CENTRAL POLYTECHNIC COLLEGE,THARAMANI – 600113.

(An Autonomous Institution)

DEPARTMENT
OF
AUTOMOBILE ENGINEERING (SWC)

QUESTION BANK

EAE41010 POWER UNITS AND TRANSMISSION

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PART A

U.NO	Q NO	QUESTIONS
1	1	Which component is NOT typically part of a chassis frame? (a) Cross members (b) Suspension mounts (c) Tires (d) Longitudinal rails **Ans:C**
1	2	Which material is commonly used for making chassis frames? (a) Plastic (b) Mild steel (c) Wood (d) Rubber **Ans:B**
1	3	What layout is commonly used for passenger car chassis? (a) Ladder frame (b) Monocoque (c) Space frame (d) Backbone chassis **Ans:B**
1	4	Which type of chassis is suitable for carrying heavy loads on rough roads? (a) Monocoque (b) Ladder frame (c) Space frame (d) Unibody **Ans:B**
1	5	Which type of chassis layout is best for sports cars to reduce weight and improve handling? (a) Ladder frame (b) Monocoque (c) Rigid frame (d) None of the above **Ans:B**
1	6	Which of the following is not a type of chassis layout? (a) Front engine rear wheel drive (b) Front engine front wheel drive (c) Rear engine rear wheel drive (d) Side engine drive **Ans:D**
1	7	Which chassis layout places the engine at the front of the vehicle? (a) Mid-engine layout (b) Front-engine layout (c) Rear-engine layout (d) Central-engine layout **Ans:B**
1	8	What type of frame is commonly used for heavy commercial vehicles? (a) Ladder frame (b) Monocoque frame (c) Space frame (d) Backbone frame **Ans:A**
1	9	Which frame has the body and chassis made as one unit? (a) Ladder frame (b) Monocoque frame (c) Backbone frame (d) Space frame Ans:B
1	10	In which layout is the engine placed behind the passengers? (a) Front-engine layout (b) Mid-engine layout (c) Rear-engine layout (d) Side-engine layout **Ans:C**

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1	11	What is the main feature of a backbone frame? (a) It has two side members (b) It has a central tube to support the vehicle (c) It has no frame (d) It uses a flat plate **Ans:B**
1	12	Which frame section is most commonly used due to its high resistance to bending? (a) Circular section (b) I-section (c) Square section (d) T-section **Ans:B**
1	13	The chassis frame is generally made of: (a) Aluminum (b) Cast iron (c) Mild steel (d) Plastic **Ans:C**
1	14	What is the main purpose of a sub-frame in a vehicle? (a) To increase vehicle height (b) To support engine and suspension components separately from the main frame (c) To improve fuel efficiency (d) To reduce vehicle weight drastically **Ans:B**
1	15	Which load acts vertically on the vehicle frame while driving? (a) Torsional load (b) Bending load (c) Axial load (d) Impact load **Ans:B**
1	16	Which axle lets the front wheels turn for steering? (a) Dead axle (b) Live axle (c) Stub axle (d) Rigid axle **Ans:C**
1	17	'What is one advantage of using aluminium instead of steel for a vehicle frame? (a) Higher cost (b) Higher density (c) Lower weight and corrosion resistance (d) It is heavier **Ans:C**
1	18	Which load acts on the frame when the vehicle moves on uneven roads? (a) Compressive load (b) Torsional load (c) Shear load (d) Axial load **Ans:B**
1	19	What is the main difference between a live axle and a dead axle? (a) Live axle carries no load (b) Live axle gives power to wheels, dead axle only supports them (c) Live axle is fixed (d) Live axle is only used in front wheels Ans:B
1	20	What is the function of a stub axle in a vehicle? (a) Transmit engine power to wheels (b) Support the wheel and allow it to pivot for steering (c) Connect two wheels together (d) Provide shock absorption **Ans:B**

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1	21	The Reverse Elliot type steering gear is used in which system? (a) Braking system (b) Cooling system (c) Steering system (d) Suspension system **Ans:C**
1	22	What is the main purpose of Ackerman's steering mechanism? (a) To increase steering effort (b) To reduce tire wear by allowing wheels to turn at different angles (c) To prevent oversteering (d) To connect front and rear axles **Ans:B**
1	23	Which component connects the steering wheel to the steering linkage? (a) Tie rod (b) Drag link (c) Pitman arm (d) Steering column **Ans:D**
1	24	'What is the function of the tie rod in the steering system? (a) It turns the wheels for steering (b) It supports the vehicle weight (c) It absorbs road shocks (d) It Connects the axle to the frame **Ans:A**
1	25	If the top of the wheel is tilted outward, it is called: (a) Negative camber (b) Positive camber (c) Zero camber (d) Reverse camber **Ans:B**
1	26	If the top of the wheel is tilted inward, it is called: (a) Negative camber (b) Positive camber (c) Zero camber (d) Reverse camber **Ans:A**
1	27	Zero camber means: (a) Wheel is perfectly vertical (b) Wheel is tilted outward (c) Wheel is tilted inward (d) Wheel is at 45° angle **Ans:A**
1	28	The unit used to measure camber angle is: (a) Degree (b) Newton (c) Radian (d) Meter **Ans:A**
1	29	The castor angle is measured in: (a) Degree (b) Newton (c) Radian (d) Meter Ans:A
1	30	Steering axis is tilted backward, it is called: (a) Positive castor (b) Negative castor (c) Zero castor (d) Reverse castor **Ans:A**

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1	31	What is the main characteristic of understeering in a vehicle? (a) Vehicle turns more than intended (b) Vehicle turns less than intended (c) Vehicle maintains perfect turning radius (d) Vehicle reverses direction automatically **Ans:B**
1	32	Oversteering is caused when which wheels lose grip? (a) Front wheels (b) Rear wheels (c) Both front and rear wheels (d) None of the above **Ans:B**
1	33	What type of steering has the ability to return to the straight-ahead position without driver input? (a) Irreversible steering (b) Reversible steering (c) Oversteering (d) Understeering **Ans:B**
1	34	Which of the following describes irreversible steering? (a) Steering effort is returned automatically (b) Steering effort is not returned automatically (c) Vehicle automatically corrects (d) Steering is done without any effort **Ans:B**
1	35	Turning radius of a vehicle refers to: (a) The smallest circular turn the vehicle can make (b) Distance covered in a straight line (c) The length of the vehicle (d) The distance between front and rear wheels **Ans:A**
1	36	Irreversible steering means: (a) Steering does not turn easily (b) Road shocks are not felt by driver (c) Steering works only on one side (d) Tyres wear unevenly **Ans:B**
1	37	The number of steering wheel turns needed to turn the wheels by a certain angle: (a) Camber angle (b) Steering ratio (c) Castor (d) Gear ratio **Ans:B**
1	38	The steering gear box changes: (a) Rotary motion to linear motion (b) Linear motion to rotary motion (c) Rotary motion to reciprocating motion (d) Reciprocating motion to rotary motion **Ans:A**
1	39	Which of the following is a type of steering gear box? (a) Worm and roller (b) Spur and bevel (c) Helical and spur (d) Rack and bevel Ans:A
1	40	Which type of steering gear box is most commonly used in cars? (a) Recirculating ball steering gear box (b) Rack and pinion steering gear box (c) Worm and roller steering gear box (d) Steering knuckle gear box **Ans:B**

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1	41	What happens to the steering ratio in a rack and pinion steering gear box compared to a recirculating ball type? (a) More steering wheel turns (b) Fewer steering wheel turns (c) The ratio does not change (d) The ratio becomes zero **Ans:B**
1	42	Which of the following is a function of the steering gear box? (a) To increase engine power (b) To improve braking efficiency (c) To control vehicle speed (d) To reduce driver effort **Ans:D**
1	43	What is the purpose of power steering in a vehicle? (a) To increase engine power (b) To reduce the driver's steering effort (c) To control vehicle speed (d) To improve braking efficiency **Ans:B**
1	44	Which primary component is used hydraulic power steering ? (a) Electric motor (b) Hydraulic pump (c) Battery (d) Steering column **Ans:B**
1	45	In hydraulic power steering, how is the steering assistance controlled? (a) By electric signals (b) By hydraulic fluid pressure (c) By mechanical linkage only (d) By engine RPM directly **Ans:B**
1	46	Which primary component is used electric power steering ? (a) Hydraulic fluid pressure (b) Electric motor (c) Compressed air (d) Mechanical springs **Ans:B**
1	47	What is Electric Power Steering (EPS)? (a) Steering assisted by hydraulic pressure (b) Steering without any assistance (c) Steering that uses engine power directly (d) Steering assisted by electric motor **Ans:D**
1	48	In EPS, the steering effort is controlled by: (a) Engine torque (b) Brake pedal (c) Gear ratio only (d) Electric motor **Ans:D**
1	49	EPS improves: (a) Engine power (b) Brake life (c) Tyre pressure (d) Vehicle stability and fuel efficiency Ans:D
1	50	EPS is mostly used in: (a) Heavy trucks only (b) Modern cars and SUVs (c) Bicycles (d) Old mechanical vehicles **Ans:B**

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2	51	What is the primary function of a clutch? (a) Increase engine power (b) Decrease engine power (c) Engage and disengage the engine from the transmission (d) Control vehicle direction **Ans:C**
2	52	Which is a requirement of a good clutch? (a) Difficult engagement (b) Slow heat dissipation (c) Smooth engagement (d) Maximum wear and tear **Ans:C**
2	53	What type of clutch is most commonly used in cars? (a) Cone clutch (b) Centrifugal clutch (c) Single plate clutch (d) Multiplate clutch **Ans:C**
2	54	In a single plate clutch, the clutch plate is placed between: (a) Flywheel and gearbox casing (b) Pressure plate and flywheel (c) Pressure plate and release bearing (d) Release fork and flywheel **Ans:B**
2	55	Which part of a single plate clutch applies pressure on the clutch plate? (a) Clutch pedal (b) Flywheel (c) Pressure plate (d) Diaphragm spring **Ans:C**
2	56	What is the purpose of the release bearing in a clutch system? (a) Apply torque to the gearbox (b) Release the clutch spring pressure (c) Maintain flywheel balance (d) Control engine speed **Ans:B**
2	57	A multiplate clutch is used instead of a single plate clutch when: (a) Cost is not a concern (b) High torque transmission is required (c) There is no space constraint (d) The vehicle is stationary **Ans:B**
2	58	Which of the following clutches operates automatically based on engine speed? (a) Single plate clutch (b) Cone clutch (c) Centrifugal clutch (d) Dog clutch **Ans:C**
2	59	What material is typically used on the clutch plate for friction? (a) Steel (b) Rubber (c) Asbestos or synthetic friction material (d) Aluminum Ans:C
2	60	In a single plate clutch, what happens when the clutch pedal is pressed? (a) Pressure plate clamps the clutch plate to the flywheel (b) The clutch plate is engaged to the gearbox (c) The pressure plate moves away, disengaging the clutch plate (d) Flywheel disconnects from the crankshaft **Ans:C**

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2	61	The advantage of a multiplate clutch over a single plate clutch is that it: (a) Reduces the number of gears (b) Can transmit more torque in a smaller diameter (c) Increases fuel efficiency (d) Makes gear shifting unnecessary **Ans:B**
2	62	What is the role of centrifugal force in a centrifugal clutch? (a) It pushes the clutch plate away from the flywheel (b) It pulls the pressure plate inward (c) It engages the clutch automatically as engine speed increases (d) It assists in braking **Ans:C**
2	63	Why is a diaphragm spring used in diaphragm clutches instead of coil springs? (a) Coil springs wear out faster (b) Diaphragm springs are cheaper (c) They provide uniform pressure and require less pedal effort (d) Diaphragm clutches do not need lubrication **Ans:C**
2	64	Multi-plate clutches are generally used in — (a) Bicycles (b) Heavy trucks and racing bikes (c) Small cars only (d) Scooters with CVT **Ans:B**
2	65	When a diaphragm clutch is engaged, the diaphragm spring: (a) Moves outward, disengaging the clutch (b) Stays flat, applying pressure on the pressure plate (c) Contracts, reducing torque (d) Breaks contact with the release bearing **Ans:B**
2	66	Which of the following is not a type of clutch? (a) Single plate clutch (b) Multi plate clutch (c) Centrifugal clutch (d) Drum brake **Ans:D**
2	67	Gear ratio is defined as — (a) Ratio of input torque to output torque (b) Ratio of driven gear speed to driver gear speed (c) Ratio of number of teeth on driven gear to driving gear (d) Ratio of wheel diameter to gear diameter **Ans:C**
2	68	Which of the following is a disadvantage of using a fluid coupling? (a) High initial torque (b) Inability to provide torque multiplication (c) Smooth engagement (d) No mechanical wear **Ans:B**
2	69	Synchromesh gearbox is used to — (a) Increase clutch life (b) Match gear speeds before engagement (c) Reduce vehicle weight (d) Increase engine RPM Ans:B
2	70	Which of the following is an advantage of a torque converter? (a) Requires manual clutch engagement (b) No torque increase at low speeds (c) Smooth power delivery and torque multiplication (d) Always requires a separate clutch **Ans:C**

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2	71	What is the basic working principle of a fluid coupling? (a) Direct mechanical contact between shafts (b) Magnetic force transmission (c) Transfer of power using hydraulic fluid motion (d) Belt and pulley system **Ans:C**
2	72	How does a torque converter differ from a fluid coupling? (a) It uses a belt instead of fluid (b) It includes a stator to multiply torque (c) It has no moving parts (d) It is only used in manual transmissions **Ans:B**
2	73	What is a major advantage of using a torque converter in vehicles? (a) Increases fuel consumption (b) Manual gear shifting is required (c) Provides torque multiplication during acceleration (d) Needs frequent maintenance **Ans:C**
2	74	Why is clutch facing material important in clutch operation? (a) It reduces vehicle speed (b) It prevents the clutch from rotating (c) It provides friction and resists heat during engagement (d) It supports the flywheel structurally **Ans:C**
2	75	Sliding mesh gearbox uses — (a) Constant mesh gears (b) Helical gears (c) Spur gears with dog clutches (d) Spur gears that slide into mesh **Ans:D**
2	76	A gear ratio of 4:1 means: (a) The input shaft rotates 4 times for every 1 output shaft rotation (b) The output shaft is rotating 4 times faster than the engine (c) Engine speed equals the wheel speed (d) Torque is reduced by 4 times **Ans:A**
2	77	While designing a vehicle, the tractive effort should always be: (a) Less than rolling resistance (b) Equal to road gradient resistance (c) Greater than total resistance to ensure movement (d) Equal to air resistance **Ans:C**
2	78	Which resistance increases significantly with higher vehicle speed? (a) Rolling resistance (b) Air (aerodynamic) resistance (c) Gradient resistance (d) Frictional resistance in engine **Ans:B**
2	79	In a constant mesh gearbox, all gears are — (a) In constant mesh with each other (b) Sliding into mesh (c) Connected by chain (d) Not connected at all Ans:A
2	80	The main function of a gearbox is to — (a) Start the engine (b) Vary the speed and torque of the vehicle (c) Increase braking power (d) Control fuel consumption **Ans:B**

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2	81	Which of the following is the simplest type of manual gearbox? (a) Constant mesh gearbox (b) Sliding mesh gearbox (c) Synchromesh gearbox (d) Planetary gearbox **Ans:B**
2	82	In a sliding mesh gearbox, gear shifting is done by: (a) Automatically controlled ECU (b) Meshing of constantly engaged gears (c) Sliding the gears directly into mesh using a gear lever (d) Using a hydraulic pump **Ans:C**
2	83	What is the main disadvantage of a sliding mesh gearbox? (a) High cost (b) Requires less torque (c) Gear shifting is noisy and difficult (d) Not suitable for cars **Ans:C**
2	84	Which type of gearbox uses synchronizer rings ? (a) Sliding mesh gearbox (b) Constant mesh gearbox (c) Synchromesh gearbox (d) Automatic gearbox **Ans:C**
2	85	What primary components of a sliding mesh gearbox? (a) Sun gear and planet gears (b) Spur gears, clutch shaft, countershaft, and main shaft (c) Helical gears and synchronizers (d) Hydraulic circuits and ECU **Ans:B**
2	86	What is the difference between a constant mesh gearbox and a sliding mesh gearbox? (a) Constant mesh is fully automatic (b) Gears are always in mesh in a constant mesh gearbox (c) Sliding mesh is fully automatic (d) Constant mesh gearbox has no shaft **Ans:B**
2	87	In a synchromesh gearbox, the purpose of the synchronizer is to: (a) Connect the gearbox to the clutch (b) Equalize the speed of the gear and shaft before engagement (c) Reduce torque transmission (d) Shift gears automatically **Ans:B**
2	88	What type of gear is typically used in constant mesh gearboxes ? (a) Bevel gears (b) Spur gears (c) Helical gears (d) Worm gears **Ans:C**
2	89	What is the function of a transfer case in a 4 Wheel Drive vehicle? (a) Reduce fuel consumption (b) Engage or disengage the clutch (c) Distribute power to front and rear axles (d) Increase engine RPM Ans:C
2	90	Which of the following best describes the working of an automatic gearbox? (a) Uses dog clutches (b) Requires manual clutch operation (c) Uses hydraulic pressure and planetary gear sets for gear shifting (d) Operates like a synchromesh gearbox **Ans:C**

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2	91	In a synchromesh gearbox, which component helps in smooth shifting of gears? (a) Transfer case (b) Planetary gear set (c) Synchronizer ring (d) Dog clutch only **Ans:C**
2	92	What are the main components of a simple epicyclic (planetary) gearbox? (a) Helical gear and spur gear (b) Planet gear, sun gear, and ring gear (c) Dog clutch, spur gear, and shaft (d) Axle, belt, and pulley **Ans:B**
2	93	Continuous Variable Transmission (CVT) is used to — (a) Give fixed gear ratios (b) Provide infinite gear ratios for smooth acceleration (c) Reduce braking (d) Work only in reverse gear **Ans:B**
2	94	What makes a Continuously Variable Transmission different from traditional gearboxes? (a) It has no power transmission (b) It uses discrete gears for shifting (c) It offers infinite gear ratios within a range (d) It operates only in reverse **Ans:C**
2	95	What components are typically used in the construction of a CVT system? (a) Planetary gears and synchronizers (b) Spur gears and brake drums (c) Variable-diameter pulleys and a V-belt or chain (d) Helical gears and clutch plates **Ans:C**
2	96	Why is a CVT often used in scooters and hybrid cars? (a) For low cost and low power output (b) For faster top speed (c) For smooth acceleration and better fuel efficiency (d) Because it doesn't require a transmission fluid **Ans:C**
2	97	Common clutch facing material used is — (a) Rubber (b) Asbestos-free organic compound (c) Plastic (d) Steel **Ans:B**
2	98	Fluid coupling works on the principle of — (a) Fluid motion and energy transfer (b) Friction (c) Electric current (d) Air pressure **Ans:A**
2	99	In a diaphragm clutch, pressure on the friction plate is applied by — (a) Springs (b) Diaphragm spring (c) Weights (d) Flywheel Ans:B
2	100	What is the purpose of an overdrive in a vehicle? (a) To decrease braking efficiency (b) To reduce engine speed below wheel speed for cruising (c) To increase braking efficiency (d) To improve clutch life **Ans:B**

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3	101	What is the primary purpose of a universal joint in a vehicle? (a) To make a shaft shorter (b) To allow two shafts to connect at an angle (c) To make a shaft spin faster (d) To increase the weight of a machine **Ans:B**
3	102	Why is a standard universal joint called a "variable velocity" joint? (a) It changes how fast it spins. (b) It keeps a constant speed. (c) It makes the shafts slow down. (d) The speed of the second shaft changes during each rotation. **Ans:D**
3	103	What is a disadvantage of a single universal joint? (a) It causes driven shaft to rotate at different speed. (b) It can only be used on straight shafts. (c) It requires a lot of oil to work. (d) It cannot be used in cars. **Ans:A**
3	104	What is the main benefit of a constant velocity (CV) joint? (a) It is made of a different material. (b) It can only turn in one direction. (c) It ensures shafts rotates at the same speed (d) It is a very old invention. **Ans:C**
3	105	A constant velocity joint ensures: (a) Equal angular speed of shafts (b) Speed reduction (c) Vibration absorption (d) Load carrying only **Ans:A**
3	106	The main purpose of a propeller shaft's universal joints is to: (a) Allow the shaft to bend. (b) Adjust angle change between transmission and differential. (c) Absorb shock. (d) Act as a driveshaft brake. **Ans:B**
3	107	The primary purpose of a slip joint in a propeller shaft is to accommodate changes in: (a) Torque. (b) Angle. (c) Length. (d) Spee **Ans:C**
3	108	What is a key characteristic of the Rzeppa constant velocity (CV) joint? (a) It has a cage with multiple balls to transmit motion. (b) It uses a single cross-type yoke. (c) It can only be used on straight shafts. (d) It is a variable velocity joint. **Ans:A**
3	109	A Tracta joint is known for being: (a) A variable velocity joint. (b) Very heavy and expensive. (c) Used for high-speed applications (d) Simple in design with two yokes and two forks. Ans:D
3	110	In a Bendix-Weiss constant velocity joint, torque is transmitted through: (a) A cross and yokes. (b) A series of rollers. (c) A series of steel balls. (d) An inner and outer splined shaft. **Ans:C**

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3	111	A Tracta joint is a type of: (a) Variable velocity joint. (b) Constant velocity joint. (c) Differential lock. (d) Slip joint. **Ans:B**
3	112	Which part of a propeller shaft allows it to change length as the suspension moves? (a) The universal joint (b) The slip joint (c) The tube (d) The flange **Ans:B**
3	113	Bendix Weiss joint is a type of: (a) Variable velocity joint (b) Final drive joint (c) Flexible coupling (d) Constant velocity joint **Ans:D**
3	114	Select the variable velocity joint : (a) Cross type (b) Rzeppa (c) Tracta (d) Bendix Weiss **Ans:A**
3	115	Which of these is NOT a type of constant velocity joint? (a) Rzeppa joint (b) Bendix-Weiss joint (c) Cross-type joint (d) Tracta joint **Ans:C**
3	116	What is the main difference between a two-piece and a three-piece propeller shaft? (a) The material they are made of (b) The color of the shaft (c) The length of the shaft (d) The number of universal joints. **Ans:D**
3	117	The final drive is located: (a) The gear box (b) The dashboard (c) The wheels (d) The differential **Ans:D**
3	118	What is the function of the "pinion gear" in the final drive? (a) To mesh with ring gear to transmit torque. (b) To spin the wheels in reverse. (c) To cool the transmission fluid. (d) To act as a brake. **Ans:A**
3	119	What is the main purpose of the final drive in a vehicle's drivetrain? (a) To connect the engine to the transmission. (b) To increase the vehicle's top speed. (c) To decrease the speed and increase torque in wheel. (d) To control the air conditioning. Ans:C
3	120	A two-piece propeller shaft is typically used in vehicles with a: (a) Short wheelbase. (b) Front-wheel-drive layout. (c) Long wheelbase. (d) Transverse engine. **Ans:C**

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3	121	What is the key job of a differential? (a) To lock both wheels so they spin at the same speed. (b) To allow the wheels to spin at different speeds when turning. (c) To increase the vehicle's top speed. (d) To make the car go in reverse. **Ans:B**
3	122	Which type of final drive uses a large helical gear to drive the wheels? (a) Spur gear drive (b) Worm gear drive (c) Bevel gear drive (d) Hypoid gear drive **Ans:D**
3	123	The purpose of a final drive is: (a) Reduce torque (b) Increase torque and reduce speed (c) Increase speed (d) Store energy **Ans:B**
3	124	Which gear in a conventional differential is directly connected to the axle shafts? (a) The spider gears (b) The pinion gear (c) The ring gear (d) The side gears **Ans:D**
3	125	What is the primary function of a conventional differential? (a) To allow wheels to turn at different speeds when turning. (b) To lock the wheels together for maximum traction. (c) To increase the vehicle's speed. (d) To decrease the vehicle's spee **Ans:A**
3	126	When a vehicle turns, the inner wheel: (a) Travels a longer distance than outer wheel. (b) Travels same distance as outer wheel. (c) Travels a shorter distance than outer wheel. (d) Does not turn. **Ans:C**
3	127	The main function of the differential's side gears is to: (a) Drive the ring gear. (b) Transmit torque to the axle shafts. (c) Support the pinion gears. (d) Lock the wheels together. **Ans:B**
3	128	What is a disadvantage of a conventional differential? (a) It is very heavy. (b) It is prone to locking up. (c) It provides poor traction on slippery surfaces. (d) It cannot be used with a propeller shaft. **Ans:C**
3	129	What is a major disadvantage of a conventional differential on a slippery surface? (a) It sends all the power to the wheel with the least grip. (b) It makes the car turn too quickly. (c) It sends all the power to the wheel with the most grip. (d) It breaks easily. Ans:A
3	130	Differential allows wheels to: (a) Rotate at same speed (b) Rotate at different speeds (c) Stop rotating (d) Increase speed **Ans:B**

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3	131	In LSD, excessive slip is prevented by: (a) Gears only (b) Clutch or viscous coupling (c) Springs (d) Bearings **Ans:B**
3	132	The differential action is the process by which: (a) The vehicle's speed is increased. (b) The vehicle's torque is reduced. (c) The gears are locked for traction. (d) The two driving wheels can rotate at different speeds. **Ans:D**
3	133	What is a common component used in a clutch-type Limited-Slip Differential (LSD)? (a) A gear that spins freely. (b) A set of clutches and friction plates. (c) An air pump. (d) A simple metal bar. **Ans:D**
3	134	A differential lock is most beneficial when a vehicle is: (a) Driving on a straight, smooth road. (b) Turning a sharp corner. (c) Stuck in mud or snow. (d) Driving at high speeds on a highway. **Ans:C**
3	135	What is a disadvantage of a limited-slip differential (LSD) compared to a conventional differential? (a) It allows one wheel to spin freely. (b) It is more complex and expensive. (c) It provides less traction. (d) It cannot be used in rear-wheel-drive vehicles. **Ans:B**
3	136	What is the main purpose of a rear axle? (a) To transfer power to wheels. (b) To connect the front wheels. (c) To hold the engine. (d) To act as a brake. **Ans:A**
3	137	Which of the following is a type of load that acts on a drive axle? (a) Bending load. (b) Compression load. (c) Hydraulic load. (d) Electric loa **Ans:A**
3	138	What is a "semi-floating" axle? (a) An axle that can move up and down freely. (b) An axle that supports vehicle's weight and transmits torque. (c) An axle used in boats. (d) An axle that is partially filled with oil. **Ans:B**
3	139	Which type of rear axle carries both the driving torque and the vehicle's weight? (a) Full-floating axle. (b) Live axle (c) Three-quarter floating axle. (d) Semi-floating axle. Ans:D
3	140	What happens to a semi-floating axle if the shaft breaks? (a) The nuts will become lose. (b) The wheel will fall off the vehicle. (c) The axle housing will also break. (d) The car will stop safely. **Ans:B**

U.NO	Q NO	QUESTIONS
3	141	Which type of load does the axle shaft in a semi-floating axle NOT have to withstand? (a) Driving torque (b) Braking torque (c) Bending (d) Radial loads **Ans:D**
3	142	What is the purpose of the bearing in a semi-floating axle design? (a) It allows the axle to change length. (b) It stops the shaft from spinning. (c) It holds the brakes. (d) It supports weight and allows shaft to rotate. **Ans:D**
3	143	Which of the following is an example of a vehicle that typically uses a semi-floating axle? (a) Heavy-duty semi-truck (b) Large commercial bus (c) Passenger car or light truck (d) Large construction vehicle **Ans:C**
3	144	What is the main characteristic of a full-floating axle? (a) It carries no weight. (b) It is found in all passenger cars. (c) The axle shaft only transmits torque. (d) It can only be used on the front wheels. **Ans:C**
3	145	What is a major advantage of a full-floating axle? (a) It is cheaper and easier to make. (b) The vehicle can be moved even if axle shaft breaks. (c) It uses smaller bearings. (d) It requires no maintenance. **Ans:B**
3	146	How is the wheel hub attached in a full-floating axle? (a) By two bearings on outside of axle housing. (b) Welding to the axle shaft. (c) Casting to the axle shaft flange. (d) Held on by a single large nut. **Ans:A**
3	147	What is the main advantage of a full-floating axle over a semi-floating axle? (a) Low failure if the axle shaft breaks. (b) Cheaper to manufacture. (c) Lighter in weight. (d) Requires less maintenance. **Ans:A**
3	148	Which of the following is a key difference in construction between a full-floating and a semi-floating axle? (a) The presence of a center bearing. (b) The size of the differential. (c) The material of the axle shaft. (d) The number of bearings used to support the wheel. **Ans:D**
3	149	In a full-floating axle, axle shaft transfer: (a) Shock only (b) Torque only (c) Vibration only (d) No load Ans:B
3	150	Three-quarter floating axle provides: (a) No thrust resistance (b) No torque (c) 100% thrust resistance (d) Partial thrust resistance **Ans:D**

U.NO	Q NO	QUESTIONS
4	151	What is the main function of rear axle drive system? (a) To provide braking force (b) To transfer power to wheels (c) To steer the vehicle (d) To support the vehicle's weight **Ans:B**
4	152	In a Hotchkiss drive, what component takes torque reaction (a) Propeller shaft (b) Leaf springs (c) Torque tube (d) Universal joints **Ans:B**
4	153	A torque tube drive eliminates the need for which of the following? (a) Universal joints (b) Leaf springs (c) Slip joint (d) Differential **Ans:C**
4	154	Which drive system uses a hollow tube to enclose the propeller shaft? (a) Hotchkiss drive (b) Cardan drive (c) Torque tube drive (d) Live axle drive **Ans:C**
4	155	What is a key advantage of a hydrostatic drive? (a) High efficiency at all speeds (b) Low cost and complexity (c) Smooth, continuous speed variation (d) Easy to maintain **Ans:C**
4	156	Torque tube drive is mostly used in: (a) Heavy trucks (b) Front wheel drive cars (c) Motorcycles (d) Cycles **Ans:A**
4	157	What is a disadvantage of a Hotchkiss drive? (a) Complex than torque tube drive (b) Cannot be used in rear-wheel-drive vehicles (c) Leaf springs can wind-up due to forces (d) Provides a smoother ride than other systems **Ans:C**
4	158	Which of the following is NOT a type of hydrostatic drive? (a) Closed circuit (b) Open circuit (c) Mixed circuit (d) Torque tube **Ans:D**
4	159	In hydrostatic drives, energy is transmitted by: (a) Fluid pressure (b) Gear teeth (c) Belts (d) Chains Ans:A
4	160	Closed circuit hydrostatic drive means: (a) Fluid flows between pump and motor directly (b) Fluid flows in open tank (c) Air is used (d) None **Ans:A**

U.NO	Q NO	QUESTIONS
4	161	Hydrostatic drive transmits power using: (a) Air (b) Electricity (c) Springs (d) Oil under pressure **Ans:D**
4	162	How does a hydrostatic drive move forward and reverse? (a) Changing direction of engine (b) Shifting gears in gearbox (c) Reversing the flow direction of hydraulic fluid (d) Using a clutch and brake **Ans:C**
4	163	In a Hydrostatic drive, what component is responsible for converting mechanical energy into hydraulic energy? (a) Hydraulic motor (b) Hydraulic pump (c) Control valve (d) Reservoir **Ans:B**
4	164	A key advantage of a hydrostatic drive is its ability to provide: (a) High torque at low speeds (b) Lower initial cost compared to conventional drives. (c) Greater fuel efficiency than a torque converter. (d) A simple gear-shifting mechanism. **Ans:A**
4	165	Main need of suspension system is to: (a) Increase fuel economy (b) Absorb shocks and improve ride comfort (c) Increase speed (d) Increase load capacity **Ans:B**
4	166	Rigid suspension connects wheels by: (a) Independent links (b) Rigid axle (c) Air bags (d) Springs only **Ans:B**
4	167	Independent suspension allows wheels to: (a) Move together (b) Lock axle (c) Not move (d) Move independently **Ans:D**
4	168	What is the primary disadvantage of a rigid suspension system? (a) It is more expensive to produce (b) It provides a very soft ride (c) It negatively impacts ride comfort and handling on uneven surfaces (d) It cannot be used on rear-wheel-drive vehicles **Ans:C**
4	169	What is the primary advantage of independent suspension over a rigid suspension system? (a) Lower cost (b) Simpler design (c) Improved ride comfort and handling (d) Higher load-carrying capacity Ans:C
4	170	Which type of suspension system uses a single solid axle to connect both wheels? (a) Independent suspension (b) Coil spring (c) Torsion bar (d) Rigid suspension **Ans:D**

U.NO	Q NO	QUESTIONS
4	171	What is the primary purpose of a suspension system? (a) To increase vehicle speed (b) To provide an aesthetic look (c) To enhance fuel efficiency (d) To isolate the vehicle from vibrations **Ans:D**
4	172	A car's independent suspension allows for which of the following? (a) Both wheels to be rigidly connected (b) The motion of one wheel to be independent of the other (c) Only the front wheels to be driven (d) The suspension to be a single unit **Ans:B**
4	173	Coil springs work on principle of: (a) Compression & tension (b) Torsion (c) Hydraulic action (d) Magnetism **Ans:A**
4	174	Torsion bar stores energy in the form of: (a) Compression (b) Tension (c) Torsion (d) Fluid pressure **Ans:C**
4	175	What is the purpose of a torsion bar in a suspension system? (a) To provide damping (b) To support the vehicle's weight and act as a spring (c) To prevent body roll (d) To control steering **Ans:B**
4	176	Leaf springs are commonly used in which type of vehicle? (a) Heavy-duty trucks and buses (b) Passenger cars (c) High-performance sports cars (d) Electric scooters **Ans:A**
4	177	What is the main characteristic of a coil spring? (a) It is a series of stacked flat plates (b) It has high lateral stiffness (c) It is made from a single steel bar twisted into a helix (d) It is a hollow tube **Ans:C**
4	178	A torsion bar works by resisting what type of force? (a) Compression (b) Bending (c) Shear (d) Twisting **Ans:D**
4	179	What is the function of an anti-roll bar? (a) To increase vehicle speed (b) To prevent the vehicle from rolling over (c) To reduce body roll during cornering (d) To provide additional suspension travel Ans:C
4	180	Wishbone suspension is also known as: (a) Double A-arm suspension (b) Leaf spring suspension (c) Rigid axle suspension (d) Trailing link **Ans:A**

U.NO	Q NO	QUESTIONS
4	181	MacPherson strut combines: (a) Coil spring & shock absorber (b) Leaf spring & damper (c) Air spring & torsion bar (d) None **Ans:A**
4	182	Swinging half axle suspension is a type of: (a) Rigid suspension (b) Independent suspension (c) Air suspension (d) Active suspension **Ans:B**
4	183	Trailing link suspension locates axle by: (a) Arms trailing behind (b) Arms leading ahead (c) Rigid tube (d) Springs **Ans:A**
4	184	Which suspension system is known for its compact design, integrating a spring and damper into a single unit? (a) Wishbone suspension (b) Macpherson strut (c) Trailing link suspension (d) Independent suspension **Ans:B**
4	185	Shock absorbers are mainly used to: (a) Support weight (b) Increase torque (c) Dampen oscillations (d) Reduce braking distance **Ans:C**
4	186	Main function of telescopic shock absorber: (a) Dampen vertical vibrations (b) Absorb torsion (c) Increase speed (d) Store fuel **Ans:A**
4	187	Telescopic shock absorber works on principle of: (a) Fluid friction (b) Air compression (c) Magnetic damping (d) Torsion **Ans:A**
4	188	What is the function of a damper in a suspension system? (a) To support the vehicle's weight (b) To absorb road shocks (c) To convert kinetic energy into heat (d) To transfer torque to the wheels **Ans:C**
4	189	Air suspension systems adjust the vehicle's ride height by: (a) Changing the spring rate (b) Varying the air pressure in the air springs (c) Adjusting the length of the torsion bar (d) Using a complex mechanical linkage Ans:B
4	190	In a shock absorber, damping is achieved by: (a) Oil flow through valves (b) Spring stiffness (c) Air bubbles (d) Magnetic field **Ans:A**

U.NO	Q NO	QUESTIONS
4	191	Shock absorber is connected between: (a) Wheel and engine (b) Differential and propeller shaft (c) Gearbox and chassis (d) Axle and frame **Ans:D**
4	192	Air suspension uses: (a) Leaf springs (b) Coil springs (c) Air springs (d) Hydraulic fluid **Ans:C**
4	193	In a telescopic shock absorber, what is the role of the piston? (a) To contain the hydraulic fluid (b) To transmit the load to the chassis (c) To force fluid through orifices, creating damping force (d) To act as a spring **Ans:C**
4	194	Which type of suspension is characterized by a sensor-based system that can react to changing road conditions? (a) Leaf spring suspension (b) Macpherson strut (c) Rigid suspension (d) Active suspension **Ans:D**
4	195	Active suspension differs from passive by: (a) Electronic control (b) Mechanical only (c) Leaf springs (d) Rigid axle **Ans:A**
4	196	Main advantage of active suspension: (a) Reduces vehicle weight (b) Adapts to road condition (c) Increases braking force (d) Lowers cost **Ans:B**
4	197	Active suspension is mostly used in: (a) Auto rickshaws (b) Cycles (c) Scooters (d) Luxury cars **Ans:D**
4	198	Active suspension requires: (a) Simple springs (b) Leaf spring only (c) Electronics & hydraulics (d) Chain drive **Ans:C**
4	199	Disadvantage of active suspension: (a) Complex and costly (b) Improves comfort (c) Better handling (d) Real-time adjustment Ans:A
4	200	What is the main component that differentiates an active suspension system from a traditional suspension system? (a) The use of coil springs (b) The presence of a differential (c) The addition of computer-controlled actuator (d) The use of shock absorbers **Ans:C**

U.NO	Q NO	QUESTIONS
5	201	The main purpose of brakes is to: (a) Absorb shocks (b) Reduce vehicle speed (c) Increase traction (d) Support suspension **Ans:B**
5	202	Stopping distance depends on: (a) Brake efficiency (b) Road condition (c) Driver reaction (d) All of these **Ans:D**
5	203	The distance covered before brake application is: (a) Reaction distance (b) Braking distance (c) Stopping distance (d) Skid distance **Ans:A**
5	204	Total stopping distance = (a) Braking distance only (b) Reaction distance only (c) Braking + Reaction distance (d) Vehicle length **Ans:C**
5	205	Mechanical brakes transmit force through: (a) Fluid (b) Air (c) Rods or cables (d) Vacuum **Ans:C**
5	206	Hydraulic brakes work on principle of: (a) Pascal's law (b) Newton's law (c) Boyle's law (d) Bernoulli's law **Ans:A**
5	207	Leading shoe provides: (a) Less braking force (b) More braking force (c) No braking (d) Only rear wheel brake **Ans:B**
5	208	Trailing shoe provides: (a) More braking force (b) Reverse braking only (c) No effect (d) Less braking force **Ans:D**
5	209	In drum brakes, wheel cylinder is located in: (a) Drum (b) Back plate (c) Hub (d) Shoe Ans:B
5	210	Master cylinder is placed in: (a) Each wheel (b) Differential (c) Brake pedal linkage (d) Brake drum **Ans:C**

U.NO	Q NO	QUESTIONS
5	211	Function of master cylinder: (a) Convert pedal force to hydraulic pressure (b) Amplify torque (c) Produce stress (d) Cool brakes **Ans:A**
5	212	Wheel cylinders are used to: (a) Supply air (b) Reduce torque (c) Store oil (d) Operate shoes **Ans:D**
5	213	Bleeding of brakes is done to remove: (a) Air bubbles (b) Oil (c) Dirt (d) Coolant **Ans:A**
5	214	Pedal feels spongy when: (a) More fluid (b) Air present (c) Less pressure (d) Overheating **Ans:B**
5	215	Air brake system mainly used in: (a) Cars (b) Motorcycles (c) Heavy vehicles (d) Bicycles **Ans:C**
5	216	Air compressor in air brakes is driven by: (a) Driver (b) Engine (c) Battery (d) Separate motor **Ans:B**
5	217	Disc brakes replace: (a) Pedal (b) Cylinder (c) Shoes (d) Drum **Ans:D**
5	218	Disc brakes dissipate heat: (a) Better than drums (b) Poorly than drum brakes (c) Same as drums (d) Not at all **Ans:A**
5	219	Servo brakes reduce: (a) Brake fluid (b) Vehicle weight (c) Pedal effort (d) Noise Ans:C
5	220	Vacuum assisted servo brakes take vacuum from: (a) Air filter (b) Engine manifold (c) Radiator (d) Battery **Ans:B**

U.NO	Q NO	QUESTIONS
5	221	Exhaust brakes are used in: (a) Cars (b) Bicycles (c) Scooters (d) Trucks & buses **Ans:D**
5	222	Exhaust brake works by: (a) Restricting exhaust gases (b) Injecting more fuel (c) Blocking intake (d) Increasing coolant flow **Ans:A**
5	223	ABS stands for: (a) Auto Brake System (b) Air Brake Setup (c) Anti-lock Braking System (d) Auxiliary Brake Support **Ans:C**
5	224	ABS mainly prevents: (a) Heat (b) Skidding (c) Brake noise (d) Fuel loss **Ans:B**
5	225	ABS uses: (a) Accelerometers (b) Air sensors (c) Fuel sensors (d) Wheel speed sensors **Ans:D**
5	226	ABS is useful in: (a) Wet/icy road (b) Dry road only (c) Off-road only (d) None **Ans:A**
5	227	Disc wheel is made of: (a) Wood (b) Pressed steel (c) Plastic (d) Rubber **Ans:B**
5	228	Spoked wheels provide: (a) Light weight (b) Heavy weight (c) Poor cooling (d) High rigidity **Ans:A**
5	229	Cast alloy wheels advantage: (a) Heavy (b) Rust prone (c) Lightweight & good heat dissipation (d) Poor strength Ans:C
5	230	Split wheels are mainly used in: (a) Bicycles (b) Heavy trucks (c) Scooters (d) Cars **Ans:B**

U.NO	Q NO	QUESTIONS
5	231	Tubed tyre contains: (a) No inner tube (b) Valve only (c) Metal sheet (d) Inner tube **Ans:D**
5	232	Tubeless tyre contains: (a) Inner tube (b) Rim sealing (c) Water tube (d) Rubber liner **Ans:B**
5	233	What is the main characteristic of a split wheel? (a) The rim is made of two or more parts (b) It has a solid disc design (c) It is made from a cast alloy (d) It uses spokes for support **Ans:A**
5	234	The main advantage of a tubeless tyre over a conventional tubed tyre is: (a) It cannot be punctured (b) It is lighter and dissipates heat better (c) It has a higher load-carrying capacity (d) It has a much longer tread life **Ans:B**
5	235	A disc wheel is a type of wheel where the wheel rim and hub are: (a) Separate components (b) Connected by spokes (c) Made from a single piece of steel (d) Made from a composite material **Ans:C**
5	236	Carcass of cross ply tyre: (a) Plies radial (b) Plies diagonal (c) No plies (d) Woven cloth **Ans:B**
5	237	Carcass of radial tyre: (a) Diagonal plies (b) Zig-zag plies (c) Radial plies (d) None **Ans:C**
5	238	Disadvantage of a cross ply tyre is that it: (a) Has a stiffer sidewall (b) Has higher rolling resistance (c) Has a longer tread life (d) Is more expensive than radial tyres **Ans:B**
5	239	Radial ply tyre gives: (a) Poor grip (b) More heat (c) Low speed (d) More mileage & comfort Ans:D
5	240	Cross ply tyre sidewall is: (a) Stiff (b) Soft (c) Weak (d) No sidewall **Ans:A**

U.NO	Q NO	QUESTIONS
5	241	Radial tyre sidewall is: (a) Flexible (b) Loose (c) Weak (d) None **Ans:A**
5	242	Radial tyres mainly used in: (a) Cycles (b) Heavy buses only (c) Passenger cars (d) Scooters only **Ans:C**
5	243	Run flat tyres can: (a) Deflate quickly (b) Run some distance after puncture (c) Burst immediately (d) Only for bicycles **Ans:B**
5	244	Run flat tyres are reinforced by: (a) Steel ring (b) Plastic (c) Extra tube (d) Strong sidewalls **Ans:D**
5	245	Tyre rotation is done to: (a) Reduce wear (b) Increase fuel (c) Change shape (d) Increase speed **Ans:A**
5	246	Recommended tyre rotation interval: (a) 50 km (b) 5,000–10,000 km (c) 100 km (d) Never **Ans:B**
5	247	Main factor affecting tyre life: (a) Engine type (b) Vehicle colour (c) Inflation pressure (d) Steering system **Ans:C**
5	248	Overinflation causes: (a) Edge wear (b) Centre wear (c) Even wear (d) No wear **Ans:B**
5	249	Underinflation causes: (a) Centre wear (b) Burst (c) Even wear (d) Edge wear Ans:D
5	250	The main drawback of a cross ply tyre is that it: (a) Has a stiffer sidewall (b) Has higher rolling resistance (c) Has a longer tread life (d) Is more expensive than radial tyres **Ans:B**

NOTE:
PART B – 3 MARKS QUESTIONS
PART C – 10 MARKS QUESTIONS

PART B

PART B/C	UNIT NO	Q.NO	QUESTION
B	1	1	Write a note on the functions of a chassis frame in an automobile.
B	1	2	Describe the types of chassis layouts based on engine location.
B	1	3	Describe the layout of a front-engine rear-wheel-drive chassis.
B	1	4	List and explain two types of frame sections used in chassis design.
B	1	5	Compare live axle and dead axle constructions.
B	1	6	Brief about the concept of Ackerman's steering geometry.
B	1	7	Discuss the role of camber and caster in steering geometry.
B	1	8	Explain the working of rack and pinion steering gear.
B	1	9	Compare hydraulic and electric power steering systems.
B	1	10	Describe the working of electric power steering system.
B	2	11	Explain the role of a clutch in power transmission.
B	2	12	Describe the construction of a single-plate clutch.
B	2	13	Describe the working of a fluid coupling.
B	2	14	Explain the difference between a Fluid Coupling and a Torque Converter.
B	2	15	Write a short note on the concept of tractive effort and its influencing factors.
B	2	16	Describe the working of a sliding mesh gearbox.
B	2	17	Differentiate between a Sliding Mesh Gear Box and a Synchromesh Gear Box.
B	2	18	Describe the purpose and working of a Transfer Case in an automobile.
B	2	19	Describe the working of a constant mesh gearbox.
B	2	20	What are the advantages of a continuously variable transmission?
B	3	21	Write a note on the need for universal joints in a vehicle.

B	3	22	Compare constant velocity and variable velocity joints.
B	3	23	Describe the working of a Rzeppa joint.
B	3	24	Describe the construction of a two-piece propeller shaft.
B	3	25	Briefly explain the function and types of final drive gears.
B	3	26	Describe the working of a conventional differential.
B	3	27	Write a note limited slip differential and where is it used?
B	3	28	Explain the principle of differential lock.
B	3	29	List the loads acting on drive axles and their implications
B	3	30	Compare semi-floating and full-floating rear axles.
B	4	31	Describe the working of a Hotchkiss drive.
B	4	32	How does a torque tube drive differ from a Hotchkiss drive?
B	4	33	Briefly explain the working of a typical Hydrostatic Drive system.
B	4	34	Differentiate between rigid and independent suspension systems.
B	4	35	Explain the function of a leaf spring in a suspension system.
B	4	36	Compare coil spring and leaf spring suspensions.
B	4	37	Describe the working of a MacPherson strut suspension.
B	4	38	Describe the working of a telescopic shock absorber.
B	4	39	Explain the benefits of an Air Suspension System over a conventional suspension.
B	4	40	Brief about the concept of an active suspension system.
B	5	41	What factors affect the stopping distance of a vehicle?
B	5	42	Describe the working of a hydraulic brake system.
B	5	43	Describe the working of an air brake system.
B	5	44	Write a short note on working of a disc brake system.
B	5	45	Brief about the functions and types of Servo Brakes
B	5	46	How does an antilock brake system (ABS) function?

B	5	47	Describe the characteristics of spoked wheel and cast alloy wheel.
B	5	48	Compare cross-ply and radial-ply tires.
B	5	49	Briefly explain two factors affecting tire life and their impact.
B	5	50	What is a run-flat tire, and how does it function?

PART C

PART B/C	UNIT NO	Q.NO	QUESTION
C	1	1	Explain the functions of components in the layout of chassis with a neat sketch.
C	1	2	Describe the construction and working principle of Ackerman's steering mechanism with a neat diagram
C	1	3	Explain any 3 front wheel geometry with neat sketch
C	1	4	Explain the construction and working of a Rack and Pinion steering gear box with a diagram.
C	1	5	Explain the construction and working of electric power steering with a neat sketch.
C	2	6	Describe the construction and working of a Single Plate Clutch with a neat sketch.
C	2	7	With a neat diagram, explain the construction and working of centrifugal clutch.
C	2	8	With a neat sketch, explain the construction and operation of a sliding mesh gear box
C	2	9	With a neat sketch, explain the construction and operation of a constant mesh gear box
C	2	10	Describe the working of continuous variable transmission with neat sketch
C	3	11	With neat sketches explain about variable velocity joint and constant velocity joint.
C	3	12	Explain the constructional details of a propeller shaft with a neat sketch.
C	3	13	Describe different types of final drive with sketches.
C	3	14	Explain the construction and working of a conventional differential unit with a neat diagram.
C	3	15	Explain the full floating rear axle support in detail with diagram. State its advantages and disadvantages.
C	4	16	Explain the construction and working of Hotchkiss Drive
C	4	17	Describe the construction and working of a typical Hydrostatic Drive system.

C	4	18	Explain the need for a suspension system and compare Rigid axle suspension with Independent suspension systems.
C	4	19	Describe the construction and working of a Telescopic Shock Absorber with a diagram.
C	4	20	Explain the construction and working principle of an Air Suspension System
C	5	21	Explain the working of hydraulic braking system with a neat sketch
C	5	22	Explain the working principle of Air braking system with a neat sketch
C	5	23	Explain the working principle of antilock braking system with a diagram.
C	5	24	Discuss the different types of wheels with diagrams
C	5	25	Explain about various types of tyres