

Answer all the questions.

Each question is followed by four options lettered A to D. Find the correct option for each question and shade in pencil, on your answer sheet, the answer space which bears the same letter as the option you have chosen. Give only one answer to each question.

An example is given below.

A commercial truck always has twin tyres fitted side by side because

- A. double brake drums are needed to retard the vehicle.
- B. of the risk of puncturing a tyre.
- C. two tyres per wheel must be fitted when a fully floating shaft is used.
- D. the load acting on a single tyre would be above the legal limit.

The correct answer is the load acting on a single tyre would be above the legal limit, which is lettered D and therefore answer space D would be shaded.

[ A ]

[ B ]

[ C ]

[ ☒ D ]

Think carefully before you shade the answer spaces; erase completely any answer(s) you wish to change.

Do all rough work on this question paper.

Now answer the following questions.

1. To secure a motor vehicle in position on a hoist, the mechanic should

- A. put the gear in park.
- B. use the hand brake.
- C. use wedges.
- D. use a jack.

2. When working under a jacked-up vehicle, it must be supported on

- A. a concrete block.
- B. a sandcrete block.
- C. an axle stand.
- D. a tripod stand.

The sketch in Figure 1 shows a workshop chisel. Use it to answer questions 3 and 4.

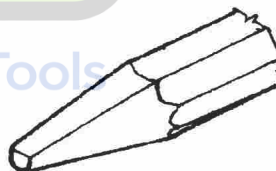


Figure 1

3. The name of the chisel is

- A. diamond-point chisel.
- B. cross-cut chisel.
- C. flat chisel.
- D. half-round chisel.

4. The chisel is **mainly** used for cutting

- A. sheet metals.
- B. grooves.
- C. broken studs.
- D. bolts.

The sketch in **Figure 2** shows a motor vehicle. Use it to answer questions 5 and 6.

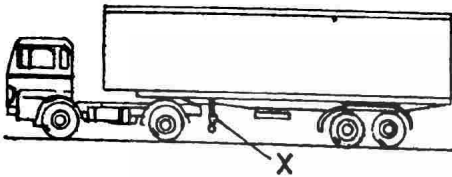


Figure 2

5. The vehicle is an example of

- A. estate vehicles.
- B. articulated vehicles.
- C. luxury vehicles.
- D. hatchback vehicles.

6. The part labelled X is a

- A. retractable wheel.
- B. tractor.
- C. turntable coupling.
- D. jack.

7. The **main** function of the flywheel is to

- A. start up the pinion motion.
- B. form a case that stores oil.
- C. store the engine power.
- D. serve as the drive of the camshaft.

8. The engine part that links the piston to the crankshaft is the

- A. poppet valve.
- B. connecting rod.
- C. crankcase.
- D. piston ring.

9. The **main** purpose of the cylinder head is to

- A. protect the valves.
- B. house the clutch assembly.
- C. seal the engine.
- D. lead away burnt gases.

10. One advantage of *four-stroke diesel engine* over *four-stroke petrol engine* is that,

- A. its parts are cheaper.
- B. it is more rigid.
- C. its faults are easily detected.
- D. it has higher running speed.

The sketch in **Figure 3** shows a type of automobile petrol supply system. Use it to answer questions 11 to 13.

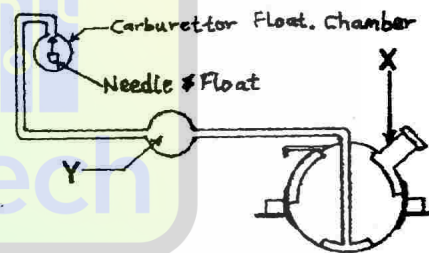


Figure 3

11. The part labelled X is

- A. vent pipe.
- B. filler neck.
- C. drain plug.
- D. fuel pump.

12. The part labelled Y is

- A. lift pump.
- B. ball valve.
- C. air tank.
- D. fuel filter.

13. One of the functions of the carburettor float chamber is to supply
- A. fuel and lubricant into the cylinder.
  - B. air and water into the cylinder.
  - C. fuel into the cylinder.
  - D. lubricant into the cylinder.
14. An engine's exhaust system must permit a little
- A. axle movement relative to the chassis.
  - B. spring movement relative to the body.
  - C. engine movement relative to the chassis.
  - D. road wheel movement relative to the body.
15. The gear type of oil pump mounted on the underside of the crankcase is driven from the
- A. rocker shaft.
  - B. camshaft.
  - C. crankshaft.
  - D. distributor shaft.
16. Transmission oil is applied on the
- A. propeller shaft.
  - B. clutch.
  - C. brake.
  - D. rear axle.
17. The low reading of oil pressure gauge indicates that the
- A. relief valve stuck closed.
  - B. oil ducts are partly choked.
  - C. spring tension on relief valve is too high.
  - D. pump filter is partly choked.
18. The **main** function of fan blade in the cooling system is to
- A. cool water in the radiator.
  - B. filter the air that flows to the radiator.
  - C. turn the timing belt.
  - D. turn the fan belt.
19. Overheating in the liquid cooling system can be caused by
- A. thermostat stuck opened.
  - B. the use of a bigger radiator.
  - C. high fan belt tension.
  - D. faulty cylinder gasket.
20. The **main** function of the radiator is to
- A. withstand high temperature of water.
  - B. expose cooling water to air stream.
  - C. store water in the cooling system.
  - D. accommodate the fins.
21. One unit of manual transmission system that is missing in automatic transmission system is the
- A. brake pedal.
  - B. accelerator pedal.
  - C. parking brake.
  - D. clutch pedal.

22. Clutch slip is caused by

- A. loose connecting bolts.
- B. cracked driven plate.
- C. misalignment of the clutch.
- D. inadequate freeplay.

23. The function of the clutch is to connect power source directly to the

- A. engine.
- B. gearbox.
- C. propeller shaft.
- D. rear axle.

24. One cause of unusual vibration of the propeller shaft is

- A. worn release bearing.
- B. worn clutch plate.
- C. loose securing nuts.
- D. loose wheel nuts.

25. One function of tyre valve is to

- A. enhance tyre alignment.
- B. enhance tyre inflation.
- C. regulate tyre wear.
- D. regulate tyre temperature.

26. One function of the outer casing of the tyre is to

- A. serve as the air container of the tyre.
- B. reduce the temperature of the tyre.
- C. provide seats for the tyre beads.
- D. enhance pressure retention of the tyre.

27. The type of braking system used on articulated vehicles is

- A. power assisted braking system.
- B. hydraulic braking system.
- C. mechanical braking system.
- D. air pressure braking system.

28. One of the parts of brake assembly is

- A. cam and roller.
- B. wheel cylinder.
- C. worm and wheel.
- D. toe-in joint.

The sketch in **Figure 4** shows steering geometry. Use it to answer questions 29 and 30.

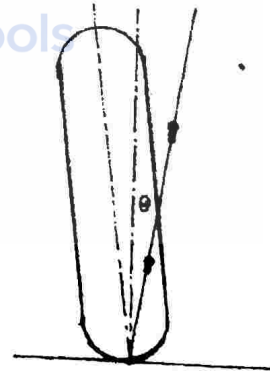


**Figure 4**

29. The angle labelled  $\theta$  is called

- A. steering inclination.
- B. camber angle.
- C. kingpin inclination.
- D. caster angle.

30. The **main** function of the geometry is to

- A. assist in achieving centre-point steering.
- B. ease the swivel of the wheel.
- C. enable toe-out in turns.
- D. protect the steering during braking.

31. The kingpin is located at the

- A. front of the vehicle.
- B. rear of the vehicle.
- C. upper part of the vehicle.
- D. lower part of the vehicle.

32. The **main** function of suspension damper is to

- A. limit spring oscillation.
- B. reduce road surface irregularity.
- C. limit the effect of excessive braking.
- D. transmit drive to the wheels.

33. If a starter motor draws a current of 120 A when turning an engine at 15 V, the power of the starter is

- A. 135 W.
- B. 105 W.
- C. 8.0 kW.
- D. 1.8 kW.

34. The alternator of an automobile produces alternating current within its

- A. rotor field coil.
- B. stator winding.
- C. slip ring.
- D. regulator.

35. The ignition system component that absorbs and stores inductive current when the contacts are opened is the

- A. coil.
- B. rotor.
- C. capacitor.
- D. resistor.

36. One example of good conductor of electricity is

- A. silk.
- B. mica.
- C. ebonite.
- D. copper.

37. The starter motor converts battery current into torque at the
- A. main shaft gear.
  - B. primary shaft gear.
  - C. flywheel drive gear.
  - D. final drive gear.
38. The component which is the central core of the on-board diagnostic tool is the
- A. electronic sensor unit.
  - B. impulse actuator.
  - C. transistor control module.
  - D. electronic control unit.
39. The belt that drives the vehicle airconditioning system is connected to the
- A. camshaft and crankshaft pulleys only.
  - B. camshaft and water pump pulleys only.
  - C. crankshaft, water pump and alternator.
  - D. crankshaft, alternator and camshaft pulleys.
40. The road traffic sign in **Figure 5** represents a



**Figure 5**

- A. corner.
- B. roundabout.
- C. hump bridge.
- D. narrow bridge.

**END OF PAPER**