KADI SARVA VISHWAVIDHYALAYA

B. E MECHANICAL ENGINEERING SEMESTER-VII

SUBJECT CODE: ME701 SUBJECT NAME: AUTO. ENGINEERING

DATE: 8th November 2016 TIME: 10:30 to 1:30 TOTAL MARKS: 70

INSTRUCTIONS:

- Answer each section in separate answer sheet.
- Use of scientific calculator is permitted.
- All questions are compulsory.
- Indicate clearly, the options you attempt along with its respective question number.
- Use the last page of main supplementary of rough work.

SECTION-I

Q-1 **ALL COMPULSORY**

(A)	What is fluid flywheel and how it works? Explain construction & working of it.	05
(B)	Write-down pre requirement of automobile body?	05
(C)	Write note on constant mash gear box.	05
	OR	
(C)	Write advantage & disadvantage CVT?	05

Q-2 **ANSWER THE FOLLOWING QUESTIONS**

(A)	Explain the various loads acting on rear axle.	05
(B)	Write short note on whirling of shaft.	05
	OR	
(A)	Write short note on diesel odour.	05
(B)	How automobile garage classified? Explain.	05

Q-3 **ANSWER THE FOLLOWING QUESTIONS**

(A)	Explain in detail weight transfer.	05
(B)	Explain tyre retreding.	05
	OR	
(A)	A maruti zen car moving at 80kmph takes 32m to stop when the brakes are applied on it under standard test conditions. How much is it braking efficiency? Also determine the retardation produced during braking.	05
(B)	Explain with neat sketch Light alloy cast wheel.	05

SECTION-II

Q-4 **ALL COMPULSORY**

(A)	Explain wishbone type suspension system.	05

(B)	Explain short note on power steering system.	05
(C)	Define following terms: (1)camber (2)king pin inclination (3)castor (4)toe-in & toe-out	05
	OR	
(C)	Explain the live& dead front axle.	05
Q-5	**ANSWER THE FOLLOWING QUESTIONS**	
(A)	What is battery rating? Discuss various battery ratings.	05
(B)	Write short note on automobile lighting system	05
	OR	
(A)	Explain briefly salient features of Motor Vehicle Act,1988.	05
(B)	Explain with neat sketch overdrive.	05
Q-6	**ANSWER THE FOLLOWING QUESTIONS**	
(A)	What is tractive effort and grad ability of a car? Also explain drawbar pull.	05
(B)	Enlist the different types of mufflers used. Explain any one with neat sketch.	05
	OR	
	A truck is of gross vehicle weight 58860N and is powered by an engine which develops BP60.311 KW at 2000 rpm. The rolling resistance is given by 0.02 W, where W represents gross vehicle weight in N. the frontal area of the vehicle is 7.5 m^2 and the coefficient of air resistance K=0.05, when the resistance is expressed in N and vehicle speed in KM/h. effective wheel diameter = 0.35m, second gear ratio =2.5:1 and transmission efficiency in second gear 80%. If the truck is operating at 20KM/h in second gear and the corresponding engine speed is 2000rpm, calculate 1. Suitable rear axle ratio 2. The tractive effort available at wheels. 3. Grade ability of truck. Inertia of revolving component may be neglected.	10

KADI SARVA VISHWAVIDHYALAYA
B.E MECHANICAL Semester–VII

Subject: Automobile Engineering
Subject Code: (ME701)

Date: 12 /12/2015
Time: 10:30a.m. – 1:30 p.m.
Total Marks: 70

Instructions:
1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

SECTION-I

Que:1(A) Explain Rolling resistance, Gradient resistance and Wind resistance. [5]

(B) Draw the layout plan of an automobile chassis with name of various components. [5]

(C) Explain advantages and disadvantages of a passenger car with the engine mounted at the front and rear engine mounting with neat sketch. [5]

OR

(C) What is Hydroelastic Suspension system? Explain It with neat diagram. [5]

Que:2(A) Explain types of stub axle with neat sketch. [5]

(B) Explain with neat sketch Mac pherson strut type of suspension system and its advantage and disadvantages. [5]

OR

(A) Explain semi floating rear axle with neat sketch. [5]

(B) Write a short note on power steering system. [5]

Que:3(A) What is the principle of braking? Also explain braking distance, braking efficiency and weight transfer. [5]

(B) Write a short note on Tandem master cylinder. [5]

OR

(A) Explain with the help of suitable sketch the construction of the Disc Wheel. [5]

(B) A sliding type gear box gives 4-forward and 1-reverse speeds. The counter or layout speed is half that of the engine speed and assume the smallest gear is not to have less than 15 teeth. Calculate the number of teeth and corresponding exact speed ratio for the following cases: [5]

Gear ratio on top gear = 1:1
Gear ratio on third gear = 1.4:1
Gear ratio on second gear = 2.28:1
Gear ratio on first gear = 3.8:1
Gear ratio on reverse gear = 3.8:1

SECTION-II

Que:4 (A) Classify the gear box. Explain the need of gear box in automobile. [5]

(B) Explain in brief the factors affecting the tyre life. [5]

(C) Write notes on (i) Torsion Bar (ii) Helper spring [5]

OR

(C) Classify the various types of clutches used in automobiles. Also explain the requirements for good clutch.

Que:5 (A) Explain the following : [5]

1. Camber 2. Caster 3. Toe-in & Toe-out.

Also State their effect on steering geometry with neat sketch.

(B) Explain with the help of neat sketch the construction of Propeller shaft. [5]

OR

(A) Explain construction and working of Lead Acid battery. Also indicate chemical reaction taking place during charging the battery. [5]

(B) What is engine overhauling? Explain engine overhauling. [5]

Que:6 (A) Write a short note on Standards for emission of pollutants from motor vehicles and Euro norms. [5]

(B) Describe in details the constructional feature of tubeless tyres for automotive use and its advantage and disadvantages. [5]

OR

(A) Write a short note on different types of silencer. [5]

(B) Give Construction and operational features of four wheelers available in Indian market. [5]

Best of luck