

These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai

Online Examination 2020

Program: BE Automobile Engineering

Curriculum Scheme: Revised 2016

Examination: Final Year Semester VIII

Course Code: AEC803 and Course Name: Vehicle safety

Time: 1hour

Max. Marks: 50

Note to the students:- All the Questions carry equal marks .

1	Q	In Vehicle safety we are more concern about the safety of
	A	Vehicle
	B	Engine
	C	People
	D	Infrastructure
2	Q	Basic concept is universal design for people, is
	A	design in terms of the Narrow range of users
	B	design in terms of the Specific range of users
	C	design in terms of the broad range of users
	D	design in terms of the only on gender based users
3	Q	Duration of Crash is generally
	A	100-120 Milli Seconds
	B	100-120 Seconds
	C	10 Minutes
	D	1 hour
4	Q	Important objective of crash testing is to determine whether an adequate level of occupant safety has been achieved . This is achieved by
	A	Simulation only
	B	Cadaver testing
	C	any Pet animal

	D	Monkeys
5	Q	With reference to deceleration curve , Which of the following is false
	A	Low deceleration pulses is created by soft Metals
	B	High amplitude spike of deceleration is produce due to engine
	C	Low amplitude spike of deceleration is produced due to engine
	D	more severe and abrupt the deceleration, the more severe is the possible injuries
6	Q	In Roll over testing
	A	Roof crush and intrusion of the passenger compartment are critical variables.
	B	vehicle crush analysis is similar to that for frontal collisions
	C	The door should be able to distribute the impact forces to the B-pillar and other structures.
	D	All the impact forces may be concentrated in a small area of the centre of the front-end structure.
7	Q	Which of the following is fail safe design
	A	Gearbox
	B	self -propelled scissors lift
	C	Street Light
	D	Road Side Sign Board
8	Q	Identify Active Safety Features.
	A	Airbags
	B	Collapsible steering column
	C	Bumper
	D	Lane departure warning
9	Q	_____ is the character and magnitude of the harm that could occur
	A	Risk

	B	Safety
	C	Fail Safe Design
	D	Error
10	Q	Over steering errors can be eliminated by
	A	TCS
	B	ESP
	C	ABS
	D	AEB
11	Q	Loss of vehicle control on wet roads has been reduced by
	A	AEB
	B	ABS
	C	TPMS
	D	ACC
12	Q	The First Crash test dummy developed in 1949 was
	A	Sierra Sam
	B	Sierra Leone
	C	THOR
	D	Eurosid
13	Q	Front structure that is deformable, yet stiff, with crumple zones to absorb the crash and a deformable rear structure to maintain integrity of the rear passenger compartment and protect the fuel tank. What kind of requirements are these satisfying?
	A	Crash unworthiness
	B	Crashworthiness
	C	Crash proof
	D	Crash Resistance
14	Q	Safety belts and Airbags are examples of
	A	Digital Systems
	B	Automotive systems
	C	Restraint Systems
	D	Injury systems
15	Q	Frontal airbag deployment would occur inmilli seconds.

	A		3
	B		100
	C		120
	D		30
16	Q	When the restrained occupant is firmly connected to the vehicle and moves with the vehicle during the collision sequence, it indicates a safe ride down. The deceleration curve for this would be.....	
	A	upward slope	
	B	downward slope	
	C	abrupt jerk	
	D	zero slope	
17	Q	The science of movement of a living body, including how muscles, bones, tendons, and ligaments work together to produce movement is biomechanics. It has contributed to vehicle safety in development of	
	A	Crash test dummies and Injury Criteria	
	B	Data Acquisition systems	
	C	Human Error Control Systems	
	D	High Speed Systems	
18	Q	Euro NCAP Side Impact Crash tests are done at a maximum velocity of	
	A	64kmph	
	B	100kmph	
	C	25 kmph	
	D	50kmph	
19	Q	The standard unit for momentum is	
	A	Kg.m/s	
	B	m/s	
	C	Kg.m	
	D	Kg/s	

20	Q	Calculate the average impact load for following Conditions ($m=250\text{kg}$, $v=36\text{km/hr.}$, d =is the distance travelled during collision= 1m)
	A	15 KN
	B	12.5 KN
	C	18 N
	D	20 KN
21	Q	Find odd one out.
	A	PAM-CRASH
	B	MSC Dytran
	C	Pixlr
	D	MADYMO
22	Q	The primary objectives for injury reduction are:
	A	to keep the head and upper torso in alignment (prevent 'head lag')
	B	to reduce peak accelerations (by 'energy management')
	C	to minimize unusual interior contacts (point loading and secondary movements)
	D	All options are right
23	Q	Ultra High Retention seat can improve impact safety.
	A	Roll
	B	Rear
	C	Front
	D	Side
24	Q	By what percentage do seatbelts reduce the risk of death for a person sitting in the front seat?
	A	0.4
	B	0.5
	C	0.6
	D	0.7
25	Q	By what percentage can airbags reduce the risk of dying in a direct frontal crash?

	A		0.2
	B		0.3
	C		0.5
	D		0.4
26	Q	The introduction of_____ reduced the incidence of neck injury.	
	A	air bags	
	B	abs	
	C	seat belts	
	D	head restraints	
27	Q is a maximum performance manoeuvre initiated by an inappropriate steering input (oversteer manoeuvre).	
	A	The Critical Speed Yaw	
	B	The min Speed Yaw	
	C	The average Speed Yaw	
	D	Engine Speed	
28	Q	The lateral force developed at the tire-ground contact patch is usually called the when the camber angle of the wheel is zero.	
	A	Drag force	
	B	Aligning torque	
	C	Lateral force	
	D	cornering force	
29	Q	Which of the force does not develop during the collision	
	A	Impact force	
	B	Inertia force	
	C	Inter vehicular force	
	D	Magnetic force	
30	Q	The test procedure for conducting the rollover test was recommended by	
	A	SAE	
	B	NHTSA	
	C	ARAI	

	D	TRL
31	Q	Which of these phases of rollover accident involves dividing the vehicle trajectory in to segments and computing the change in vehicle speed
	A	Trip Phase
	B	Pre trip Phase
	C	Post Trip phase
	D	Rollover Phase
32	Q	How many principle aspects do we consider in reconstruction of the roll phase of a rollover accident
	A	Five
	B	Four
	C	Three
	D	Two
33	Q	Yaw marks are result of
	A	Avoidance maneuver
	B	Over speeding
	C	Braking
	D	Low speed
34	Q	In reconstruction of Vehicular rollover accidents the roll over of the vehicle can be broken down in to
	A	Seven phases
	B	Eight phases
	C	Three phases
	D	Two phases
35	Q	The full form of SSF is
	A	Static Stability Factor
	B	Static Seat Factor
	C	Static Safe Factor
	D	Static Sight Factor
36	Q	In Pretrip phase the yaw orientation of the vehicle is defined by the vehicle

	A	Camber Angle
	B	Castor Angle
	C	Sideslip Angle
	D	Toe in
37	Q	Find the momentum of the car of mass 50 kg when it's speed is 15m/s.
	A	750
	B	850
	C	950
	D	500
38	Q	Calculate the change in momentum in (kgm/s) of a car of mass 1500 Kg when it's speed increases from 60 m/s to 70 m/s uniformly?
	A	25000
	B	20000
	C	15000
	D	30000
39	Q	Assuming that car B and car C are complete mirrors of each other, they would collide with each other going at precisely the same speed but in opposite directions. From conservation of momentum, they must both
	A	come to rest
	B	Travel in opposite direction with same speed
	C	Travel in opposite direction with different speed
	D	Travel in same direction with same speed
40	Q monitors a vehicle's speed, the speed of the vehicle in front of it, and the distance between the vehicles, so that it can provide a warning to the driver.
	A	TPMS
	B	collision avoidance system
	C	Electronic brake force distribution
	D	Dynamic Stability Control (DSC)

41	Q	The provision of airbags in automobiles is a method of injury control. It is
	A	A form of environmental control
	B	A form of behavioural control
	C	A form of benevolent dictatorship
42	D	A violation of our human rights
	Q	To provide optimal protection for the occupant of an automobile, the designer should ensure that
	A	Both belt and airbag restraints are provided
	B	Compartment integrity be preserved to the maximum extent possible
43	C	Instrument panels be padded with a very soft restrain
	D	Both belt and airbag restraints are provided and Compartment integrity be preserved to the maximum extent possible
	Q	In 1971 the _____ division of GM introduced MaxTrac, which used an early computer system to detect rear wheel spin and modulate engine power to those wheels to provide the most traction
	A	Buick
44	B	Chevrolet
	C	Cadillac
	D	Pontiac
	Q	Anti-lock brakes can significantly reduce the chance of a skid occurring particularly when
45	A	Driving at high speeds
	B	Driving down steep hills
	C	Heavy braking in an emergency
	D	Normal braking
45	Q	It's impossible to skid if a vehicle is fitted with anti-lock brakes _____%
	A	1
	B	0

	C	0.5
	D	0.75
46	Q	Low tire pressure warning system is type of _____
	A	Direct tire pressure monitoring system
	B	Indirect tire pressure monitoring system
	C	semi closed system
	D	closed system
47	Q	ABS means
	A	Any-lock braking system
	B	Anti-lane braking system
	C	Anti-lock broken system
	D	Anti-lock blocking system
48	Q	Which Indian car has Electronic Stability Program
	A	Maruti Alto
	B	Hyundai Venue
	C	Honda WRV
	D	Tata Nano
49	Q	The effect of airbag noise on human hearing
	A	Has never been studied
	B	Has been studied and found to have a permanent effect on human hearing
	C	Has been studied and found to have a temporary effect on human hearing
	D	Has been studied and found to have no effect on human hearing
50	Q	TCS means
	A	Tradition control system
	B	Trust control system
	C	Traction control system
	D	Twist control system
51	Q	TED 16 is related to
	A	Passive Safety Crash Protection Systems
	B	Automotive Tyres, Tubes And Rims

	C	Bicycles
	D	Automotive vehicles on NCES
52	Q	TED 17 is related to
	A	Shipbuilding
	B	Automotive Braking Systems
	C	Automotive Tyres, Tubes And Rims
	D	Transport Tractors and Trailers
53	Q	TED 19 is related to
	A	Internal Combustion Engine
	B	Automotive vehicles on NCES
	C	Marine Engineering And Safety Aids
	D	Aircraft and Space Vehicles
54	Q	TED 26 is related to
	A	Automotive Vehicles Running on Non Conventional Energy Sources
	B	Automotive vehicles on NCES
	C	Harbour Crafts
	D	Marine Engineering And Safety Aids
55	Q	TED 28 is related to
	A	Bicycles
	B	Intelligent Transport Systems
	C	Internal Combustion Engine
	D	Transport Tractors and Trailers
56	Q	TED 31 is related to
	A	Inspection & Certification Sectional Committee
	B	Transport Tractors and Trailers
	C	Shipbuilding
	D	Automotive Braking Systems
57	Q	AIS-008(Rev.2) is related to
	A	Installation Requirements of Lighting and Light
	B	General Guidelines on Control Cables for Automobiles
	C	Shipbuilding

	D	Battery Operated Vehicles – Measurement of Electrical Energy Consumption
58	Q	AIS-010 and Amd. No. 1 is related to
	A	Safety and Procedural requirements for Type Approval of LPG Operated Vehicles
	B	Battery Operated Vehicles – Measurement of Electrical Energy Consumption
	C	Performance Requirements of Lighting and Light-Signalling Devices for 2 and 3 Wheeled Motor Vehicles
	D	General Guidelines on Control Cables for Automobiles
59	Q	AIS-011 and Amd. 1 & 2 is related to
	A	General Guidelines on Control Cables for Automobiles
	B	Safety and Procedural requirements for Type Approval of LPG Operated Vehicles
	C	Battery Operated Vehicles – Measurement of Electrical Energy Consumption
	D	Automotive Vehicles – Testing Procedure for Windscreen Wiping System
60	Q	AIS-012 is related to
	A	Performance Requirements of Lighting and Light-Signalling Devices for Motor vehicle having more than Three-Wheels
	B	Safety and Procedural requirements for Type Approval of LPG Operated Vehicles
	C	General Guidelines on Control Cables for Automobiles
	D	Marine Engineering And Safety Aids
61	Q	AIS-013 and Amd. No. 1 is related to
	A	General Guidelines on Control Cables for Automobiles
	B	Safety and Procedural requirements for Type Approval of LPG Operated Vehicles
	C	Automotive Vehicles - Spray Suppression Systems
	D	Battery Operated Vehicles – Measurement of Electrical Energy Consumption

62	Q	AIS-016 / 2000 is related to
	A	Automotive Vehicles - Speed limitation Devices – Specifications
	B	Automotive Vehicles - Seats, their Anchorages and Head Restraints for Category M1 - Specifications
	C	Automotive Vehicles - Spray Suppression Systems
	D	General Guidelines on Control Cables for Automobiles
63	Q	AIS-022 Amendments 1 to 5 is related to
	A	General Guidelines on Control Cables for Automobiles
	B	Automotive Vehicles – Advance – Warning Triangles – Specifications
	C	Automotive Vehicles - Speed limitation Devices – Specifications
	D	Performance Requirements of Lighting and Light-Signalling Devices for Motor vehicle having more than Three-Wheels
64	Q	AIS-020 is related to
	A	Automotive vehicles – Interior Noise – Method of Measurement and Requirements
	B	Automotive Vehicles – Advance – Warning Triangles – Specifications
	C	Performance Requirements of Lighting and Light-Signalling Devices for Motor vehicle having more than Three-Wheels
	D	Automotive Vehicles - Spray Suppression Systems
65	Q	AIS-025 (Version 3) and Amd. 1 to 7 is related to
	A	Automotive Vehicles - Safety Belt Assemblies - Specifications
	B	Safety and Procedural requirements for Type Approval of LPG Operated Vehicles
	C	Automotive Vehicles – Testing Procedure for Windscreen Wiping System
	D	Battery Operated Vehicles – Measurement of Electrical Energy Consumption