

**KADI SARVA VISHWAVIDHYALAYA**

**B. E AUTOMOBILE ENGINEERING SEMESTER-V**

Subject Code: Ae504

Subject Name: Automobile. System

DATE: 17<sup>th</sup> November 2016

TIME: 3 Hrs.

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) Write note on four wheel drive. 05
- (B) Draw the layout of front engine rear wheel drive. Also write the advantages and disadvantages of front engine rear wheel drive. 05
- (C) Write the functions of following system: 05
1. Wheel and tyre system
  2. Suspension system
  3. Clutch system
  4. Gear box system

**OR**

- (C) Explain Lay out considerations 05

**Q-2 ANSWER THE FOLLOWING QUESTIONS**

- (A) Explain the working of a semi-centrifugal clutch. 05
- (B) Explain steering layout with neat sketch. 05

**OR**

- (A) Explain with neat sketch electromagnetic clutch. 05
- (B) Explain camber caster toe-in and toe-out with respect to steering geometry. 05

**Q-3 ANSWER THE FOLLOWING QUESTIONS**

- (A) Enlist Basic devices used in automatic transmission system. Also write their functions. Functions. 05
- (B) What is the transfer case? Where it is used? Explain construction and working of any transfer case. 05



- OR**
- (A) Explain front wheel stub axle assembly with neat sketch. 05  
 (B) Write down advantages and disadvantages of CVT. 05

## SECTION-II

### Q-4 ALL COMPULSORY

- (A) Write short note on torque tube drive. 05  
 (B) Enlist the different forces acting on the rear axle. Explain in details. 05  
 (C) Explain with neat sketch the construction and working of propeller shaft. 05

**OR**

- (C) Explain with neat sketch the construction and working of differential. 05

### Q-5 ANSWER THE FOLLOWING QUESTIONS

- (A) Write down Comparison between hydraulic brake and air brake. 05  
 (B) Explain with neat sketch vacuum brake. 05

**OR**

- (A) What are the under inflation and over inflation. 05  
 (B) Write short on factors affecting tyre wear. 05

### Q-6 ANSWER THE FOLLOWING QUESTIONS

- (A) What is hydro elastic suspension? Explain it with neat diagram 05  
 (B) Explain gas filled shock absorber stating its advantages. 05

**OR**

- (A) Explain leaf spring with neat sketch. 05  
 (B) Explain wheel specifications. 05



# KADI SARVA VISHWAVIDYALAYA

## B.E SEMESTER V EXAMINATION (NOVEMBER-2015)

SUBJECT CODE: AE-504

SUBJECT NAME: AUTOMOBILE SYSTEM

DATE: 26<sup>th</sup> NOVEMBER, 2015 TIME: 10:30 AM TO 1:30 PM

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 attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

### Section - 1

- Q:1** (A) Explain with neat sketch vehicle layout for automobile of front engine front wheel drive 5
- (B) Write a short note on Power steering 5
- (C) Give detail comparison of Hotchkiss and Torque tube drive 5

OR

- (C) Write a short note on telescopic shock absorber 5
- Q:2** (A) Explain the construction and working of Drum brakes with neat sketch. 5
- (B) Distinguish between semi floating and full floating rear axles with the aid of suitable sketches. 5

OR

- (A) What is the effect under following incorrect alignment? 5
1. Incorrect toe setting
  2. Too much positive caster
  3. Incorrect camber setting
- (B) Write a short note on electrical brake 5
- Q:3** (A) What is an independent suspension? Explain the Mac Pherson strut type of independent suspension in detail. 5
- (B) What is the function of a clutch? Discuss the various factors affecting on the requirement of good clutch. 5

OR

- (A) Describe functions of a clutch in automobile. Explain lining materials used in a clutch. 5

- (B) Explain with a neat sketch torque convertor.

5

## Section - 2

- Q:4 (A) Describe with a neat sketch the working of synchromesh gear box. 5  
(B) Explain with a neat sketch the tyre section and specifications of tyres. 5  
(C) Distinguish between vacuum brake and power brake. 5

OR

- (C) Explain working and construction of master cylinder of hydraulic braking system with diagram. 5  
Q:5 (A) Name the different types of suspension spring. Explain Leaf spring. 5  
(B) Compare between tubeless and conventional tube tyres. 5

OR

- (A) Explain working of a multi plate clutch with neat diagram 5  
(B) Explain different types of gears used for final drive with suitable diagram. 5  
Q:6 (A) Write a short note on vacuum assisted brakes. 5  
(B) Describe air suspension system with neat sketch. 5

OR

- (A) Explain following term 5  
1. Steering wheel shimmy.  
2. Under steer and over steer conditions.  
(B) Explain tyre manufacturing process with flow chart. 5

All the Best