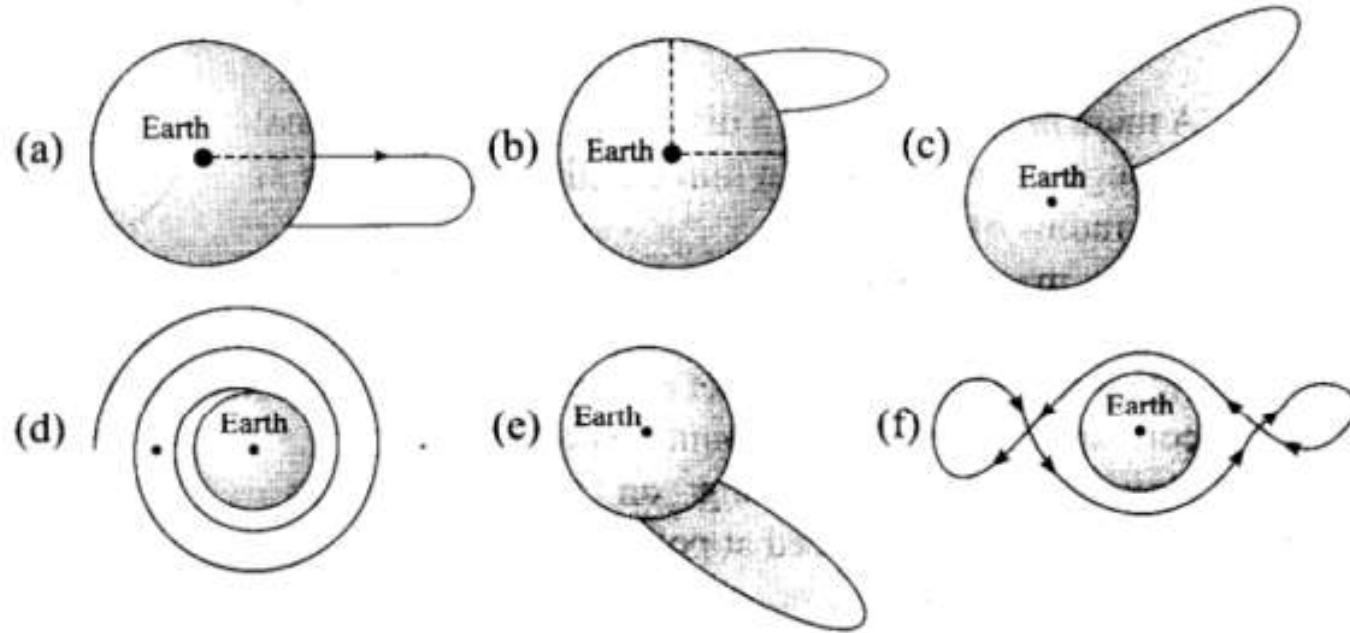


Q. 07 Shown are several curves [Fig. (a), (b), (c), (d), (e) and (f)]. Explain with reason, which ones amongst them can be possible trajectories traced by a projectile (neglect air friction).



Sol. The trajectory or the path followed by a projectile under gravitational force of the earth instead of parabolic will be a conic section (for motion outside the earth) with the centre of the earth as a focus. Only the diagram in option (c) will fulfil the requirements.

Important point: In projectile, we have taken the value of gravitational acceleration 'g' as a constant because up to some distance its variation will be neglected. The trajectory of the particle depends upon the velocity of projection. Depending upon the magnitude and direction of velocity it may be parabolic or elliptical.