0.E0,-1.E0,0.E0));
#363=DIRECTION('',(1.E0,0.E0,1.421085471520E-14));
#364=AXIS2_PLACEMENT_3D('',#361,#362,#363);
#365=CIRCLE('',#364,1.8E1);
#1176=CARTESIAN_POINT('',(-1.64E2,-3.E0,9.882E1));
#1178=VERTEX_POINT('',#1176);
#1209=CARTESIAN_POINT('',(-2.14E2,-3.E0,9.882E1));
#1211=VERTEX_POINT('',#1209);
#1291=CARTESIAN_POINT('',(-7.8E1,-3.E0,9.882E1));
#1293=VERTEX_POINT('',#1291);
#1297=CARTESIAN_POINT('',(-6.E1,-3.E0,8.082E1));
#1299=VERTEX_POINT('',#1297);
#1593=CARTESIAN_POINT('',(-2.14E2,3.E0,6.282E1));
#1594=DIRECTION('',(0.E0,1.E0,0.E0));
#1595=DIRECTION('',(1.E0,0.E0,0.E0));
#1596=AXIS2_PLACEMENT_3D('',#1593,#1594,#1595);
#1597=TOROIDAL_SURFACE('',#1596,3.6E1,3.E0);
#1604=EDGE_LOOP('',(#1599,#1601,#1602,#1603));
#1605=FACE_OUTER_BOUND('',#1604,.F.);
#1606=ADVANCED_FACE('',(#1605),#1597,.F.);
#1690=CARTESIAN_POINT('',(-2.14E2,3.E0,9.882E1));
#1691=DIRECTION('',(1.E0,0.E0,0.E0));
#1692=DIRECTION('',(0.E0,0.E0,-1.E0));
#1693=AXIS2_PLACEMENT_3D('',#1690,#1691,#1692);
#1694=CYLINDRICAL_SURFACE('',#1693,6.E0);
#1699=EDGE_CURVE('',#1178,#1211,#168,.T.);
#1701=EDGE_LOOP('',(#1696,#1697,#1698,#1700));
#1702=FACE_OUTER_BOUND('',#1701,.F.);
#1703=ADVANCED_FACE('',(#1702),#1694,.T.);
#1717=CARTESIAN_POINT('',(0.E0,-3.E0,0.E0));
#1718=DIRECTION('',(0.E0,1.E0,0.E0));
#1719=DIRECTION('',(1.E0,0.E0,0.E0));
#1720=AXIS2_PLACEMENT_3D('',#1717,#1718,#1719);
#1721=PLANE('',#1720);

#1722=ORIENTED_EDGE('',*,*,#1699,.F.);
#1727=EDGE_CURVE('',#1299,#1293,#365,.T.);
#1728=ORIENTED_EDGE('',*,*,#1727,.F.);
#1751=EDGE_LOOP('',(#1722,#1724,#1726,#1728,#1730,#1732,#1734,#1736,#1738,#1740,#1742,#1744
,#1746,#1748,#1749,#1750));
#1752=FACE_OUTER_BOUND('',#1751,.F.);
#1769=EDGE_LOOP('',(#1754,#1756,#1758,#1760,#1762,#1764,#1766,#1768));
#1770=FACE_BOUND('',#1769,.F.);
#1771=ADVANCED_FACE('',(#1752,#1770),#1721,.F.);
#3219=CLOSED_SHELL('',(#1462,#1477,#1492,#1507,#1521,#1535,#1549,#1563,#1578,#1592,#1606,#16
20,#1634,#1649,#1662,#1676,#1689,#1703,#1716,#1771,#1785,#1839,
#1854,#1868,#1882,#1897,#1911,#1925,#1940,#1953,#1967,#1981,#1995,#2010,#2024,#2038,#2052,#
2065,#2079,#2093,#2105,#2120,#2133,#2147,#2161,#2175,#2187,#2201,
#2215,#2228,#2240,#2253,#2268,#2282,#2297,#2311,#2326,#2339,#2353,#2367,#2382,#2396,#2409,#
2423,#2438,#2450,#2463,#2477,#2491,#2504,#2516,#2529,#2544,#2558,
#2573,#2587,#2602,#2615,#2629,#2642,#2654,#2666,#2681,#2695,#2709,#2723,#2737,#2751,#2765,#
2778,#2793,#2807,#2821,#2835,#2849,#2863,#2877,#2890,#2905,#2920,
#2935,#2950,#2965,#2980,#2995,#3010,#3024,#3038,#3051,#3064,#3077,#3090,#3103,#3116,#3128,#
3141,#3154,#3167,#3180,#3193,#3206,#3218));
#3220=MANIFOLD_SOLID_BREP('',#3219);

The solid model is represented as B-rep as given in line number #3220.

#3220=MANIFOLD_SOLID_BREP('',#3219);

The solid is formed as a closed shell (#3219) by a set of faces.

#3219=CLOSED_SHELL('',(#1462,#1477,#1492,#1507,#1521,#1535,#1549,#1563,#1578,#1592,#1606,#16
20,#1634,#1649,#1662,#1676,#1689,#1703,#1716,#1771,#1785,#1839,
#1854,#1868,#1882,#1897,#1911,#1925,#1940,#1953,#1967,#1981,#1995,#2010,#2024,#2038,#2052,#
2065,#2079,#2093,#2105,#2120,#2133,#2147,#2161,#2175,#2187,#2201,
#2215,#2228,#2240,#2253,#2268,#2282,#2297,#2311,#2326,#2339,#2353,#2367,#2382,#2396,#2409,#
2423,#2438,#2450,#2463,#2477,#2491,#2504,#2516,#2529,#2544,#2558,
#2573,#2587,#2602,#2615,#2629,#2642,#2654,#2666,#2681,#2695,#2709,#2723,#2737,#2751,#2765,#
2778,#2793,#2807,#2821,#2835,#2849,#2863,#2877,#2890,#2905,#2920,
#2935,#2950,#2965,#2980,#2995,#3010,#3024,#3038,#3051,#3064,#3077,#3090,#3103,#3116,#3128,#
3141,#3154,#3167,#3180,#3193,#3206,#3218));

Three faces represented as advanced face #1606, #1703 and #1771 (toroidal, cylindrical and planar faces respectively) are taken for explanation.

#1606=ADVANCED_FACE('',(#1605),#1597,.F.);
#1703=ADVANCED_FACE('',(#1702),#1694,.T.);
#1771=ADVANCED_FACE('',(#1752,#1770),#1721,.F.);

Advanced face objects comprise three entries, which denote face outer bound, face bound and face type.
Face outer bound represent outer boundary of a face and face bound represent boundary of holes in the face. Advanced face #1771 has all three entries #1752, #1770 and #1721.

#1752=FACE_OUTER_BOUND('',#1751,.F.);
#1770=FACE_BOUND('',#1769,.F.);
#1721=PLANE('',#1720);

Both advanced faces #1606 and #1703 have only face outer bounds #1605 and #1702 respectively. The corresponding face types are given in #1597 and # #1694, which are toroidal and cylindrical faces respectively.

#1605=FACE_OUTER_BOUND('',#1604,.F.);
#1702=FACE_OUTER_BOUND('',#1701,.F.);
#1597=TOROIDAL_SURFACE('',#1596,3.6E1,3.E0);
#1694=CYLINDRICAL_SURFACE('',#1693,6.E0);

Face outer bound (say #1752) and face bound (say #1770) have one entry each, which denote edge loop (#1751 and #1769 respectively).

#1751=EDGE_LOOP('',(#1722,#1724,#1726,#1728,#1730,#1732,#1734,#1736,#1738,#1740,#1742,#1744,#1746,#1748,#1749,#1750));
#1769=EDGE_LOOP('',(#1754,#1756,#1758,#1760,#1762,#1764,#1766,#1768));

Edge loop objects comprise all the oriented edges which form the loop. For example, in edge loop #1751, two oriented edges (say #1722 and #1728) are considered.

#1722=ORIENTED_EDGE('',*,*,#1699,.F.);
#1728=ORIENTED_EDGE('',*,*,#1727,.F.);

Each oriented edge has one entry each, which denotes the edge curve (#1699 and #1727 respectively).

#1699=EDGE_CURVE('',#1178,#1211,#168,.T.);
#1727=EDGE_CURVE('',#1299,#1293,#365,.T.);

Edge curve (#1699) object consists three entries, which denote the start vertex (#1178), end vertex (#1211) and edge type (#168).
Vertex point object (#1178) consists the cartesian point object which in turn consists the x, y and z coordinates.

#1178=VERTEX_POINT('',#1176);
#1176=CARTESIAN_POINT('',(-1.64E2,-3.E0,9.882E1));

Edge type object (#168) for lines consists two objects indicating a locating point (#167) and the direction vector (#166) of the line.
Vector object gives the unit vector and the length (5.E1) of the line.

#168=LINE('',#167,#166);
#167=CARTESIAN_POINT('',(-1.64E2,-3.E0,9.882E1));
#166=VECTOR('',#165,5.E1);
#165=DIRECTION('',(-1.E0,0.E0,0.E0));

Edge type object (#168) for arcs (represented as circle) consists two objects indicating the position (#364) and radius (1.8E1).
Axis2 placement 3D (#364) indicates a locating point (#361), the direction vector (#362) and a reference vector (#363) of the arc axis.

#365=CIRCLE('',#364,1.8E1);
#364=AXIS2_PLACEMENT_3D('',#361,#362,#363);
#361=CARTESIAN_POINT('',(-7.8E1,-3.E0,8.082E1));
#362=DIRECTION('',(0.E0,-1.E0,0.E0));
#363=DIRECTION('',(1.E0,0.E0,1.421085471520E-14));

Face type object for planes (#1721) consists the face normal data given by axis2 placement 3D (#1720).

#1721=PLANE('',#1720);
#1720=AXIS2_PLACEMENT_3D('',#1717,#1718,#1719);
#1717=CARTESIAN_POINT('',(0.E0,-3.E0,0.E0));
#1718=DIRECTION('',(0.E0,1.E0,0.E0));
#1719=DIRECTION('',(1.E0,0.E0,0.E0));

Face type object for cylindrical surfaces (#1694) consist the face normal data given by axis2 placement 3D (#1693) and the cylinder radius (6.E0).

#1694=CYLINDRICAL_SURFACE('',#1693,6.E0);
#1693=AXIS2_PLACEMENT_3D('',#1690,#1691,#1692);
#1690=CARTESIAN_POINT('',(-2.14E2,3.E0,9.882E1));
#1691=DIRECTION('',(1.E0,0.E0,0.E0));
#1692=DIRECTION('',(0.E0,0.E0,-1.E0));

Face type object for toroidal surfaces (#1597) consist the face normal data given by axis2 placement 3D (#1596), the torus radius (3.6E1) and the wire radius (3.E0).

#1597=TOROIDAL_SURFACE('',#1596,3.6E1,3.E0);
#1596=AXIS2_PLACEMENT_3D('',#1593,#1594,#1595);
#1593=CARTESIAN_POINT('',(-2.14E2,3.E0,6.282E1));

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#1594=DIRECTION('',(0.E0,1.E0,0.E0));
#1595=DIRECTION('',(1.E0,0.E0,0.E0));
```