FIG. 5B. Melnikov's function for $b = 2.16426435, a_1 = 0.1091668, v_0 = 1.3, 1.5, 2.0, 3.0, 0 \leq n \leq 0.99$
FIG. 6A. Melnikov’s function for $b=2.16426435, a_1=0.1301490, v_0=0.1, 0.4, 0.7, 1.0, 0 \leq n \leq 0.99$
Figure 6B. Melnikov's function for $b=2.1,4,2,6,4,3,5, u=0.10,14,0, v_0=1.3, 1.5, 2.0, 3.0, 0.0 \leq u \leq 0.99$. 

- $v_0=1.5$ 
- $v_0=3.0$ 
- $v_0=1.3$ 
- $v_0=2.0$
FIG. 7A. Melnikov's function for $b=2.16426435, a_i=0.152183, v_0=0.1, 0.4, 0.7, 1.0, 0<n<0.99$. 

- $v_0=0.4$: 
  - M+ and M- are shown.
  - $n$ values range from 0 to 1.5.
- $v_0=1.0$: 
  - M+ and M- are shown.
  - $n$ values range from 0 to 1.5.
- $v_0=0.1$: 
  - M+ and M- are shown.
  - $n$ values range from 0 to 1.5.
- $v_0=0.7$: 
  - M+ and M- are shown.
  - $n$ values range from 0 to 1.5.
FIG. 7B. Melnikov's function for $b = 2.16426435, a_1 = 0.152183, n_0 = 1.3.1.5.2.0.3.0.0 \leq n \leq 0.99$
FIG. 8. Melnikov's function for $b=2.16426435$, $n=0.1$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 9. Melnikov's function for $b=2.16426435$, $n=0.2$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 10. Melnikov's function for $b=2.16426435$, $n=0.3$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 11. Melnikov's function for $b=2.16426435$, $n=0.4$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 12. Melnikov's function for $b=2.16426435$, $n=0.5$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 13. Melnikov's function for $b=2.16426435$, $n=0.6$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 14. Melnikov's function for $b=2.16426435$, $n=0.7$, $v_0=0.1, 0.5, 1.0, 1.5$, $0.1 \leq a_1 \leq 0.22$
FIG. 15. Melnikov's function for $b=2.16426435$, $n=0.8$, $v_0=0.1,0.5,1.0,1.5$, $0.1 \leq a_1 \leq 0.22$
1.0, 1.5 for $n=0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9$. It has been observed that as the parameter $a_1$ due to magnetic torque effect changes, i.e. for $0.105092 \leq a_1 \leq 0.220081$, the value of Melnikov’s function $M^+(v_0, n, a)$ and $M^-(v_0, n, a)$ remains almost constant.
3.4 CONCLUSION

Through Melnikov’s method, non-integrability of the non-linear rotational equations of motion of the planar oscillation of a satellite in an elliptic orbit under the influence of the magnetic torque has been shown. We have also observed graphically that in the Earth - Artificial Satellite system, the Melnikov’s function has simple zero and hence the Equations (2.3.1), are non integrable.