Mahila Vikas Sanstha's
INDRAPRASTHA NEW ARTS COMMERCE & SCIENCE COLLEGE, AT POST NALWADI, DIST. WARDHA (M.S.)
Accredited 'B' by NAAC
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BSC MATHEMATICS 1ST YR SEM II

SUBJECT: SOLID GEOMETREY

1) Define– Distance Formula
2) Define-Projection
3) Explain: Equation of a sphere in Different forms.
4) Theorem- To prove that the equation of a sphere described on the segment joining the point (X1, Y1 ,Z1)and (X2 ,Y2 ,Z2)as a diameter is (X-X1)(X-X2)+(Y-Y1)(Y-Y2)+(Z-Z1)(Z-Z2)=0
5) Obtain the equation of the sphere described on the join of the points A(2,-3,4),B(-5,6,-7)as diameter.
6) Find the equation of the sphere which passes through the four points (2,0,4)(-2,3,1) (0,-4,2).
7) A sphere of radius k passes through the origin and meets the axes in A,B,C .Prove that the centroid of the triangle ABC lies on the sphere9(x^2 +y^2+z^2
8) A Variable plane passes through a fixed point (a,b,c) cuts the co-ordinates axes in the points A,B,C.
9) Find the equation of the sphere which passes through the points (1,-3,4)(1,-5,2)(1,-3,0) and whose centre lies on the plane x+y+z=0
10) Find the equation of the sphere which passes through the points (1, -3,4),(1,-5,2)and (1,-3,0) and whose centre lies on the plane x+y+z=0.
11) Find the equation of the sphere which passes through the points (1,0,0),(0,1,0)and (0,0,1) and radius as small possible.
12) A point moves so that the sum of the square of its distances from the six faces of a cube is constant;show that its locus is a sphere.
13) Find the equation of the sphere which passes through the four points (2,0,1)(5,3,1) (6,-4,2).
14) Obtain the equation of the sphere described on the join of the points A(3,-3,4),B(-5,9,-7)as diameter.
15) Find the equation of the sphere which passes through the points (9,-3,4)(5,-5,2)(4-3,0) and whose centre lies on the plane x+y+z=0
16) Theorem- A plane section of a sphere is a circle.
17) Intersection of Two sphere.
18) The locus of the sphere of int6ersection of two sphere is a circle.
19) Find the equation of the circle circumscribing the triangle formed by the three point (a,0,0),(0,b,0),(0,0,c).obtain also the coordinates of the centre of the circle.
20) Show that the points(5,0,-2)(2,-6,0)(7,-3,8)(4,-9,6) are concyclic.
21) Define-Cone
22) Find the equation of right circular cone whose vertex is at the origin ,whose axis is the line x=1/2 y=1/3 z and which has semi-vertical angle 30^0
23) Fijnd the equation of right circular cone generated by revolving a straight line 5y +2z=10,x=0 about the Z-axis.
24) Find the equation of the right circular cylinder of radius 2 whose axis pass through the point (1,0,3)and has d.c's proportional to (2,3,1).

25) Define-Linear Differential equation.
26) Bernoulli's Differential Equation.
27) Solve xy''-y=3x2
28) Solve xy"+y'=4x

29) Find the equation of right circular cone whose vertex is (2,-3,5), axis makes equle angle with the co-ordinate axes and semi-vertical angle is 30◦.

30)Find the equation of the right circular cylinder of radius 2 whose axis pass through the point (1,0,3) and has d.c's proportional to (2,3,1).

31) Find the equation of the right circular cylinder of radius 4, whose axis passes through the origin and makes equle angles with the coordinate axes.

32) Exact Differential Equation.

33) The General Solution of the Homogeneous Equation.

34) Theorem: Linear Differential Equation.

35) Find y2 and the general solution of the equation y"-y=0 from the given solution y1=ex.

36)The equation xy"+3y'=0 has the obvious solution y1=1. Find y2 and the general solution.

37) Find the general solution of y"-f(x)y' +[f(x)-1]y=0.

38) Verify that one solution of xy"- (2x+1)y' + (x+1)y=0 is given by y1=ex, and find the general solution.

39) Find general solution of y"+y'-6y=0.

40) Find a particular solution of y"+y=cosec x.