

Exercise for Module – 7

Answer the following

1. On what factors the tube coefficient is dependent on?
2. What is the compressibility correction in velocity measurements?
3. What is the working principle of hot wire anemometry?
4. What are the important assumptions in the principle of operation of hot wire anemometry?
5. Why l/d of the hot wire probe very large?
6. Why are hot wire anemometers preferred for measurement in the low velocity regimes?
7. How are the two modes of hot wire anemometry different from each other?
8. What is the operating principle of laser Doppler anemometry?
9. What is the purpose served by the seeding particles in LDA measurements?
10. Derive the classical equation connecting the velocity and the Doppler frequency.
11. Why is the photo receiver in LDA system kept at small angle to the direction of the incident beam?
12. Differentiate between the backward and forward scattering modes of LDA.
13. What component in LDA systems help determining the direction of the flow?
14. What is understood by the fringe model of LDA?
15. What are the advantages of laser Doppler anemometry for velocity measurements.
16. Compare and contrast LDA with hotwire anemometry.