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ZEAL POLYTECHNIC, PUNE

NARHE | PUNE -41 | INDIA

DEPARTMENT OF MECHANICAL ENGINEERING

THIRD YEAR (TY)

SCHEME: I **SEMESTER: VI**

NAME OF SUBJECT: AUTOMOBILE ENGINEERING

Subject Code: 22656

UNIT WISE MULTIPLE CHOICE QUESTIONS BANK

ZEAL EDUCATION SOCIETY'S

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DEPARTMENT OF MECHANICAL ENGINEERING

Question Bank for Multiple Choice Questions

Program: Diploma in Mechanical Engineering	**Program Code:- ME**
Scheme:-I	**Semester:- 6**
Course:- Automobile Engineering	**Course Code:- 22656**

01-Introduction to Automobiles	**Marks: 10**

Content of Chapter:

1.1 Automobile: Definition, Classification of Automobiles, Major components of automobiles with their function and locations

1.2 Vehicle Layout: Definition, Significance of Vehicle Layout, Different types of Vehicle Layouts (FEFWD, FERWD, RERWD, 4WD, Advantages, Disadvantages, Applications and Comparisons of Different types of vehicle layouts

1.3 Function of Chassis, Frame and body: Requirement of chassis, frame and body, Load acting on frame, Classification of chassis frame with advantages, disadvantages and applications (Conventional, Unitized body, Sub Frame), Basic body nomenclature

1.4 Significance of body Streamlining: Need and importance aerodynamic aspects, Basics terms related with car aerodynamic (e.g. Drag, lift, skin friction, form drag, wake, coefficient of drag)

1.5 Alternative fuels: LPG and CNG: Need, fuel characteristics, Construction and working, advantages, limitations, layout of electric vehicles: Need, working, Advantages, Limitations, hydrogen as fuel

1. In commercial vehicle layouts engine is located forward, rear or under floor mainly to

(A) Better utilization of space

(B) Increase fuel economy

(C) Better weight distribution

(D) Reduce the weight of chassis

Answer:- Option C

2. Comparing a Four wheel drive with Two wheel drive system either at front or rear and assuming an equal division of weight between the two axes

(A) From the point of view of traction front wheel drive is better than rear wheel drive

(B) Front wheel and rear wheel drive are equal

(C) Four wheel drives can always give more traction than either rear or front wheel drive

(D) Four wheel drive can utilize all the weight of the vehicle only at a particular road friction

Answer:- Option C

3. Which motor cycle has maximum power rating

(A) Rajdoot

(B) Jawa

(C) Yamaha

(D) Bullet

Answer:- Option C

4. The aerodynamic lift and pitching moment are ……effects

(A) Desirable

(B) Low

(C) Undesirable

(D) High

Answer:- Option C

5. Identify which is not a type of frame

(A) Integral frame

(B) Semi integral frame

(C) half Integral frame

(D) Conventional

Answer:- Option C

6. The automobile chassis consist of engine, frame, power train, wheel, steering and ……..

(A) Braking System

(B) The Doors

(C) Wind Shield

(D) Luggage Boot

Answer:- Option A

7. The…….and…….makes a complete vehicles

(A) Loads, Frame

(B) Frame, Chassis

(C) Body, Chassis

(D) Frame, Bolts

Answer:- Option C

8. ……..is main structure of vehicle

(A) Chassis

(B) Body

(C) Frame

(D) Load

Answer:- Option A

9. Which is not a category of layout?

(A) Front Wheel Drive Layout

(B) Back Wheel Drive Layout

(C) Rear Wheel Drive Layout

(D) Four Wheel Drive Layout

Answer:- Option B

10. The vehicle without body is called

(A) Frame

(B) Glass

(C) Wheel

(D) Chassis

Answer:- Option D

11. Which are the two main alcohols used in the engine as a fuel?

(A) Butanol and methanol

(B) Propanol and butanol

(C) Ethanol and propanol

(D) Methanol and Ethanol

Answer:- Option D

12. Compared to petrol, CNG combustion produces 25% less of which gas?

(A) NOx

(B) H

(C) CO

(D) CO_2

Answer:- Option D

13. The LPG is a by-product of the fractional distillation of which fuel?

(A) Coal

(B) Kerosene

(C) Diesel

(D) Petrol

Answer:- Option D

14. What's the difference between a plug-in hybrid and a battery electric vehicle?

(A) There is no difference

(B) A plug-in hybrid only accepts AC power, while a battery electric vehicle accepts AC and DC

(C) A plug-in hybrid can be powered by either the battery or the gasoline engine. Pure electric vehicle is powered only by the battery

(D) A plug-in hybrid emits more emissions than battery electric vehicle accepts

Answer:- Option C

15. The sum of all the fluid dynamics forces on a body normal to the direction of external flow around the body is called as

(A) Lift

(B) Drag

(C) Weight

(D) Thrust

Answer:- Option A

16. The value of minimum Drag Coefficient obtained in

(A) Sphere body (B) Cube body

(C) Streamlined body (D) Streamlined half body

Answer:- Option C

17. CNG stands for

(A) Combined natural gas (B) Compressed natural gas

(C) Compressed Nitrogen gas (D) Clean natural gas

Answer:- Option B

18. Natural gas is called clean fuel because

(A) It burns without producing any smoke (B) It burns completely

(C) It does not leave behind any residue (D) All of these

Answer:- Option D

19. The location of separation point will depend on _____

(A) curvature of the body (B) body weight

(C) mass of body (D) only on body length

Answer:- Option A

20. Advantage of gaseous fuel is that

(A) it can be stored easily (B) it can mix easily with air

(C) it can displace more air from the engine (D) all of the mentioned

Answer:- Option B

21. For C.I. engines fuel most preferred are

(A) aromatics (B) paraffins

(C) olefins (D) napthenes

Answer:- Option B

22. Gaseous fuel guarantees are based on _____

(A) calorific value of oil (B) low heat value of oil

(C) mean heat value of oil (D) none of the mentioned

Answer:- Option B

23. The Natural Gas consists of 95% of which gas?

(A) Methane
(B) Butane
(C) Propane
(D) Ethane

Answer:- Option A

24. Bio-diesel is made of what residuals?

(A) Plant oil
(B) Animal fat
(C) Plant oil and animal fat
(D) Edible oil

Answer:- Option C

25. Which of the following not a part of chassis?

(A) Wheel
(B) Front axle
(C) Steering system
(D) Seats

Answer:- Option D

26. An automobile chassis does not include which one of the following parts?

(A) shock absorbers
(B) steering system
(C) Differential
(D) Brakes

Answer:- Option C

27. The part of the vehicle holds the passengers and the cargo to be transported is known as

(A) Hull
(B) Chassis
(C) Cabin
(D) Sedan

Answer:- Option A

28. The power train includes the clutch, propeller shaft, differential and …….

(A) Steering gear
(B) Front axles
(C) Chassis
(D) Transmission

Answer:- Option D

29. The device for smoothing out the power impulses from the engine is called the

(A) Flywheel
(B) Camshaft
(C) Crankshaft
(D) Clutch

Answer:- Option A

30. The unsprung mass in a vehicle system is mainly composed of

(A) The frame assembly
(B) Gear box and propeller shaft

(C) Axle and the parts attached to it

(D) . Engine and associated parts

Answer:- Option C

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Question Bank for Multiple Choice Questions

Program: Diploma in Mechanical Engineering	Program Code:- ME
Scheme:-I	Semester:- 6
Course:- Automobile Engineering	Course Code:- 22656

02-Automobile Transmission System	Marks: 14

Content of Chapter:

2.1 Function and Necessity of clutch: Requirement of clutch, working principle of clutch, construction and working of single plate clutch (Coil spring and diaphragm), Multiplate clutch and Centrifugal clutch.

2.2 Function and Necessity of gear box, Manual Transmission: Classification of gear box, Construction and working constant mesh and synchromesh gear box with power flow diagrams

2.3 Semi-Automatic Transmission: Function, construction and working of overdrive, Automatic transmission, fluid flywheel: function, construction and working of fluid flywheel, Torque converter: Function, construction and working of torque converter. Epicyclic Gear Train: Function, construction and working of epicyclic gear train.

2.4 Propeller shaft assembly: Function, necessity and types of propeller shaft. Function and Necessity of universal joint and slip joint.

2.5 Final drive: function and necessity of final drive, Differential, working principle, construction and working of differential.

2.6 Axles: Significance of Live and dead axle, function and requirement of front axle. Types of (front) stub axle, function, Construction and working of semi floating and full floating rear axle.

1. **Which of the following is the need of the gearbox?**

   (A) To vary the power of the vehicle
   (B) To vary the acceleration of the vehicle
   (C) To vary the speed of the vehicle
   (D) To vary the torque of the vehicle

   Answer:- Option D

2. **There are two separate movements of the gear shift lever for changing the gears.**

(A) The shaft to be moved
(B) The shaft pedal to be moved
(C) Shifter fork which operates gear assembly to be moved
(D) The first movement selects

Answer:- Option C

3. In the transmission, the reverse idler gear always mesh with

(A) The shaft pedal to be moved
(B) Counter shaft low gear
(C) The first movement selects
(D) Counter shaft reverse gear

Answer:- Option D

4. In transmission reduction of speed is always used to obtain

(A) Reduction of torque
(B) Constant torque to drive the wheels
(C) Increase of torque
(D) decrease of torque

Answer:- Option C

5. In transmission reduction of speed is always used to obtain

(A) Differential
(B) Transmission
(C) Speed Change
(D) Clutch

Answer:- Option B

6. In the automobile, the power train carries the engine power from the engine to the rear wheels. The power train includes the clutch propeller shaft, differential and

(A) Front axis
(B) Steering gear
(C) Gear box
(D) Chassis

Answer:- Option C

7. In the coil spring type of clutch when the pressure plate and cover are separated, the spring pressure must be held by

(A) Hand
(B) An arbor press
(C) A lever
(D) A heavy weight

Answer:- Option B

8. In which of the gearbox all gears are always in contact?

(A) Constant-mesh gearbox
(B) Sliding mesh gearbox
(C) Synchromesh gearbox
(D) Epicyclical gearbox

Answer:- Option A

9. Where is the overdrive located?

(A) Between transmission and engine
(B) Between transmission and rear axle

(C) Between transmission and propeller shaft (D) Between transmission and differential

Answer:- Option C

10. To prevent distortion on re-installation on the clutch cover attaching bolts should be tightened

(A) One at a time (B) Evenly

(C) Until springs begin to compress (D) Until springs are expanded

Answer:- Option B

11. The coil springs are located in between the pressure plate and the

(A) Clutch cover (B) Disc assembly

(C) Pressure plate baffle (D) Flywheel

Answer:- Option A

12. The clutch cover is bolted to the

(A) Friction disc (B) Flywheel

(C) Car frame (D) Engine block

Answer:- Option B

13. The friction disc is positioned between the flywheel and the

(A) Engine (B) Crankshaft

(C) Pressure plate (D) Clutch Plate

Answer:- Option C

14. There is a double faced friction disc splined to a shaft in the

(A) Transmission (B) Differential

(C) Engine (D) Clutch

Answer:- Option D

15. The power train transmits power from the engine to the

(A) Crank shaft (B) Rear wheels

(C) Front wheels (D) Steering gear

Answer:- Option B

16. The clutch pressure plate is mounted on the

(A) Flywheel (B) Clutch cover

(C) Friction disc (D) Crankshaft

Answer:- Option B

17. The release levers in a typical clutch pivot on

(A) Springs (B) Levers

(C) Threaded levers (D) Pins

Answer:- Option D

18. If two meshing gears have 4:1 gear ratio and the smaller gear has 12 teeth, the large gear will have

(A) 12 teeth (B) 24 teeth

(C) 36 teeth (D) 48 teeth

Answer:- Option D

19. The two meshed gears have a gear ratio of 3:1. Every time the larger gear turns once the small gear will be to turn

(A) 1/3 time (B) one

(C) three times (D) two times

Answer:- Option C

20. In the diaphragm clutch inward movement of the throw out bearing causes the diaphragm spring to

(A) Dish inward (B) Expand

(C) Contract (D) None of these

Answer:- Option A

21. The fluid coupling has maximum efficiency when driving and driven members are turning at

(A) High speed (B) Low speed

(C) Different speed (D) About the same speed

Answer:- Option A

22. Which of the following is not part of automatic transmission?

(A) Epicyclic gearbox (B) Torque convertor

(C) Multi-plate clutch (D) Sliding mesh gearbox

Answer:- Option D

23. Which types of gears are used in constant mesh gearbox?

(A) Spur gear (B) Helical gear

(C) Bevel gear (D) Worm gear

Answer:- Option B

24. When shifting into low, a gear on the transmission main shaft is moved in to mesh with the

(A) Counter shaft low gear
(B) Counter shaft idler
(C) Clutch gear
(D) Output gear

Answer:- Option A

25 Clutch noises are usually most noticeable when the engine is

(A) Accelerating
(B) Decelerating
(C) Idling
(D) Being started

Answer:- Option C

26 The purpose of transmission in an automobile is

(A) To vary the speed of automobile
(B) To vary the torque at the wheel
(C) To vary the power of automobile
(D) None of these

Answer:- Option D

27. The torque available at the contact between driving wheels and road is known as

(A) Brake Effort
(B) Tractive Effort
(C) Clutch Effort
(D) None of these

Answer:- Option B

28. When turning a corner

(A) The front wheels are toeing out
(B) The front wheels are turning on different angles
(C) The inside front wheels has a greater angle than the outside wheel
(D) All of the above

Answer:- Option D

29. The coil spring clutch may use from

(A) Two to six springs
(B) Three to nine springs
(C) Four to eight springs
(D) Ten to twelve springs

Answer:- Option B

30. The ring gear is mounted on the

(A) Differential housing
(B) Differential carrier
(C) Differential case
(D) Axle housing

Answer:- Option D

31. Which one is the type of friction material?

(A) Millboard type
(B) Molded type
(C) Woven type
(D) All of these

Answer:- Option D

32. What could be the reason of a clutch slip?

(A) Weak or broken clutch spring
(B) Incorrect linkage adjustment
(C) Worn out facing
(D) Any of these

Answer:- Option D

33. What is connected to the input shaft in the flying flywheel?

(A) Turbine
(B) Housing shell
(C) Impeller
(D) None of these

Answer:- Option C

34. Which of the following is the disadvantage of the open differential?

(A) High in cost
(B) Not reliable
(C) Complex design
(D) Sends most of the power to the wheel having less traction

Answer:- Option D

35. Is it necessary for an axle to be _____ with respect to rotating element?

(A) Stationary
(B) Moving
(C) Moving or stationary
(D) None of the listed

Answer:- Option C

36. Shafts are subjected to _____ forces

(A) Compressive
(B) Tensile
(C) Shear
(D) None of the listed

Answer:- Option B

37. The axes of the two shafts are intersecting and are at 25° to each other. These two shafts are connected by Hook's joint. At which position of the drives shaft velocity ratio will be maximum?

(A) 90°, 270°
(B) 0°, 180°
(C) 180°, 270°
(D) 90°, 180°

Answer:- Option B

38. Maximum intensity of pressure for multi plate clutch is given by ____

(A) C/R

(B) C/R2

(C) C/r2

(D) C/r1

Answer:- Option C

39. What is the formula for tractive resistance?

(A) Tractive resistance = wind resistance + gradient resistance + rolling resistance

(B) Tractive resistance = wind resistance - gradient resistance + rolling resistance

(C) Tractive resistance = wind resistance * gradient resistance * rolling resistance

(D) None of these

Answer:- Option D

40. Which of the following is the coefficient of friction of the clutch plate?

(A) 1.3

(B) 0.8

(C) 0.4

(D) 0.1

Answer:- Option C

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Question Bank for Multiple Choice Questions

Program: Diploma in Mechanical Engineering	Program Code:- ME
Scheme:-I	Semester:- 6
Course:- Automobile Engineering	Course Code:- 22656

03-Automobile Control Systems	Marks: 10

Content of Chapter:

3.1 Automobile Braking System: Function and requirement of braking system: Principle of braking, basic terms related braking (Stopping distance, Braking efficiency, fading of brakes)
3.2 Types of Braking System: Layout, Construction, working of Drum, Disc, Hydraulic and Air Brakes
3.3 Master Cylinder, Wheel Cylinder, Tandem Master Cylinder Significance and general procedure of bleeding of brake
3.4 Review of Anti-lock Braking system: Layout of ABS, Pressure Modulation, Types of ABS
3.5 Automobile Steering System; Function and requirement of steering system: Basics terms related steering (steering ratio, turning radius, under steering and over steering). Basic components of steering linkages
3.6 Types of steering gear boxes: construction and working of rack and pinion, recirculating ball type steering gear box, Necessity and Principle of power steering, construction and working of hydraulic and electronic power steering
3.7 Steering Geometry: Necessity of steering geometry, significance and ranges of caster (Positive, Negative) camber (Positive, Negative), toe in, toe out, King pin inclination(KPI), steering axis inclination (SAI)

1. When brakes are applied on a moving vehicle; the kinetic energy is converted to

(A) Mechanical energy
(B) Heat energy
(C) Electrical energy
(D) Potential energy

Answer:- Option B

2. The force required to stop a vehicle is dependent on

(A) the weight of vehicle
(B) the deceleration rate
(C) both (A) and (B)
(D) None of the above

Answer:- Option C

3. The hand brake of the automobile is usually

(A) External contracting brake
(B) Internal expanding brake
(C) Disc brake
(D) All of the above

Answer:- Option A

4. In disc brake, the disc is attached to the

(A) wheel
(B) axle
(C) suspension system
(D) none of the above

Answer:- Option B

5. The mechanical brakes are operated by means of

(A) levers
(B) bell cranks
(C) cams
(D) all of the above

Answer:- Option D

6. In vacuum brake, cylinder chamber consists of

(A) atmospheric valve
(B) vacuum valve
(C) both (A) and (B)
(D) None of the above

Answer:- Option C

7. Hydraulic brakes function on the principle of

(A) Law of conservation of momentum
(B) Law of conservation of energy
(C) Pascal's law
(D) None of the above

Answer:- Option C

8. The function of master cylinder in hydraulic brakes is to

(A) builds up hydraulic pressure to operate the brakes
(B) maintains constant volume of fluid in the system
(C) serves as a pump to force air out of the hydraulic system
(D) All of the above

Answer:- Option D

9. Tandem master cylinder consists of

(A) one cylinder and one reservoir
(B) two cylinders and one reservoir
(C) one cylinder and two reservoirs
(D) two cylinders and two reservoirs

Answer:- Option D

10. Hand brake is applicable to

(A) only front wheels
(B) only rear wheels
(C) both front and rear wheels
(D) all of the above

Answer:- Option B

11. The following factor(s) contribute to the effectiveness of the brakes

(A) Area of brake linings
(B) Radius of car wheel
(C) Amount of pressure applied to shoe brakes
(D) All of the above

Answer:- Option D

12. Servo action is to

(A) the amplification of braking forces
(B) increase force of friction between shoe and wheel
(C) transfer of weight during stop
(D) All of the above

Answer:- Option A

13. The power brake may be exerted by

(A) electrical energy
(B) engine vacuum
(C) air pressure
(D) all of the above

Answer:- Option A

14. The process of removing air from the brake system is known as

(A) bleeding
(B) self-energizing
(C) servo action
(D) energization

Answer:- Option A

15. The following is a not drum brake

(A) External contracting brake
(B) Internal expanding brake
(C) Disc brake
(D) All of the above

Answer:- Option C

16. What is the angle between the steering axis and the vertical in the plane of the wheel?

(A) Castor
(B) Camber
(C) Steering axis inclination
(D) Kingpin inclination

Answer:- Option A

17. If the front of the front wheels is inside and rear of front wheels are apart when the vehicle is at rest, then the configuration is called?

(A) Toe-in
(B) Toe out
(C) Positive camber
(D) Positive castor

Answer:- Option A

18. What is the name of the angle through which the wheel has to turn to sustain the side force?

(A) Slip angle
(B) Camber
(C) Castor angle
(D) Kingpin inclination

Answer:- Option A

19. What is called the cornering force over the slip angle?

(A) Castor trail
(B) Cornering power
(C) Self-righting torque
(D) Pneumatic trail

Answer:- Option B

20. What is a condition called when the vehicle will try to move away from its normal direction and to keep it on the right path there is need to steer a little?

(A) Understeer
(B) Oversteer
(C) Reversibility
(D) Irreversibility

Answer:- Option A

21. What is the purpose of the reciprocating ball type steering gear?

(A) To reduce the operating cost
(B) To reduce the number of parts
(C) To reduce the operating friction
(D) To reduce the toe-out during the turns

Answer:- Option C

22. What is the angle between the vertical when the top of the wheel slants outward?

(A) Negative camber
(B) Negative castor
(C) Positive camber
(D) Positive castor

Answer:- Option C

23. The steering system gives the vehicle ___.

(A) directional stability
(B) stable power
(C) wheel alignment
(D) all of the above

Answer:- Option A

24. Steering ratio is defined as the ratio of

(A) Number of degrees that the steering wheel turns to the number degrees of wheel turn
(B) Number of degrees that the wheel turns to the number degrees of steering wheel turn

(C) Number of degrees that the steering gear turns to the number degrees of wheel turn

(D) Number of degrees that the wheel turns to the number degrees of steering gear turn

Answer:- Option A

25 Steering ratio for cars vary from

(A) 2:1 to 5:1

(B) 5:1 to 10:1

(C) 12:1 to 20:1

(D) 20:1 to 30:1

Answer:- Option C

26 In which of the following power operating assembly is part of the steering gear?

(A) Integral power steering

(B) Linkage power steering

(C) both (A) and (B)

(D) none of the above

Answer:- Option A

27. The correct order of motion from steering wheel to

(A) Steering wheel – steering gear – pitman arm – tie rod – pivots

(B) Steering wheel – steering gear – tie rod – pitman arm – pivots

(C) Steering wheel – pitman arm – tie rod – steering gear – pivots

(D) Steering wheel – tie rod – steering gear – pitman arm – pivots

Answer:- Option A

28. The function of steering gear is to convert the ___ motion of the steering wheel into ___ motion of the pitman arm.

(A) rotary, rotary

(B) oscillating, rotary

(C) rotary, oscillating

(D) oscillating, oscillating

Answer:- Option C

29. Power steering refers to the use of ___ power in assisting the steering motion.

(A) Mechanical

(B) Hydraulic

(C) Electrical

(D) Any of the above

Answer:- Option B

30. The type of steering gear mechanism used in automobile power steering is

(A) Worm and Nut steering gear

(B) Rack and Pinion Steering gear

(C) Worm and Roller steering gear

(D) All of the above

Answer:- Option D

31. What is the full form of HCU?

(A) Hypertension control unit

(B) Hypertension communication unit

(C) Hydraulic control unit

(D) None of these

Answer:- Option C

32. Hard steering is a result of

(A) very loose steering linkage
(B) worn out steering linkage
(C) too loose front wheel bearings
(D) incorrect lubricant

Answer:- Option D

33. Which of the following sign notify that the steering system is not so good?

(A) Hard steering
(B) Abnormal tyre wears
(C) Poor recovery on turns
(D) All of these

Answer:- Option D

34. Brake shoes is made of _____

(A) Iron
(B) Aluminium
(C) Pressed steel
(D) All of these

Answer:- Option D

35. Pneumatic brakes are same as electrical brakes.

(A) Yes both are concerned with electricity
(B) No, one deals with pressure and other with electricity
(C) Yes both deals with pressure
(D) None of the listed

Answer:- Option B

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Question Bank for Multiple Choice Questions

Program: Diploma in Mechanical Engineering	Program Code:- ME
Scheme:-I	Semester:- 6
Course:- Automobile Engineering	Course Code:- 22656

04-Automobile Suspension, Wheels and Tyres	Marks: 12

Content of Chapter:

4.1 Automobile suspension system: Function and requirement of rigid suspension system, Basic terms related with suspension system (Jounce, Rebound, Spurng and Unspurng, Weight, Spring rate, Elasticity), Types and constructional features of leaf springs,

4.2 Function and requirement of independent suspension system, Advantages of front wheel independent suspension system, construction and working of mac-pherson strut Type, Wishbone type suspension system

4.3 Shock absorber and air suspension: Layout, construction and working of air suspension, Fuction and types of shock absorber, Principle of hydraulic shock absorber, construction and working of telescopic shock absorber, construction features and working gas filled shock absorber.

4.4 Wheels, Rims and Tyres: Function, necessity and requirement of wheel, rim and tyres, types of wheel, rims and tyres, Construction and working of different types of wheels, rims and tyres

4.5 Tyre Economy: consideration in tyre tread design, factor affecting to tyres life, tyre wear and rotation, tyre designation

4.6 Wheel alignment and balancing: Purpose of wheel alignment, procedure of wheel alignment, purpose of wheel balancing, Significance of static and dynamic balancing, procedure of static and dynamic balancing

1. Leaf springs absorb shocks by

(A) bending (B) twisting

(C) compression (D) tension

Answer:- Option A

2. Coil springs absorb shocks by

(A) bending (B) twisting

(C) compression (D) tension

Answer:- Option C

3. The following is a type of leaf springs

(A) three Quarter elliptic (B) semi elliptic

(C) quarter elliptic (D) all of the above

Answer:- Option D

4. The material used for making torsion bar is

(A) Steel (B) Cast iron

(C) High carbon steel (D) All of the above

Answer:- Option A

5. Shackles are sort of

(A) coupling (B) link

(C) spring (D) none of the above

Answer:- Option B

6. Spring shackles are used to join

(A) chassis frame and spring (B) Spring and Axle

(C) chassis frame and axle (D) all of the above

Answer:- Option A

7. Drive (live) axles

(A) are simply beams which supports the vehicle weight (B) are usually the front axles

(C) contain differential (D) all of the above

Answer:- Option D

8. Dead axles

(A) are simply beams which supports the vehicle weight (B) are usually the rear axles

(C) contain differential (D) all of the above

Answer:- Option A

9. The following represents the correct specification of a tyre

(A) 155-80-R-13 (B) R-155-80-13

(C) 155-80-13-R (D) 155-R-80-13

Answer:- Option A

10. Telescopic shock observer consists of

(A) One chamber
(B) two chambers
(C) three chamber
(D) four chambers

Answer:- Option B

11. The following is (are) the independent suspension system(s)

(A) Wishbone arm system
(B) Trailing link system
(C) Sliding pillar system
(D) All of the above

Answer:- Option D

12. Which types of wheels cannot be used with a tubeless tire?

(A) Disc wheel
(B) Light alloy wheel
(C) Wire wheel
(D) Composite wheel

Answer:- Option C

13. Which type of wheels is preferred in sports cars?

(A) Disc wheel
(B) Wire wheel
(C) Magnesium alloy wheel
(D) Aluminum alloy wheel

Answer:- Option C

14. In case of a wire wheel, the vehicle weight is supported by the wire in _____

(A) Tension
(B) Bending
(C) Shear
(D) Compression

Answer:- Option A

15. What does the 'ply rating' refer to?

(A) Aspect ratio
(B) Rated strength
(C) Recommended inflation pressure
(D) The actual number of plies

Answer:- Option B

16. Where will an underinflated tire wear the thread most?

(A) Near center
(B) Near the edge
(C) In the cross direction
(D) In the lateral direction

Answer:- Option B

17. What do the permissible of mixing cross-ply and radial-ply automobile tires allow?

(A) Cross-ply tires on left wheels
(B) Cross-ply tires on right wheels
(C) Cross-ply tires on front wheels
(D) Cross-ply tires on rear wheels

Answer:- Option C

18. What is the purpose of tire rotation on automobiles?

(A) Avoid ply separation
(B) Equalize wear
(C) Get better ride
(D) Reduce bump

Answer:- Option B

19. What does the code 145 SR -13 tire designation represent?

(A) 145" width, 13" diameter, cross-ply
(B) 145 mm width, 13" diameter, radial-ply
(C) 145" width, 13 cm diameter, radial-ply
(D) 145 mm width, 13 cm diameter, cross-ply

Answer:- Option B

20. The correct way to rectify an imbalanced wheel is to

(A) Adjust the tyre pressure
(B) Rotate the tyre
(C) Attach appropriate weights to the wheel at appropriate position
(D) Adjust damper spring tension

Answer:- Option C

21. The advantage of a tubeless tyre over tube type tyre is

(A) Slow air leakage
(B) Better fuel efficiency
(C) Less chances of running flat
(D) all of these

Answer:- Option D

22. "P 215/65 R 16 95 H" it's the tyre designation so in this what does '65' indicates

(A) Aspect ratio
(B) Speed symbol
(C) Tyre constructional radial
(D) Load index

Answer:- Option A

23. In bias ply tyres

(A) All plies run parallel to one another
(B) Belts of steel mesh are used in the tyres
(C) One ply layer runs diagonally one way and another layer runs diagonally the other way
(D) All of above

Answer:- Option C

24. In radial tyres

(A) One ply layer runs diagonally one way and another layer runs diagonally the other way

(B) All plies run parallel to one another and vertical to tyre bead

(C) Inner tubes are always use

(D) None of these

Answer:- Option B

25 Which part of the automobile tyre is subjected to greatest flexing action?

(A) Bead

(B) Side wall

(C) Shoulder

(D) Tread

Answer:- Option B

26 The process of filling air in tyre is:

(A) Inflation

(B) Deflation

(C) Cracking

(D) None of the above

Answer:- Option A

27. Which part of the automobile tyre is provided cushioning action?

(A) Bead

(B) Side wall

(C) Shoulder

(D) Tread

Answer:- Option D

28. Which part of the automobile tyre lies between tread and plies.

(A) Bead

(B) Side wall

(C) Belts

(D) Liner

Answer:- Option C

29. For balancing wheel weight is mounted on _____

(A) Side of Wheel

(B) Centre of wheel

(C) Rim

(D) Tyre

Answer:- Option C

30. When to balance the wheel

(A) Rim damage

(B) Vibration & scalloped or cupped wear pattern on tyre

(C) Cuts on tyre

(D) Puncher in tyre

Answer:- Option B

31. What are the sources of vibration?

(A) Road imperfections

(B) Variation in torque

(C) Brake dip (D) All of these

Answer:- Option D

32. How to prevent the longitudinal displacement in leaf spring?

(A) Leaves are cornered from each other (B) Leaves are bolted together by a centre bolt

(C) Leaves bypasses each other (D) None of these

Answer:- Option B

33. The material used for making torsion bar is

(A) Steel (B) Cast iron

(C) High carbon steel (D) All of the above

Answer:- Option A

34. While in motion, the vehicle suspension is subjected to

(A) bouncing (B) pitching

(C) rolling (D) all of the above

Answer:- Option D

35. How much resistance is provided by a shock absorber?

(A) Proportional to the square of motion of flow (B) Proportional to the of motion of flow.

(C) 30% of the total pressure exerted by the wheels (D) None of these

Answer:- Option A

36. In case of a wire wheel, the vehicle weight is supported by the wire in _____

(A) Tension (B) Bending

(C) Shear (D) Compression

Answer:- Option A

37. Where will an underinflated tire wear the thread most?

(A) Near centre (B) Near the edge

(C) In the cross direction (D) In the lateral direction

Answer:- Option B

38. Where will an overinflated tire wear the thread most?

(A) Near center (B) Near the edge

(C) In the cross direction (D) In the lateral direction

Answer:- Option B

39. In case VR radial tyres, what is the maximum speed limit?

(A) 170km/hr (B) 210km/hr

(C) More than 210 (D) None of these

Answer:- Option C

40. What could be the reason of bleeding of air in tyre?

(A) Tyre alignment (B) Tyre pressure

(C) Steering mechanism (D) Valve dis-functioning

Answer:- Option D

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Question Bank for Multiple Choice Questions

Program: Diploma in Mechanical Engineering	Program Code:- ME
Scheme:-I	Semester:- 6
Course:- Automobile Engineering	Course Code:- 22656

05-Automobile Electrical and Electronics Systems	Marks: 14

Content of Chapter:

5.1 Introduction to electrical- electronics system: Basic electrical electronics principle (current, voltage, resistance, electricity, magnetism, electromagnetism, Induction, Rectification, etc.), Basic electrical-electronics components in automobiles with their conventional symbols,

5.2 Battery: Function and requirements of battery, principle of lead acid battery, construction and operation of lead acid battery, Significance of battery rating and battery capacity, battery open volt and specific gravity test, salient features of maintenance free battery

5.3 Starting System: Function and requirement of starting system, components of starting system, construction and working of standard Bendix drive

5.4 Charging System: Function and requirement of charging system, components of charging system, construction and working of Alternator

5.5 Ignition System: Function of requirement of ignition system, types of ignition system, construction and working of battery ignition, magneto ignition and electronic ignition system with advantages, disadvantages and applications

5.6 Lighting System: function and requirements of lighting systems, types of light, necessity and importance of cable color codes, wiring harness

5.7 Miscellaneous: A brief review of different types of gauges, windscreen wiper, function and location of major sensors and actuators used in automobile electronics

1. Rate of flow of electric charge over a point or a region is called _____

(A) Voltage (B) Current

(C) Resistance (D) None of these

Answer:- Option B

2. The potential difference in a charge between two points is called _____

(A) Voltage (B) Current

(C) Resistance (D) None of these

Answer:- Option A

3. Opposition of flow of current through any material is called _____

(A) Voltage (B) Current

(C) Resistance (D) None of these

Answer:- Option C

4. Define Ohm's law.

(A) V = IR (B) I = RV

(C) R = IV (D) None of these

Answer:- Option A

5. _____ is a process in which a magnetic field is created by the flow of current.

(A) Induction (B) Electromagnetism

(C) Voltage (D) None of these

Answer:- Option D

6. Which process is used to convert the alternating current into direct current?

(A) Induction (B) Electromagnetism

(C) Voltage (D) Rectification

Answer:- Option D

7. Which device is used to regulate the voltage or current flow and acts as a switch and amplifier?

(A) Transistor (B) Rectifier

(C) Resistor (D) None of these

Answer:- Option A

8. Which component allows the flow of electric current only in one direction?

(A) Transistor (B) Resistor

(C) Diode (D) Rectifier

Answer:- Option C

9. What are the functions of battery?

(A) The battery supplies high value of current to starter motor and low current to ignition system

(B) It supplies current to the electrical units when the total demands exceed the power output of generator or alternator

(C) It stores electrical energy and controls the voltage of electrical system

(D) All of these

Answer:- Option D

10. What is the colour of a positive plate of a lead-acid battery?

(A) White

(B) Grey

(C) White

(D) Brown

Answer:- Option D

11. What gets deposited on the plates of a discharged lead-acid battery?

(A) PbO2

(B) Pb2O4

(C) Pb

(D) PbSO4

Answer:- Option D

12. What is the twenty-minute rating of battery?

(A) Rate of current for 20 minutes with a minimum cell voltage of 1.5 V

(B) Time for which the battery can supply 25 A at 80°F with minimum cell voltage 1.75 V

(C) The current which the battery can supply continuously for 30 seconds with minimum cell voltage 1.2 V

(D) Lasting power of a battery on a small load

Answer:- Option A

13. What is the reserve capacity of battery?

(A) Time for which the battery can supply 25 A at 80°F with minimum cell voltage 1.75 V

(B) The current which the battery can supply continuously for 30 seconds with minimum cell voltage 1.2 V

(C) Lasting power of a battery on a small load

(D) Rate of current for 20 minutes with a minimum cell voltage of 1.5 V

Answer:- Option A

14. What is the cold rate of a battery?

(A) Lasting power of a battery on a small load

(B) Rate of current for 20 minutes with a minimum cell voltage of 1.5 V

(C) The current which the battery can supply continuously for 30 seconds with minimum cell voltage 1.2 V

(D) Time for which the battery can supply 25 A at 80°F with minimum cell voltage 1.75V

Answer:- Option C

15. What is a twenty-hour rate of a battery?

(A) The current which the battery can supply continuously for 30 seconds with minimum cell voltage 1.2 V

(B) Lasting power of a battery on a small load

(C) Time for which the battery can supply 25 A at 80°F with minimum cell voltage 1.75V

(D) Rate of current for 20 minutes with a minimum cell voltage of 1.5 V

Answer:- Option B

16. What should a fully-charged 6 cell automotive battery indicate?

(A) 12 V

(B) 12.6 V

(C) The specific gravity of 1.29 at 32°C

(D) 12.6 V and the specific gravity of 1.29 at 32°C

Answer:- Option D

17. What is the number of positive plates in a battery cell?

(A) One more than the negative plates

(B) Two less than the negative plates

(C) One less than the negative plates

(D) Two more than the negative plates

Answer:- Option C

18. What is a maintenance-free battery?

(A) A battery having lead-antimony plate grid

(B) A battery having lead-calcium plate grid

(C) A battery does not contain acid

(D) A battery does not contain water

Answer:- Option B

19. Which of the following is the advantage of alkaline battery?

(A) High energy density

(B) Good discharge characteristics over a wide range of temperature

(C) The specific gravity of electrolyte remains the same

(D) Cheap raw materials are used

Answer:- Option C

20. What is used as a electrolyte in lead acid battery?

(A) Hydrochloric acid

(B) Sulphuric acid

(C) Nitric acid

(D) None of these

Answer:- Option B

21. What is the use of separators in battery?

(A) To give the ignition to the battery.

(B) To allow the flow of current.

(C) To hold the plates apart.

(D) None of these

Answer:- Option C

22. How much of amount of sulphuric acid is used in electrolyte?

(A) 30% (B) 50%

(C) 40% (D) 70%

Answer:- Option C

23. What is the specific gravity of a fully charged battery?

(A) 1.220 to 1.230 (B) 1.175 to 1.185

(C) 1.100 to 1.110 (D) None of these

Answer:- Option A

24. What is the specific gravity of a 50% charged battery?

(A) 1.220 to 1.230 (B) 1.175 to 1.185

(C) 1.100 to 1.110 (D) None of these

Answer:- Option B

25 What is the specific gravity of a fully discharged battery?

(A) 1.220 to 1.230 (B) 1.175 to 1.185

(C) 1.100 to 1.110 (D) None of these

Answer:- Option C

26 What is the open circuit voltage of a fully charged battery?

(A) 12.66 volts (B) 12.24 volts

(C) 43.22 volts (D) None of these

Answer:- Option A

27. What is the open circuit voltage of a 50% charged battery?

(A) 12.66 volts (B) 12.24 volts

(C) 43.22 volts (D) None of these

Answer:- Option B

28. On which factors the capacity of battery depends?

(A) Number of plates (B) Area of plates

(C) Quantity of electrolyte (D) All of these

Answer:- Option D

29. How to prevent the battery terminals from oxidation and corrosion?

(A) Apply petroleum jelly and clean the battery
(B) Make sure about the uniform voltage supply
(C) Prevent it from the sunlight and moisture.
(D) None of these

Answer:- Option A

30. What are the components of a charging system?

(A) Generator
(B) Regulator
(C) Ammeter
(D) All of these

Answer:- Option D

31. Which device indicates whether the system is operating or not?

(A) Generator
(B) Regulator
(C) Ammeter
(D) All of these

Answer:- Option C

32. What is the full form of DC in respect to battery systems?

(A) Directive communicator
(B) Direct current
(C) Direct communication
(D) None of these

Answer:- Option B

33. What is the full form of AC in respect to battery systems?

(A) Alternating current
(B) Alternative compressor
(C) Axial cable
(D) None of these

Answer:- Option A

34. What is used to make the contact with slip rings?

(A) Rectifier
(B) Brushes
(C) Pulley wheel
(D) Outer case

Answer:- Option B

35. What is used on vehicle to charge battery to operate the electrical circuits?

(A) Rectifier
(B) Alternator
(C) Brushes
(D) Compressor

Answer:- Option B

36. Which ignition system is used in the medium and heavy SI engine?

(A) Battery ignition system
(B) Magneto ignition system

(C) Electronic ignition system (D) None of these

Answer:- Option A

37. The amount of induced e.m.f depends upon ___

(A) The number of turns on the coil (B) The rate of change of flux

(C) Amount of voltage (D) Both a & b

Answer:- Option D

38. Which is used to provide high voltage electric arc at gap between the electrodes?

(A) Alternator (B) Spark plug

(C) Distributor (D) None of these

Answer:- Option B

39. In magneto ignition system, which type of system in which armature is stationary and magnet rotates?

(A) Rotating magneto type (B) Rotating armature type

(C) Polar type (D) None of these

Answer:- Option A

40. In magneto ignition system, which type of system in which armature rotates between the poles of magnet?

(A) Rotating magneto type (B) Rotating armature type

(C) Polar type (D) None of these

Answer:- Option B

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Question Bank for Multiple Choice Questions

Program: Diploma in Mechanical Engineering	**Program Code:- ME**
Scheme:-I	**Semester:- 6**
Course:- Automobile Engineering	**Course Code:- 22656**

06-Motor Vehicle Act, Road Safety and Garage Practices	**Marks: 10**

Content of Chapter:

6.1 Introduction and objectives of motor vehicle act: salient features of M.V. act 1988 and central motor vehicle rules 1989, types and significance of traffic signs, important transport terms (definition) in M.V. act (Motor vehicle, Motor cycle, HGV, MGV, LGV,Public service vehicle, transport vehicle, driver, passenger, accident)

6.2 Organization structure of Motor vehicle (RTO) department, duties and responsibilities of RTO, AIMV

6.3 Passenger comfort and safety: function and requirements of passenger safety system, features if air bags, seat belts, collapsible steering column

6.4 Automobile maintenance systems: significance of garage, workshop, service station, dealership

6.5 Types of maintenance, need and importance of record keeping, list of records to be kept in service stations

6.6 Site selection and amenities/facilities required to set up your own garage/service station, roles and responsibilities of service manager, service supervisor, customer care manager in service stations

1. When motor vehicle act was established?

(A) 1988 (B) 1965

(C) 1947 (D) 1997

Answer:- Option A

2. What are the purposes of motor vehicle act?

(A) Licensing of the drivers (B) Registration of motors

(C) Registration of motors (D) All of these

Answer:- Option D

3. How much penalty will have to pay if a person is driving without license?

(A) 1000 INR (B) 500 INR

(C) 700 INR (D) NIL.

Answer:- Option C

4. Under which section, a person will have to pay the penalty of driving without license?

(A) Under section 3 r/w 181 (B) Under section 133(3) r/w 177

(C) Under section 133 r/w 177 (D) None of these

Answer:- Option A

5. Under which section, a person will have to pay the penalty of not carrying all the required documents?

(A) Under section 3 r/w 181 (B) Under section 133(3) r/w 177

(C) Under section 133 r/w 177 (D) None of these

Answer:- Option B

6. Under which section, a person will have to pay the penalty for driving without a valid insurance?

(A) Under section 3 r/w 181 (B) Under section 133(3) r/w 177

(C) Under section 133 r/w 177 (D) None of these

Answer:- Option C

7. How much a person will have to pay for not having a valid insurance?

(A) 500 INR (B) 1000INR

(C) 100 INR (D) 700 INR

Answer:- Option B

8. Motor vehicle act 1988, come into force on date ……

(A) 1st July, 1988 (B) 1st May, 1988

(C) 1st July 1989 (D) 1st May, 1989

Answer:- Option C

9. Regulatory signs are also called as ___

(A) Permanent sign (B) Temporary sign

(C) Mandatory sign (D) None of these

Answer:- Option C

10. Under which rule, a trade certificate is given?

(A) Under rule 54
(B) Under rule 35
(C) Under rule 33
(D) None of these

Answer:- Option B

11. What is the full form of LGV?

(A) Light ground vehicle
(B) Light good vehicle
(C) Large good vehicle
(D) Both (B) & (C)

Answer:- Option D

12. What are the major functions of RTO?

(A) To enforce the provisions of various motor acts
(B) To ensure co-ordinate development of road transport.
(C) To charge and collect tax as per the provisions of the motor vehicle act.
(D) All of these

Answer:- Option D

13. What is the full form of AMVI?

(A) Assistant Motor Vehicle Inspector
(B) Assistant Motor Vehicle In charge
(C) Both (A) & (B)
(D) None of these

Answer:- Option A

14. What are the features of an airbag?

(A) Inflate in front of windows to provide passengers better head and neck protection
(B) It should be more efficient at tipping and side impacts
(C) It should reduce HIC up to 85%.
(D) All of these

Answer:- Option D

15. What is the full form of HIC w.r.t airbag?

(A) Head Injury Criterion
(B) Head Intermediate Criterion
(C) Hydraulic Injection Criteria
(D) None of these

Answer:- Option A

16. Which is used to retain people in their seats and to prevent or reduce injuries suffered in a crash?

(A) Airbag
(B) Seat belt
(C) Steering column
(D) None of these

Answer:- Option B

17. Which one is not a category of garage?

(A) Three spanner sign garages
(B) Break down truck garages
(C) One spanner sign garages
(D) Middle spanner sign garages

Answer:- Option D

18. In which type of garage, the staff is well trained and qualified?

(A) Three spanner sign garages
(B) Break down truck garages
(C) One spanner sign garages
(D) Middle spanner sign garage

Answer:- Option A

19. The minimum age for attaining a license for a geared vehicle is?

(A) 16 Years
(B) 18 Years
(C) 20 Years
(D) 21 Years

Answer:- Option B

20. The motor vehicle act was revised in _____

(A) 1939
(B) 1988
(C) 1989
(D) 1987

Answer:- Option B

21. The symbol when violated which may lead to offense is?

(A) Cautionary
(B) Mandatory
(C) Informatory
(D) Both informatory and cautionary

Answer:- Option B

22. Which of the following is a disadvantage in one way traffic?

(A) Increase in average travel speed
(B) More effective coordination of signal system
(C) More stream lined movement of vehicles
(D) More chances of overtaking

Answer:- Option C

23. The total conflict points at a junction on both two way roads are?

(A) One
(B) Four
(C) Five
(D) Six

Answer:- Option D

24. The maximum number of conflict points is formed in _____

(A) One way regulation on one road
(B) One way regulation on two roads
(C) Two way regulation on one road
(D) Two way regulation on both roads

Answer:- Option D

25 The specifications for road signs are specified by _____

(A) IRC 6
(B) IRC 21
(C) IRC 67
(D) IRC 97

Answer:- Option C

26 STOP sign is having _____

(A) Octagonal shape
(B) Octagonal shape
(C) Triangular shape
(D) Any shape

Answer:- Option A

27. The clearance time is indicated by _____

(A) Red
(B) Amber
(C) Green
(D) White

Answer:- Option B

28. What is concluded in section 112 of the Motor Vehicles Act 1988?

(A) Shall not drive after consuming alcohol
(B) Shall not use vehicle on road without paying tax
(C) Speed limit shall not be exceeded
(D) Shall not use vehicle if Headlight is broken

Answer:- Option C

29. When an ambulance is approaching

(A) Allow passage if there are no vehicles from front side
(B) No preference need be given
(C) The driver shall allow free passage by drawing to the side of the road
(D) All of the above

Answer:- Option C

30. While you are driving with the head light in high beam during night, a vehicle approaches from

(A) Proceed keeping to the left
(B) Put the head light in dim and bright alternatively several times
(C) Dim the head light till the vehicle passes
(D) All of the above

Answer:- Option C

31. What is the full form of HSRP as per central Motor vehicle act?

(A) High Safety Registration Plates
(B) High Security Registration Plates
(C) High Security Rules for Plates
(D) All of the above

Answer:- Option B

32. What will you do if you want to take "U" turn at an intersection controlled by a traffic light, you will

(A) Wait until the light turns green before making the "U" turn
(B) Make the "U" turn if there is a policeman at the intersection
(C) Drive to another intersection that has no traffic light
(D) None of the Above

Answer:- Option B

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