

# **Special purpose vehicle**

## **TUTORIAL-1**

1. Classify the special purpose vehicles and give the application of each.
2. Explain the working of hydraulic brake system with neat sketch.
3. Explain the hydrodynamic steering system used in special purpose vehicles.
4. Write the design and construction considerations for a new type of Special purpose vehicle.
5. Write step by step process you would like to follow.
6. List the types of steering gear box. Explain any one with neat sketch.
7. Write short note on instrumentation applied to special purpose vehicles.
8. Explain air brake system with neat sketch.

## **TUTORIAL-2**

1. Explain types of crane and explain characteristics of mobile crane.
2. Explain wheel loader with its application and list its attachments can be extended to wheel loader?
3. Explain construction of a shovel with neat sketch.
4. Draw sketch of dozer and explain its purpose and working in detail.
5. List the various types of excavators and explain hydraulic excavator.
6. Explain (1) multi axle vehicles (2) fifth wheel mechanism
7. Explain tracked vehicle and articulated vehicles.
8. Explain in detail types of Road Roller construction. Draw neat sketches
9. With a neat sketch explain design parameters of Tipper vehicle.
10. Show all the parts of Fork lift truck and explain

11. Explain comparison of Wheel loader and Shovel.
12. Explain multi axle vehicles purpose, advantages and disadvantages
13. Explain fifth wheel coupling mechanism
14. Explain forklift with its uses and operation techniques.
15. Write short note on control systems and safety devices of crane.
16. How the power shovel is selected? Write short note on shovels.
17. Explain the bucket wheel excavator with its main parts. Write the advantages of the bucket wheel excavator.
18. Explain Track-Mounted Excavator in detail.
19. Explain hydraulic and cable control system of bulldozer
20. Explain the wheel arrangement of Truck Semi-trailer and different application of semi-trailers.

### **TUTORIAL-3**

1. Give the difference between series hybrid and parallel hybrid vehicles.
2. Explain electrical vehicles with neat sketch.
3. List the types of rechargeable batteries considered for EV and HEV applications. Explain any two.
4. Draw the layout of solar vehicle and explain its working.
5. Write the advantages and disadvantages of hybrid car
6. List types of Hybrid Vehicles and explain gas turbine engine.

### **TUTORIAL 4**

- 1) Draw a complete layout of tractor and explain in detail.
- 2) Write the difference between crawler & wheel tractor.

- 3) List and explain the various implements used with tractor.
- 4) Describe the special features of tractor.
- 5) Explain gear box used in tractor with neat sketch.
- 6) Why PTO shaft is provided in tractor? Explain three standard types of PTO drives.
- 7) What is “Ballasting” of tractor? Give its advantages and explain the methods of Ballasting.
- 8) Explain Hydraulic systems and auxiliary systems that can be provided on Tractors.
- 9) Explain the transmission system and driveline of tractor with neat sketch.
- 10) Draw neat sketches of accessories attached used in tractor and explain it.
- 11) Classify the tractor. How tractor is selected?