GE6152-ENGINEERINGGRAPHICS-QUESTIONBANK

UNIT–1

1. Constructanellipsewhenthedistancebetweenthefocusandthedirectrixis30mmandtheeccentricityis¾.Drawthetangentandnormalatanypointponthecurveusingdirectrix.

2. AfixedpointFis7.5cmfromafixedstraightline.Draw thelocusofapointPmovinginsuchawaythatitsdistancefromthefixedstraightlineis2/3timesitsdistancefromF.Namethecurve. Draw normal and tangentata point 6cmfrom F.

3. Constructanellipsewhenthemajoraxisis120mmandthedistancebetweenthefociis108mm.Determinethelengthoftheminoraxis.Themajoraxisofaellipseis100mmandtheminoraxisis55mm.FindthefociandconstructtheellipsebyIntersectingArcsMethod.

4. Aflowerbedinabotanicalgardenisellipticalinshape.Majorandminoraxesare9cmand5.5mrespectively.Drawthe profileofthe flowerbedto ascaleof1:100.

5. Constructanellipsewhenitsmajoraxisisequalto100mmandminoraxisisequalto65mm. Finditsfoci,directrixand eccentricity.

6. Construct aparabolawhen the distancebetween focus and thedicretrixis40 mm. DrawtangentandnormalatanypointP onyourcurve.

7. AfixedpointFis7.5cmfromafixedstraightline.DrawthelocusofapointPmovinginsuchawaythatitsdistancefromthefixedstraightlineisequaltoitsdistancefromF.Namethecurve. Draw normal and tangentata point6cmfromF.

8. Construct ahyperbolawhenthe distancebetweenthe focusanddirectrixis 40mm.Theeccentricityis 4/. Drawa tangentandnormalat anypointon thehyperbola.

9. AfixedpointFis7.5cmfromafixedstraightline.DrawthefocusofapointPmovinginsuchawaythatitsdistancefromthefixedstraightlineis3/2timesitsdistancefromF.Namethecurve. Draw normal and tangentata point 6cmfrom F.

10. Thedistancebetweenafixedpointandfixedlineis54mm.Tracethepathofapointmovinginthesameplanesuchthatitsdistancebetweenthefixedpointandthefixedline is always equal. If thepointmoves up to72mmfrom thefixedpoint,plot thecurve.

11. Acoinof40mmdiameterrollsoverahorizontaltablewithoutslipping.Apointonthecircumference ofthecoinisincontactwiththetablesurfaceinthebeginningandafteronecompleterevolution.Dr awthepathtracedbythepoint.Drawatangentandnormalat anypointon thecurve.

12. Arollerof40mmdiameterrollsonastraightlinewithoutslip.IntheinitialpositionthediameterABof thecircleisparalleltothelineonwhichitrolls.Drawthelocusofthepoints.

13. AandBforonecompleterevolutionoftheroller.Namethecurve.Drawatangentandnormalatany pointonthe curve.

14. Acircleof40mmdiameterrollsonahorizontalline.Drawthecurvetracedoutbyapoint Ronthecirc umferenceforonehalfrevolutionofthecircle.Fortheremaininghalfrevolutionthecirclerolls ontheverticalline.ThepointRisvertically abovethecenterofthecircle inthestartingposition.

15. Awheelofabikeofdiameter500mmrollsslippingonalevelroadthroughadistanceof1025mm.Tr ace thepathofapoint P on thewheelwhichis initiallyin contactwiththeroad. Namethe curve.Find theangle throughwhich the wheelis turned.

16. Constructacycloidgeneratedbyarollingcircleof45mmindiameter.Drawatangentanda normalata pointon thecurve 30mm above thedirectingline.

17. Drawepicycloidsofrollingcircle40mm(2r),whichrollsoutsideanothercircle(basecircle)of150 mmdiameter(2R)foronerevolution.Drawatangentandnormalatanypointonthecurve.

18. Drawanepicycloid,thedirectingcircleofwhichis160mmindiameterandthegeneratingcircle40 mmindiameter.Drawatangentandnormaltothecurveatanypointon it.

19. Drawanepicycloids,thedirectingcircleofwhichis160mmindiameterandthegeneratingcircle4 0mmindiameter.Drawatangentandnormaltothecurveatanypointon it.

20. Thepointsofintersectionofanepicycloidswiththedirectingcirclesubtendanangleofπ/2radians atthecenterofthedirectingcircle.Ifthedirectingcirclehasadiameterof120mm,drawthe epicycloids.

21. Drawahypocycloidofacircleof40mmdiameterwhichrollsinsideanothercircleof200mmdiamet erfor one revolution.Drawa tangentandnormalatanypointon it.

22. Drawahypocycloid.Thediameteroftherollingcircleis36mmandthediameterofthebase circleis108mm.Drawa tangentandnormal atanypointonthecurve.

23. Drawa hypocycloidwhenthe radiusofthedirecting circleistwicethe radiusofgeneratingcircle.Radius of thegeneratingcircleis 35mm.

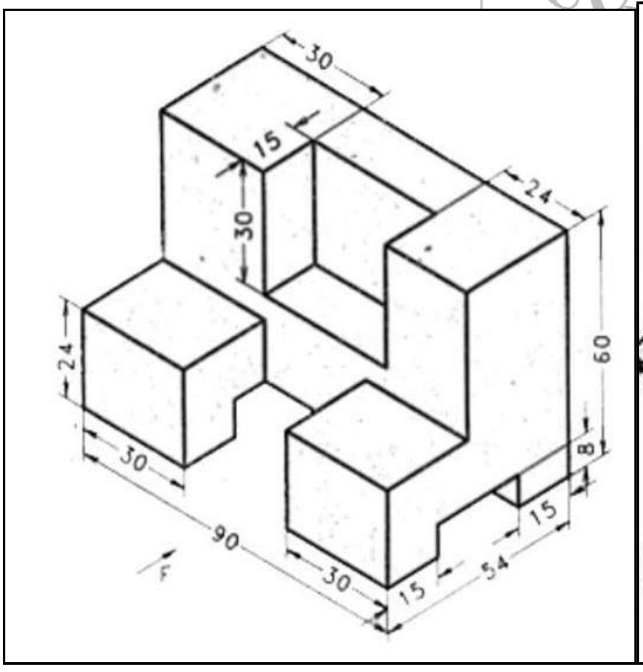
24. Drawtheinvoluteofa**square**ofside25mm.Drawatangentandnormalatanypoint M.

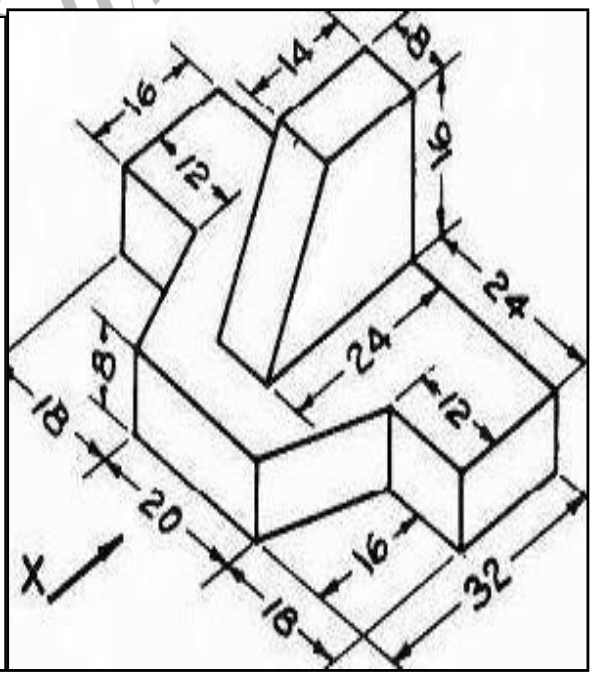
25. Acoiris unwoundfrom a drumof30 mmdiameter.Draw thelocus ofthefree endofthecoirforunwindingthroughanangleof360^0.Drawalsoanormalandtangentatanypointo nthecurve.

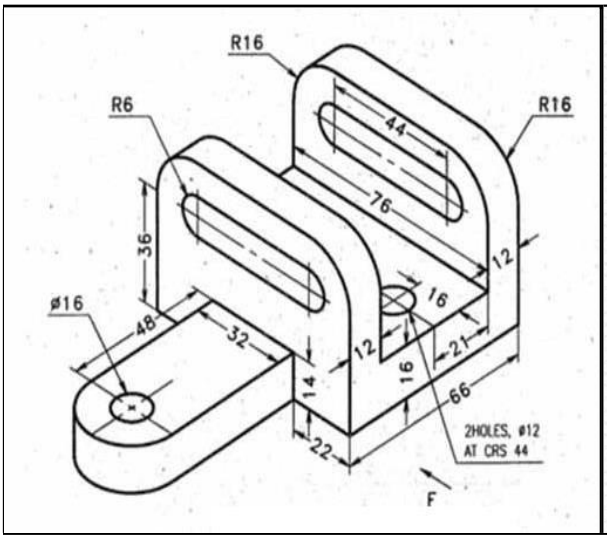
26. Aninelasticstringoflength100mmiswoundaroundacircleof26mmdiameter.Drawthepathtrac ed bytheendofthestring.

27. Aninelasticstringiswoundaroundthecircumferenceofasemicircularcylinderofdiameter66m m. Thestringisunwoundcompletelyby holdingitsfreeendsuchthatitisalwaystightlystretched.Drawthe pathofthefreeendofthe string.

28. Drawtheorthographicviewssuchasfrontview,topviewandanyonerearviewoftheobjectsgiven below



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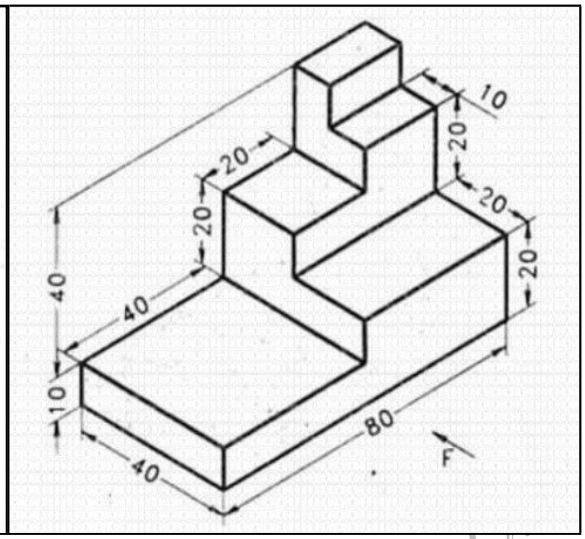
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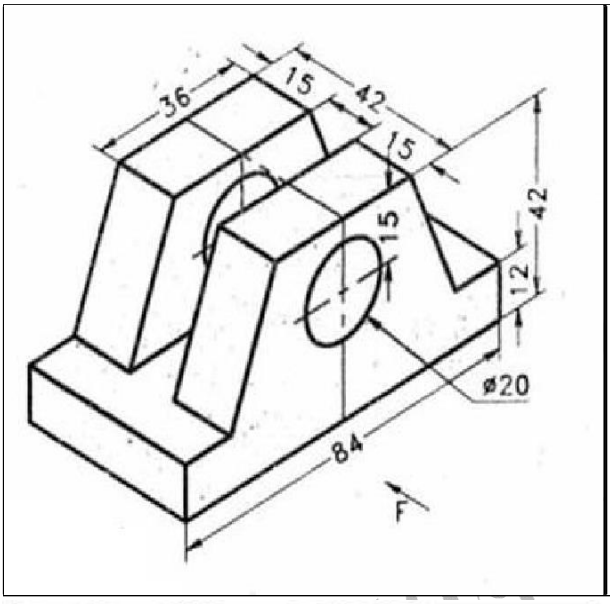
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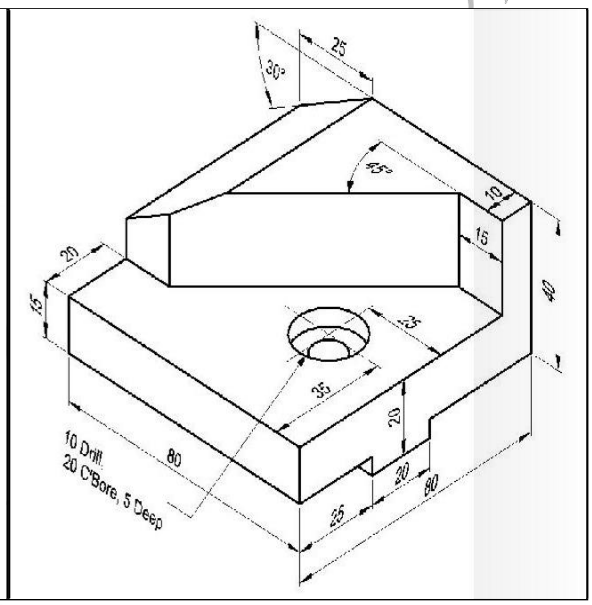
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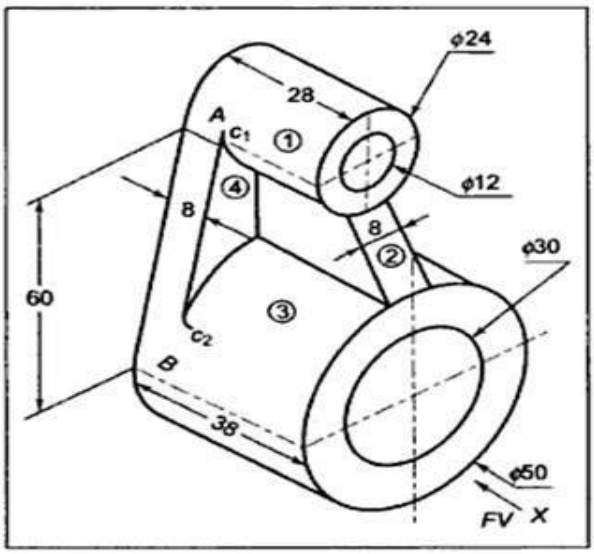
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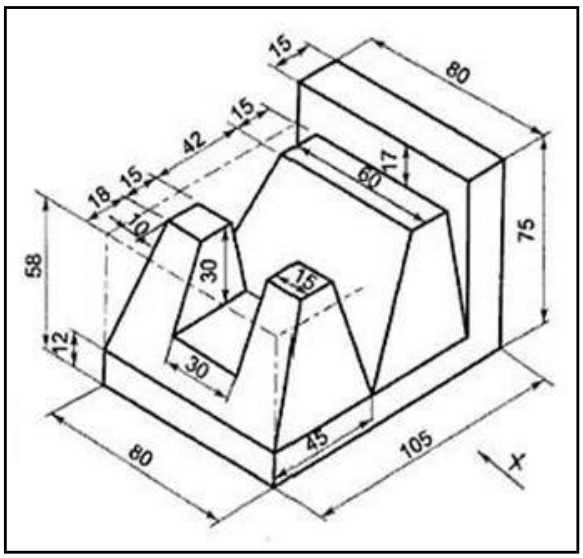
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X

UNIT–2

1. PointA is30 mm above HPand45mminfront of VP.Drawits frontviewandTop view.
2. Drawthe projectionsof a point A lyingon HP and50mminfrontof VP.
3. Drawthe projectionsof a point Alying on VPand55mmaboveHP.
4. Drawthe projectionsof a point Q lying on VPand58mmabove HP.
5. Drawthe projectionsof a point FwhichliesinboththeHP andtheVP.
6. A point B is45mmaboveHP and60mm behind VP.Drawitsprojections.
7. A point Cis35mm belowHP and 25mm behind VP.Drawits projections.
8. A point D is45mm belowHPand 60mm infrontofVP.Drawits projections.
9. Marktheprojectionsofthefollowingpointsonacommonreferenceline,keepingtheprojectors35 mmapart.
10. Drawthe projectionsof thefollowingpointsona commonreferenceline.
11. Apoint25mmbelowXYisthetopviewoftwopointsAandB.AisHPandBis35mmbelowHP. Mark theprojectionsof A andB.
12. MentionthepositionofthefollowingpointsshowninFig.10,respecttotheplanesofprojection. Allthedimensionsaremarkedinmm.
13. A lineCD 30 mmlongis parallelto both the planes.Thelineis 40mm aboveHP and 25mminfront of VP. Drawits projections.
14. A lineRS60mmlongliesinHPand45mmin frontof VP.Drawits projections.
15. A linePQ55 mm longis lyingin VP and45mmaboveHP. Drawitsprojections.
16. A line AB55mmlongis lyingonboth HPandVP. Drawits projections.
17. AlineAB25mmlongisparalleltoVPandperpendiculartoHP.PointAis35mmaboveHPand20m minfrontofVP.PointBis10mmaboveHP.Drawtheprojectionsofthe lineAB.

18. AlineAB25mmlongisperpendiculartoVPandparalleltoHP.ItsendAis10mminfront ofVP andthelineis 20mmaboveHP.Drawthe projectionsof the line.

19. AlinePQ40mmlongisparalleltoVPandinclinedatanangleof30^{0}toHP.ThelowerendP is 15mm aboveHP and20mm infrontofVP.Drawthe projections ofthe line.

20. Draw theprojectionsofalineEF40mmlongparalleltoHPandinclinedat35^{0}toVP.Eis20mm above HPand 15mm infrontof VP.

21. AlineAB50mmlongisinVPandinclinedat35^{0}toHP.EndAis10mmaboveHP.Drawthe projections.

22. AlineRS measuring52 mm isinHPandinclined at an angleof45^{0}toVP. The endRis10mminfront of VP.Drawthe projections.

23. ThelengthofthetopviewofalineMNparalleltoVPandinclinedat45^{0}toHPis50mm.PointMis12m maboveHPand25mminfrontofVP.Drawtheprojectionsoftheline. Finditstruelength.

24. DrawtheprojectionsofalineCD50mmlong,paralleltoHPandinclinedtoVP.TheendCis10mmi nfrontofVPandDis30mminfrontofVP.Thelineis15mmaboveHP.AlineCDisparalleltoVPandin clinedat40^{0}toHP.CisinHPand25mminfrontofVP.Top viewis50 mmlong. Findits truelength.

25. AlineEF60mmlongisinVPandinclinedtoHP.Thetopviewmeasures45mm.TheendE is 15mm aboveHP.Drawthe projections of theline.FinditsinclinationwithHP.

26. AlineGH45mmlongisinHPandinclinedtoVP.TheendGis15mminfrontofVP.Lengthoffrontvie wis35mm.Drawtheprojectionsoftheline.Determineitsinclinationwith VP.

27. AlineAB60mmlongisparalleltoHP.ThepointAis20mmaboveHPand35mminfront of VP.The lengthofthefrontviewis50mm. Determineits trueinclinationwithVP.

28. AlineMN50mmlongisparalleltoVPandinclinedat30^{0}toHP.TheendMis20mmabove HPand10mmin frontof VP.Drawthe projectionsoftheline.

29. AlineCDmeasuring80mmisinclinedatanangleof30^{0}toHPand45^{0}toVP.ThepointCis20mmab oveHPand30mminfrontofVP.Drawtheprojectionsofthestraightline.

30. AlinePQ75mmlonghasitsendPinbothHPandVP.Itisinclinedatanangleof30^0 toHP and45^{0}to VP. Drawthe projections.

31. AlineABis75mmlong.Ais50mminfrontofVP.and15mmaboveHP.Bis15mmin frontofVPand is above HP. Top viewofAB is50 mm long.Find thefront viewlengthandthetrueinclinations.

32. Alinemeasuring80mmlonghasoneofitsends60mmaboveHPand20mminfrontofVP. Theotherendis15mmaboveHPandinfrontofVP.The frontviewofthelineis60mm long. Drawthetopview.

33. AlineAB65mmlonghasitsendA20mmaboveHPand25mminfrontofVP.EndBis40mmaboveHPand65mminfrontofVP.DrawtheprojectionsofAB.Finditsinclinations with HP and VP.

34. A line AB100mm longhas itsfrontviewinclinedat anangleof450to thereferencelineseparatingtheviews.TheendAisinVPand25mmaboveHP.Thelengthofthefrontviewis60mm. Draw thetopviewoftheline andfindthetrueinclinations ofthelinewithHPandVP.

35. Thetopviewofalineis65mmlongandisinclinedat300tothereferenceline.Oneendis20mmaboveHPand10mminfrontofVP.Theotherendis60mmaboveHPand is infront of VP.

36. Drawtheprojectionsandfindthetruelengthofthelineanditstrueinclinationsto HPandVP.

37. DrawtheprojectionsofastraightlineABof100mmlengthwhenoneofitsendsistouchingtheVPandtheotherendtouchingHP.TheanglesofinclinationwithHPandVPare $40^0$and 50^0respectively.

38. AlineAB,65mmlonghasitsendA,15mmaboveHPand50mminfrontofVP.Thelinemeasures80 mmlongandinclinedatan angleof 30^0toHPand 45^0toVP.Draw itsprojections.

39. Theprojectionsofalinemeasure80mminthetopviewand70mminthefrontview.Themid-pointofthelineis45mminfrontofVPand35mmaboveHP.Oneendis10mminfrontofVPandnearertoit.Drawtheprojections.Findtruelengthandtrueinclinations with referenceplanes.

40. AlineAB120mmlongisinclinedat450toHPand 30^0toVP.Itsmid-pointCisinVPand20mm aboveHP. Theend A is in thirdquadrantand B isinfirstquadrant.Drawtheprojectionsof theline.

41. ThedistancebetweentheprojectorsoftwopointsABis70mm.Ais10mmaboveHPand15mminfrontofVP.Bis50mmaboveHPand40mminfrontofVP.FindtheshortestdistancebetweenAand BbyRotatinglineMethod.FindtrueinclinationsofABwith VPandHP.

42. OneendP'ofastraightlinePQis35mmaboveHPand25mminfrontofVP. TheendQis50mmaboveHPand 45mmin frontofVP. Thedistance betweenthe projectors is60mm.Determinethetruelengthandtrueanglesofinclinationsofthelinewith HPandVP.

43. TheaboveproblemissolvedbyTrapezoidalPlaneMethod.SolvethisproblembyrotatingPlane Method.Comparethe results.

44. AlineLM70mmlonghasitsendL10mmaboveHPand15mminfrontofVP.Itstopandfrontviewsm easure60mmand40mmrespectively.Drawtheprojectionsoftheline. Finditsinclinations withHP andVP.

45. AlineABmeasuring85mmhasitsendA25mmaboveHPand20mminfrontofVP.Thefrontandto pviewsofthelinemeasure70mmand55mmrespectively.Drawtheprojectionsof thelineanddetermine its trueinclinations.

46. AlineABhasitsendAinHPand40mminfrontofVP.Itsfrontviewisinclinedat50^{0}toXYandhasalen gthof70mm.TheotherendBisinVP.Drawitsprojections.Also,find the truelength andtrue inclinationsof theline.

47. Apentagonallaminaof40mmsidehasacircularholeof35mmdiameterinitscenter.Theplanesta ndsononeofitssidesonHPwithitsplaneperpendiculartoVPand45^{0}inclined toHP. Drawthe projections.

48. Athincircularmetalplateof48mmdiameter,havingitsplaneverticalandinclinedat40^{0}toVP. Its centeris33mmaboveHP and25mm infrontof VP.Drawits projections.

49. Athinrectangularplateofsides50mmx25mmhasitsshortersideintheHPandinclinedatanangle of30^{0}totheVP.Projectitsfrontviewwhenitstopviewisaperfectsquareof 25mmside.

50. Arectangularlaminaofsize60mmx30mmisseenasasquareinthetopview,whenitrestsonone ofitsedges on HPandperpendicular toVP.

51. Drawthe projections ofthelamina.Find the trueincli-nation ofits surface with HP. Drawthefrontviewofthelaminawhentheedgeaboutwhichitistilted,isinclinedat45^{0}toVP.

52. Athinrectangularplateofsides60mmx30mmhasitsshortersideinVPandinclinedat 300toHP.Project itstopview, ifitsfront viewis a squareof 30mmlongsides.

53. Draw theprojectionsofapentagonalsheetof26mmside,havingitssurfaceinclinedat30^{0}toVP. Itsone sideisparalleltoVPand inclined at 45^{0}to HP.

54. Ahexagonallaminaof26mmsidehasasiderestingonVPandinclinedat30^{0}toHP.Itssurface isinclinedat 450 toVP.Drawprojections.

55. Aregularpentagonallaminaof30mmsideshasoneedgeinHPandinclinedatanangle of 30^{0}toVP.Drawits projectionswhenits surface is inclinedat45^{0}to HP.

56. Ahexagonallaminaof20mmsiderestsononeofitscornersontheHP.Thediagonalpassingthrough thiscornerisinclinedat45^{0}totheHP.Thelaminaisthenrotatedthrough90^{0}suchthatthetopview ofthisdiagonalisperpendiculartotheVPandthesurface isstill inclinedat45^{0}totheHP. Drawtheprojectionsofthe lamina.

57. AhexagonalplateofF25mmsideisrestingonHPsuchthatoneofitscornerstouchesbothHPandVP.Itmakes30^{0}withHPand600withVP.DrawtheprojectionsbyChangeof PositionMethod.

58. AcircularlaminaofF60mmdiameterrestsonHPonapointIonthecircumference.Thelaminaisinclinedto HPsuchthatthetopviewofitisanellipseofminoraxis35mm.The top viewofthe diameter through the point Imakesan angle of45^{0}with VP.(i) Drawtheprojections.(ii)Determinetheanglemadebythe laminawithHP.

59. AregularhexagonalplanesurfaceofF25mmside,hastwoofitsedgesparalleltobothHPandVPand thenearestedgeis15mmfromeachplane.Thesurfaceisinclinedat60^{0}toHP. Drawtheprojections.

60. Drawtheorthographicviewsofaregularhexagonallaminaof25mmside,restingonHPononeofitssideswithitsplaneperpendiculartoHPononeofitssideswithitsplaneperpendiculartoHPandinclinedat45^{0}toVPTakethenearestcornerpoint25mmawayfromVP.

61. AthinhexagonalplateofF25mmsidelieson HPononesideandisinclinedat30^{0}toVP.(i)Drawtheprojectionsoftheplatewhenitstopedgeis20mmaboveHP.(ii)DetermineitsinclinationwithHP.

62. Drawtheprojectionsofapentagonalplanefigureofside28mmrestingwithoneofitsedgesonHP such thattheplanefigure isinclinedat30^{0}to VPand perpendicular toHP.

63. Arhombuslaminahasitsdiagonals75mmand45mmlong.Itisplacedsuchthatitstopviewappearsasa squareofdiagonal45mmlongand the verticalplanethroughthelongerdiagonalisinclinedat30^{0}toVP.Drawitsprojections.Findtheinclinationofthelonger diagonal withHP.

    a. initiallyassumetherhombusonhpsuchthatthesmallerdiagonalisperpendiculartovp.

    b. drawthe firsttop view oftrue shape such that thesmallerdiagonal isperpendicular toxy. projectthefirstfront viewasa lineonxy.

    c. drawthesecondtopviewasasquareof45mmdiagonalandprojectthesecond front view.Measure θ=53^0=inclinationofthe longer diagonal withhp.

    d. drawfinaltopviewfromsecondtopviewsuchthatlongerdiagonalisat30^{0}toxy.drawfinalfront viewbyprojectingsecondfront viewandfinaltopview.

64. Apentagonalplanefigureofedges25mmislyingonHPwithoneofitscornerstouchingitsuchthatt heplanefiguremakes60^{0}withHP.TwooftheedgescontainingthecorneronwhichtheplanefigurerestsmakeequalinclinationswithHP.Whentheedgeoppositetothiscornermakes45^{0}withVP, drawthetopandfrontviewsoftheplanefigure inthis position.

65. Acircularlaminaof60mmdiameterappearsasanellipseinthetopview,havingitsmajoraxis60mmlongandminoraxis40mmlong.Drawitsfrontviewwhenthemajoraxisoftheellipseisparalleltoboththereference planes.

66. Athincircularmetalplateof54mmdiameterhasasquareholeof27mmside,cutcentrallythroughit.Drawitsprojectionswhentheplateisrestingon HPwithitssurfaceinclined at30^0 toHPandanedge of thesquareholeperpendicularto VP.

67. Acircularlaminaof50mmdiameterappearsasanellipseinthefrontview,itsmajorandminor axes being50 mm and 30mmrespectively. Draw its topview when the majoraxisishorizontal.

68. Aregularhexagonallaminaof26mmsidehasacentralholeof30mmdiameter.Drawthefront and topviewswhen the surface ofthelamina is inclined at450 to HP. A side ofthe lamina isinclined at 35^{0}to VP.

69. AhexagonalplateofF25mmsidehasacorneronHP.Itssurfaceisinclinedat50^{0}toHP.Thediagonalthroughthecornerwhichison HP,makes35^{0}withVP.Drawitsprojections

UNIT -3

1. Apentagonalprism,sideofbase25mmandaxis50mmlong,restswithoneofitsedgesonHPsuchthatthebasecontainingthatedgemakesanangleof30^{0}toHPand itsaxisis parallelto VP.Drawits projections.

2. Ahexagonalprism,sideofbase24mmandaxis55mmlong,restswithoneofitsedgesonHPsuchthatthebasecontainingthatedgemakesonangleof45^{0}toHPand itsaxisis parallelto VP.Drawits projections.

3. A hexagonal pyramid, side ofbase 25mmandaxis 50mmlong, rests with one oftheedgesofits baseonHPand itsaxisisinclinedat30^{0}toHPandparalleltoVP.Drawitsprojections.

4. Asquarepyramid,sideofbase30mmandheight65mm,restswithoneoftheedgesofits base onHP suchthatits basemakes 30^{0}toHP. Drawitsprojections.

5. Drawtheprojectionsofapentagonalpyramidofbase25mmsideandaxis60mmlongwhenitislyingonHPononeofitsbaseedges,suchthattheaxisisparalleltoVP and inclinedat30^{0}to HP.

6. Atetrahedronof40mmsiderestswithoneofitsedgesonHPandperpendiculartoVP.Thetriangularfacecontainingthatedgeisinclinedat30^{0}toHP.Drawitsprojection.

7. Arightpentagonalpyramidofbaseside20mmandaltitude60mmrestsononeofitsedges ofthebase inHP.thebasebeingliftedup untilthehighest corner initis 20mmaboveHP.Drawtheprojectionsofthepyramidwhentheedgeonwhichitrestsismade perpendiculartо VP.

8. Ahexagonalpyramidof26mmsideofbaseand70mmheightrestsonHPononeofitsbaseedgessuchthatthetriangularfacecontainingtherestingedgeisperpendicular to bothHP andVP.Drawits projections.

9. Ahexagonalpyramidsideofbase25mm,axis50mmlonglieswithoneofitstriangularfaceson theHP anditsaxisis parallel to theVP.Drawitsprojections.

10. Apentagonalpyramid,sideofbase30mmandaxis60mmlongislyingwithoneofitstriangularfacesontheHPandaxis parallelto the VP,Drawits projections.

11. Apentagonalpyramid,sideofbase25mmandaxis55mmlong,lieswithoneofitsslant edges onHPsuch thatitsaxisis parallelto VP. Drawits projections.

12. Ahexagonalprism,sideofbase25mmandaxis50mmlongrestswithoneofitsbasecornersonHPsuchthatitsbasemakesanangleof60^{0}toHPanditsaxisisparalleltoVP.Drawitsprojections.

13. Asquareprism,sideofbase40mmandaxis60mmlong,restswithoneofitsbasecornersonHP.Itsbasemakesanangleof45^{0}toHPanditsaxisisparalleltoVP.Drawits projections.

14. Asquarepyramidofsideofbase50mmandheight75mmliesonHPononeofitstriangularfaceswithitsaxis parallelto VP. Drawits projections.

15. Drawtheprojectionsofacubeofside40mmwhenitrestsonthegroundononeofitscornersandafacecontainingthatcornerisinclinedat30^{0}tothegroundandperpendicularto VP.

16. Apentagonalprismofbaseside30mmandaxislength60mmrestsonHPononeofthebasecornerswiththebaseedgescontainingitbeingequallyinclinedtoHP.The axis isinclined at 45^{0}to HPand parallel to VP. Drawthe projections ofthe prismbychange ofpositionMethod.

17. Apentagonalpyramidsideofbase20mmandaxis45mmlongrestswithoneofitscornersonHPsuchthatthebaseisinclinedatanangleof60^{0}toHPandonesideofbase isperpendicularto VP. Drawits projections.

18. Drawtheprojectionsofacylinder,base30mmdiameterandaxis40mmlong,restingwithapointofitsbasecircleonHPsuchthattheaxisismakinganangleof30^{0}with HPand parallelto VP.

UNIT -4

1. Acubeofside30mmrestswithoneofitsfacesonHPsuchthatoneofitsverticalsquarefacesisinclinedto30ºtoVP.AsectionplaneperpendiculartoVPandinclinedat60ºtoHPpassesthroughapointontheaxis,5mmbelowitstopend.Drawitssectionaltopviewand true shapeof thesection.

2. Asquareprismofside40mmandheight80mmrestswithitsbaseonHPsuchthatoneofitsrectangularfacesisinclinedat30ºtoVP.AsectionplaneperpendiculartoVPandinclinedat60ºtoHPpassesthroughapointontheaxisataheightof60mmfromitsbase.Drawthe sectionaltop view,frontviewandtrue shape of thesection.

3. Apentagonalpyramidofheight60mmandside30mmstandsverticallywithoneofitsbaseonHPsuchthatoneofitsedgesisperpendiculartoVP.AsectionplaneperpendiculartoHPandinclinedat30ºtoVPcutsthepyramid,suchthatitpassesthroughthepyramidatashortestdistanceof5mmfromitsaxis.Drawthesectionaltopview, front viewand trueshapeofthesection.

4. Asquarepyramidsideofbase35mmandaltitude60mmrestswithitsbaseonHPandanedgeofbaseinclinedto30ºtoVP.Itiscutbythesectionplaneinclinedat45ºtoHPandintersectingtheaxisataheightof25mmaboveHP.Drawtopviewofthecutpyramid showingthe trueshapeofsection.

5. Arightregularhexagonalpyramidwithedgeofbase30mmandheight60mmstandswithitsbase on HPwithtwoofitsbase edgesparallel toVP. It iscutbya planepassingthroughapointontheaxis 30mm fromthebaseandinclinedat30ºtotheHP.Drawthesectionalfrontviewandtrue shapeofthesection.

6. Ahexagonalpyramidedgeofbase30mmandaxis70mmrestswithitsbase onHP andanedgeofthebaseinclinedat30ºtoVP.Asectionplaneinclinedat40ºtoVPandperpendicularatoHPpassesthroughthepyramidatadistanceof10mmfromtheaxisandin front of it.Drawthe sectionalfront viewandtrue shapeofthesection.

7. Acylinderwithdiameter50mmandlengthofaxis70mmrestsonHPonitsbase.AsectionplaneperpendiculartoVPandinclinedat45ºtoHPcutsthecylinder.Thesectionplanepassesthroughthecentreofthetopfaceofthecylinder.Drawthefrontviewand topviewshowingapparentshapeofsection.

8. Arightcircularconeofbase55mmandlengthofaxis70mmrestsonHPonitsbase.AsectionplaneperpendiculartoVPandinclinedat45ºtoHPcutsthecylinder.The

sectionplanepassesthroughthecentreofthetopfaceofthecone.Drawtheapparentandtrue shape ofsection.

9. Ahexagonalprismof25mmsidesand65mmheightrestsonits baseonHP withone ofitssmalleredgedparalleltoVP.Itiscutbyasectionplaneinclined atanangleof60ºtoHP.Thesectionplaneintersectstheaxisoftheprismataheightof40mmabove thebase.Drawthe sectionaltopviewand thetrueshapeofthe section.

10. Acylinderofbasediameter60mmandheight80mmstandswithitscircularbaseonHP.Asectionp lanecutstheaxisatapoint25mmfromitstopend.Drawthesectionaltopview, frontviewand the trueshapeofthesection.

11. Apentagonalpyramidofside30mmandheight60mmrestswithitsbaseonHP,suchthatoneside ofthebaseedgeisparalleltoVP.Itiscutbyasectionplaneperpendiculartovp andinclined at 30ºtoHP,whichalsobisectstheaxis.Draw itsfrontview, sectional top viewandtrue shape ofthe section.

12. Aconeofdiameter60mmand80mmlongisrestingonitsbaseonHP.Itiscutbyasectionplanethat passesthroughtheaxisatapoint40mmaboveHPandisinclined30ºto HP. Drawitsfront view, sectional top viewand trueshapeofthe section.

13. Apentagonalpyramidofbase40mmandheight80mmstandsverticalwithonebaseedgeparallel toVP.Itiscutbyaplaneinclined45ºtoHPbisectingtheaxis.Drawthedevelopment.

14. Ahexagonalprismofbase30mmandheight50mmrestsverticallyontheHPwithoneofthesideso fbase inclinedat30º toVP. Drawthe developmentofthe prism.

15. Acubeofside30mmrestsonitsbaseontheHPwithaverticalfaceinclinedat25ºtotheVP.Itiscutby aplaneperpendiculartotheVPandinclined50ºtoHP.Theplanebisectsthe axis ofthecube. Drawthe developmentofthesurfaces ofthe rightportionofthecut cube.

16. Ahexagonalpyramidsideofbase40mmheight80mmstandswiththebaseonHP.Athroughcircu larholeof30mmdiameterisdrilledthroughthepyramidsuchthattheaxisofholeisperpendicularto oVPandintersectstheaxisofthepyramid20mmabovethebase.Drawthe developmentofthe lateralsurfaceofthepyramid.

17. Aconeofbasediameter40mmandaxislength70mmrestswithitsbaseonHP.Asectionalplaneperpendiculartoverticalplaneinclinedat35ºtoHPbisectstheaxisofthecone.Drawthe developmentofthe truncatedcone.

18. Ahexagonalprismofbase40mmandaxislength60mmisrestingonHPonitsbasewithtwoofitsverticalfacesperpendiculartoVP.Itiscutbyaplaneinclinedat50ºtoHPandperpendiculartoVPandmeetstheaxisofprismatadistance10mmfromthetopend. Drawthe development ofthe lateralsurfaceoftheprism.

19. Asquarepyramidofbaseside35mmandaltitude65mmrestsontheHPonitsbasewiththebaseedgesequallyinclinedtoVP.Itiscutbyaplaneperpendiculartothe VPandinclinedat30ºtotheHP meetingtheaxisat25mmabovetheHP.Drawthedevelopmentof thelateralsurfaceofthepyramid.

20. Drawthedevelopmentofthelowerportionofacylinderofdiameter30mmandaxis70mmwhensectionedbyaplaneinclinedat40ºtoHP,perpendiculartoVPandbisectingtheaxis.

21. Averticalchimney ofcircularsectionof50mmdiameterjoinsaroofsloping at35ºtothehorizontal.Theshortestportionofthechimneyis325mm.determinetheshapeofthe metalsheetfromwhichthechimneycanbemade.Use1:10 scale.

22. Acylinderofbasediameter40mmandaxislength50mmisrestingonHPonitsbase,cutbyaplaneinclined55ºtoHPandperpendiculartoVP.Thecuttingplaneispassingthrough a point on theaxisat a distance30mm fromthe topend.Drawthe developmentofthelateralsurfaceofthe remainingportionofthecylinder.

23. Aconeofbasediameter40mmandaxislength60mmstandsontheHP.Acylindricalholeofdiameter20mmisdrilledrightthroughthecone.TheaxisoftheholeisperpendiculartotheVPandmeetstheaxisoftheconeat15mmabovethebaseofthecone.Drawthedevelopmentofthelateralsurfaceofthe cone withthe hole.

24. Acylinderofbasediameter40mmandheight50mmrestsononeofitsendontheHP.Asquareslotofdiagonal26mmisdrilledrightthroughthecylindersuchthatonediagonalcoincideswiththeaxisofthecylinder.TheaxisoftheslotisperpendiculartotheVPandbisectstheaxisofthecylinder.Drawthedevelopmentofthecylinderwiththehole.

25. Ahexagonalpyramidofbaseedge30mmandaltitude55mmstandsonitsbaseontheHPwithabaseedgeparalleltoVP.Acircularholeofdiameter22mmisdrilledright

throughthepyramidwithaxisoftheholeperpendiculartotheVPandmeetingtheaxisofthepyramidat20mmabovethebases.Drawthedevelopmentofthepyramidwiththehole.

26. Acubeofedge40mmrestsonitsbaseontheHPwithaverticalfaceinclinedat45ºtotheVP.Ahorizontalholeofdiameter26mmisdrilledcentrallyrightthroughthecubewithitsaxisperpendiculartotheVP.Drawthedevelopmentofthelateralsurfacesofthe cube withthe hole.

UNIT–5

1. Apentagonalprismofbaseside30mmandaxislength60mmisrestingonHPononeofitsbases with a sideofbaseperpendiculartо VP. Drawits isometric view.

2. Drawtheisometricviewofacylinderofbase40mmdiameterand50mmheightwhenitrestswith its baseonHP.

3. Drawtheisometricprojectionofahexagonalprism,sideofbase35mmandheight50mm.

4. Drawtheisometricviewofahexagonalpyramidofsideofbase40mmandheight65mm,when itsrestingonHPsuch thatanedge ofthebaseisparallel to VP.

5. Drawtheisometricprojectionofaconeofbase30mmdiameterandheight58mmwhenitrests with its baseonHP.

6. Drawtheisometricviewofafrustumofsquarepyramidofheight50mm,base40mmandthetop base20mm. thefrustumis resting withits baseon HP.

7. Drawtheisometricprojectionofapentagonalprismofsideofbase30mmandheight60mm,restingonitspentagonalbasewithonerectangularfaceparalleltoVPwhichissectionedbyacuttingplaneinclinedat40ºtothebaseandpassingthroughtheaxisata heightof40mmfrom thebase.

8. AHexagonalprism,sideofbase25mmandheight70mmrestsonHpandoneoftheedgesofitsbaseisparalleltoVP.AsectionplaneperpendiculartoVPandinclinedat40ºtoHPcutstheaxisoftheprismat55mmaboveHP.Drawtheisometricviewofthetruncatedportionof the prism,clearlyshowingthecutsurface.

9. APentagonalpyramid,30mmedgeofbaseand70mmheight,standsonHPsuchthatanedgeofthebaseisparalleltoVPandnearertoit.AsectionplaneperpendiculartoVPandinclinedat40ºtoHPcutsthepyramidpassingthroughapointontheaxisataheight of40mm fromthebase.Drawtheisometricviewofthe truncatedpyramid.

10. Acylinder50mmdiameterand75mmheightstandsonHP.AsectionplaneperpendiculartoVP,inclinedat60ºtoHPcutsthecylinderandpassesthroughapointontheaxisataheightof50mmabovethebase.Drawtheisometricviesofthetruncatedportionof the cylinder,when thecut surfaceisclearlyvisible totheobserver.

11. A Coneofbase 50mm diameterand axis 75mmlongstands on HP.It is cut bya sectionplane perpendiculartо VP,inclinedat45ºtoHPand passing througha point on the axis40mmabove thebase.Drawthe isometric viesofthe truncatedcone.

12. DrawtheisometricviewofafrustumofahexagonalpyramidwhenitisrestingonitsbaseontheHP withtwosidesofthebaseparalleltotheVP.Thesideofbaseis20mmandtop8mmand theheight of thefrustumis55mm.

13. Drawtheperspectiveviewofasquarepyramidofbase40mmsideandheightoftheapex70mm.thenearestedgeofthebaseisparalleltoand15mmbehindthepictureplane.Thestationpointissituatedatadistanceof150mminfrontofthepictureplane,30mmabove the ground planeand20mmtothe right oftheapex.

14. Asquareprismof25mmsideofbaseandheight40mmrestswithitsbaseonground,suchthatoneoftherectangularfacesisparalleltothepictureplaneand10mmbehindit.Thestationpointliesontheaxisoftheprismand60mmabovetheground.Drawtheperspective projectionofthepyramid.

15. Ahexagonalpyramidofsidesofbase25mmandheight45mmrestsonitsbaseongroundwithoneofitsbaseedgestouchingthepictureplane.Thestationpointis60mminfrontofthepictureplane, 50mmtotherightoftheaxisofthepyramidand60mmabove theground.Drawthe perspective projectionofthepyramid.

16. Amodelofstepshas3stepsof15mmtreadandrise10mm.thestepmeasures60mmwide.Theverticaledgeofbottomstepwhichisnearertothepictureplaneis25mmbehindPPandthewidthofthestepsrecedetotheleftatanangleof30ºtoPP.thestationpointis100mminfrontofPPand60mmabovegroundplaneand30mmrighttothe verticaledgewhichis nearest toPP.drawtheperspective viewofthemodel.

17. Arectangularblock30x20x20mmhighislying onthegroundononeofitslargestfaces.Averticaledgeisinthepictureplaneandthelargestvertica lrectangularfacesmake30ºwiththepictureplane.Thestationpointofthepictureplane,30mmab ovethegroundandliesinacentralplanewhichpassesthroughthecentreoftheblock.Drawthepe rspective viewoftheblock.

18. A cylinder 40mmdiameter and 60mmlength,lies onthe ground onone ofitsgeneratorswithitsaxisperpendiculartothePP.thenearestpointofthesolidis20mmontheri ghtofSPand30mmbehindthePP.drawtheperspectiveviewofthecylinderifthestationpoint is50mm above GP and100mminfrontof PP.

19. Afrustumofsquarepyramidofbase30mmandtopedge30mm.theheightofthefrustumis35mm.i trestsonitsbaseontheground withthebaseedgesequally inclinedtothePP.theaxisofthefrustumis30mmtotherightofeye.Theeyeis45mminfrontoftheP Pand50mmabovetheground.Thenearestbasecorneris10mmbehindthePP.drawtheperspe ctive projectionofthefrustum.

20. Apentagonalprismof35mmsideand70mmlongrestsontheoneofitsrectangularfacesandaxis oftheprismisinclinedto30ºtothepictureplane.Thenearestcornerofthefrontface lies 20mmto the leftofthe stationpoint and10mmbehind the PP. theeyeis60mmabovethegroundand60mminfrontofthePP.drawtheperspectiveviewoftheprism.