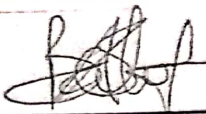




FACULTY: ENGINEERING

FIRST SEMESTER EXAMINATIONS

2016/ 2017 ACADEMIC SESSION


HOD'S SIGNATURE

COURSE CODE: ATE 401

COURSE TITLE: AUTOMOTIVE ASSEMBLY TECHNOLOGY – 3 UNITS

DURATION: 2 HOURS 30 MINUTES

INSTRUCTIONS

1. ANSWER 4 QUESTIONS OF YOUR CHOICE
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM
3. YOU ARE NOT ALLOWED TO BORROW CALCULATORS AND ANY OTHER WRITING MATERIALS

Question 1

(a) What are the different classification of bodies used in Automobiles and explain with respect to Figure 1.0 shown below?

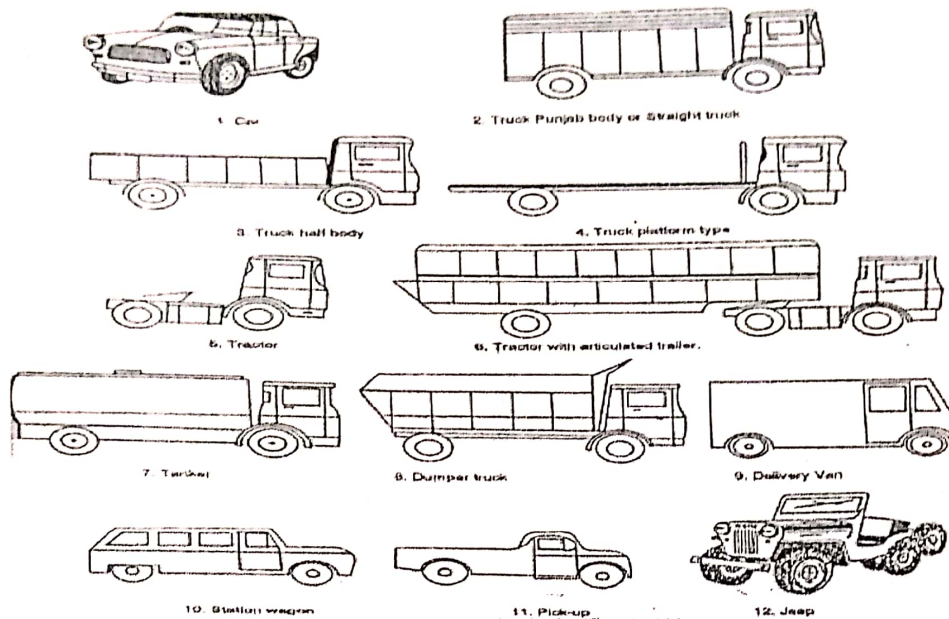


Fig. 1.0:

5 marks

(b) What are the functions of Chassis frame?

3 marks

(c). List out the various components of chassis?

4 marks

(d). What are the frame sections used in Automobiles?

3 marks

Question 2

(a) Define Work station with respect to assembly line

3 marks.

(b) Define and discuss the two assembly methods?

4 marks

(c) Discuss the advantages of flow line systems relative to job shop production

systems.

3 marks

(d) Write short notes on the following:

i. Operation time

ii. Cycle time

iii. Takt time

iv. Idle time

v. Tolerance time

5 marks

Question 3

- (a) State 10 requirements of bodies for various types of vehicle. 5 marks
- (b) Mention five loads acting on the frame 2½ marks
- (c) What is the relationship between the Stopping distance and Braking efficiency 2½ marks
- (d) State 5 Classification of Brakes by method of power 5 marks

Question 4.

- (a) Explain how the labeled parts of the Steering System operates using the figure below:

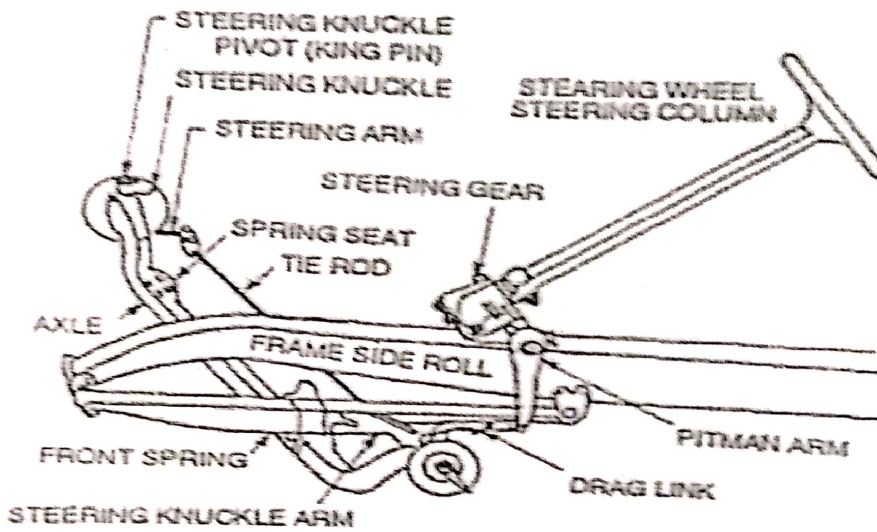


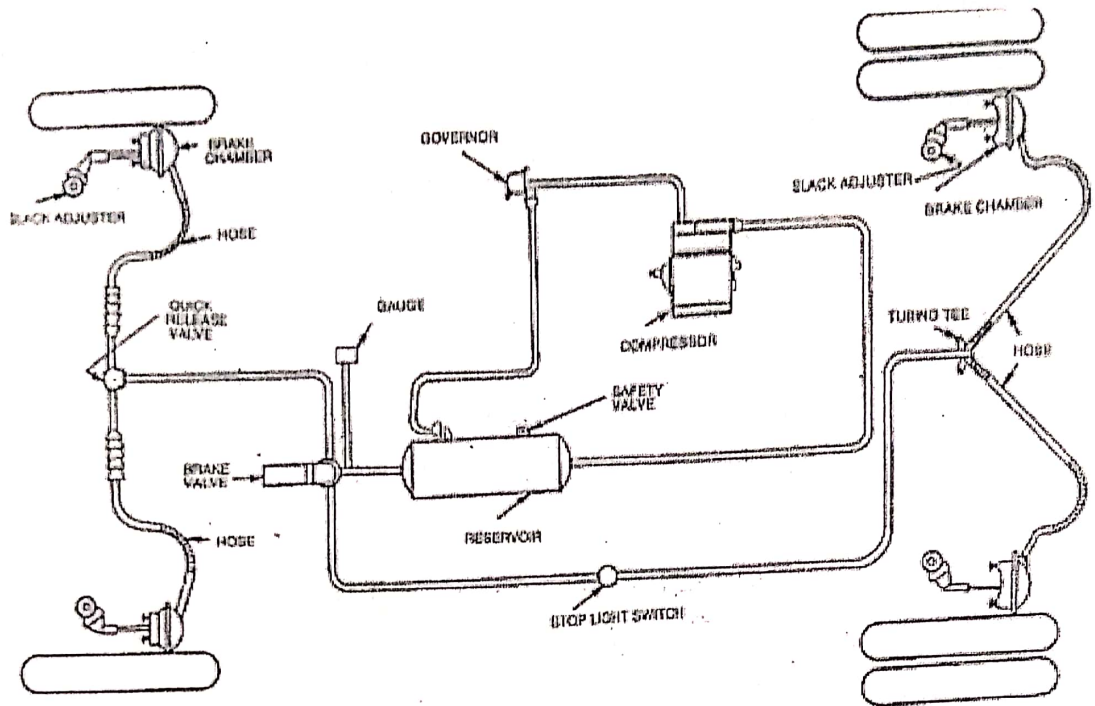
Fig. 2.0

- (b) Explain the functions of steering systems? 5 marks
- (c) Discuss the following in brief: 4 marks
 - i. Slip Angle
 - ii. Under Steer and Over Steer
 - iii. Reversible Steering and Irreversible steering
 - iv. Turning Radius

6 marks

Question 5

- (a). Mention the main components of drum brakes. 3 marks
- (b). Describe the construction of a drum brake. 4 marks
- (c). The figure below shows the schematics diagram of a vehicle. Describe the working principle of the braking system of the vehicle. 5 marks



(d). State the advantages and disadvantages of Tandem master Cylinder 3 marks