Exam Seat No:_____ C. U. SHAH UNIVERSITY Winter Examination-2019

Subject Name: Automobile Engineering

Subject	t Cod	e: 4TE06AEN1	Branch: B.Tech (Mechani	ical)
Semeste	er: 6	Date: 20/09/2019	Time: 10:30 To 01:30	Marks: 70
Instruct (1) (2) (3) (4)	ions: Use o Instru Draw Assu	of Programmable calculator & an actions written on main answer b neat diagrams and figures (if ne me suitable data if needed.	y other electronic instrument is pook are strictly to be obeyed. ecessary) at right places.	prohibited.
Q-1	a)	Attempt the following questio The purpose of valve clearance (A) Allow the valve to expan (B)Allow the sliding of valve (C)Ensure that the valve closs (D)Ensure that the crankshaft	ns is to d in the guide es fully t is free to rotate	(14)
	b)	 (D)Ensure that the estimation On modern four stroke engines (A)Before TDC (B)After TDC (C)Before BDC (D)After BDC 	the exhaust valve opens just	
	c)	Two general types of tyres are (A) Tube type and tubeless (B) Solid and tubeless (C) Air and pneumatic (D) Split rim and drop centre		
	d)	The motion of the cam is transfe (A) Pistons (B) Rocker arms (C) Camshaft pulley (D) Valve stems	erred to the valves through	
	e)	If the air-fuel mixture in a spark ratio is about (A) 17:1 (B) 15:1 (C) 13:1 (D) 10:1	t ignition engine is too rich, then	air-fuel
	f)	In a single dry plate clutch, tors (A) Coil springs known as to	ional vibrations are absorbed by rsional springs	

- (B) Cushion springs
- (C) Central hub



(D) Clutch pedal

- g) The calorific value of Diesel is about
 - (A) 36.5 MJ/kg
 - (B) 38.5 MJ/kg
 - (C) 42.5 MJ/kg
 - (D) 45.5 MJ/kg
- **h**) The correct flow of power through the drive train is

(A) Engine drive shafts, clutch, main shaft, counter shaft, final driven gear, wheels

(B) Engine clutch, main shaft, counter shaft, final driven gear, drive shafts, wheels

(C) Engine clutch, counter shaft, main shaft, final driven gear, drive shafts, wheels

(D) Engine main shaft, counter shaft, clutch, final driven gear, drive shafts, wheels

- i) The air gap between the central electrode and ground (or side) electrode of a spark plug is around
 - (A) 0.2 mm
 - (B) 0.5 mm
 - (C) 1 mm
 - (D) 1.5 mm
- **j**) The tilting of the front wheels away from the vertical, when viewed from the front of the car, is called
 - (A) Camber
 - (B) Caster
 - (C) Toe in
 - (D) Toe out
- **k**) For the same maximum pressure and temperature
 - (A) Diesel cycle is more efficient than Otto cycle
 - (B) Otto cycle is more efficient than Diesel cycle
 - (C) Both Otto cycle and Diesel cycle are equally efficient
 - (D) None of the above
- 1) In Diesel engines, the duration between the time of injection and the time of ignition is called
 - (Å) Spill cut-off
 - (B) Delay period
 - (C) Injection period
 - (D) Ignition period
- m) The most commonly used supplementary restraint system (SRS)
 - component is
 - (A) Seat belt
 - (B) Brake
 - (C) Airbag
 - (D) Steering
- **n**) A worm gear is used as the pinion for the rack and pinion type of steering gearbox, because it

(A) Improves steering comfort when steering wheel is turned to effect small changes in the direction of forward motion

(B) Allows the steering wheel to be turned by a greater amount when



Atter	npt any	 steering (C) Makes the steering more responsive (D) Reduces the amount of kickback for large steering angles four questions from Q-2 to Q-8 	
0-2		Attempt all questions	(14)
x -	(A) (B)	Define "Automobile". Give classification of automobiles Explain the working of single plate clutch with suitable diagram.	7 7 7
Q-3		Attempt all questions	(14)
-	(A)	Explain construction and working of a telescopic type of shock absorber with the neat sketch.	7
	(B)	Explain Constructional features of an automobile tyre.	7
Q-4		Attempt all questions	(14)
	(A)	Explain different types of rear axle supporting shafts with suitable sketches.	7
	(B)	Give the classification of automobile gearbox and explain any one with neat sketch.	7
Q-5		Attempt all questions	(14)
-	(A) (B)	Write a short note on power steering. Explain construction and working of automobile differential with neat sketch.	7 7
Q-6		Attempt all questions	(14)
-	(A) (B)	Describe the working of hydraulic braking system with neat sketch. Describe with neat sketch, Camber, Caster, Toe-in and Toe-out with respect to steering geometry.	7 7
Q-7		Attempt all questions	(14)
	(A)	With neat sketch, explain constructional features of tubed and tubeless tyres. Discuss their relative merits and demerits.	7
	(B)	Discuss functions of propeller shaft with neat sketch.	7
Q-8		Attempt all questions	(14)
	(A) (B)	Explain different types of battery used in Automobile industry. Explain with neat sketch Front Engine Rear Drive & Front Engine Front Drive Vehicles.	7 7

