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E-240

B. E. VIth Semester (Main & Re-Exam) Examination - May, 2016

AUTOMOBILE ENGG.

Branch : Mech. Engg.

Time : Three Hours] *Maximum Marks : 75*

[Minimum Marks : 30

Note : Attempt *all* the questions of Section A, *four* from Section B and *three* questions from Section C.

SECTION – A

(Objective Type Questions) 1.5 × 10 = 15

Note : This Section will contain *ten* objective type questions. They may be fill in the blanks, True/False or Multi Choice Type.

1. The following materials are almost universally used for clutch lining :

   (a) Leather

   (b) Cork

   (c) Fabric

   (d) Asbestors

   (e) Reybestos and terodo

2. The coefficient of friction for the clutch facing is approximately :

   (a) 0.1 (b) 0.4 (c) 0.8 (d) 1.2

3. The purpose of transmission in an automobile is :

   (a) To vary the speed of automobile

   (b) To vary the torque at the road wheels

   (c) To vary the power of automobile

   (d) None of the above

P. T. O.

4. When the rear wheels are jacked up and gears are in neutral turning one gear wheel in a rear drive vehicle will cause the other wheel to ?

(a) turn backward (b) turn forward

(c) turn in other direction (d) remain stationary

5. The steering ratio for manual steering of cars is approximately :

(a) 5 (b) 15 (c) 50 (d) 100

6. One purpose of a recirculating ball type steering gear is to reduce the :

(a) operating friction (b) operating cost

(c) toe-out during turns (d) number of parts

7. Electric brakes are commonly used on :

(a) two wheelers (b) cars

(c) trucks (d) trailers

8. The brakes employed in cars are usually operated :

(a) mechanically (b) hydraulically

(c) by means of engine vacuum (d) by compressed air

9. The stalling torque of starting motor for cars vary between :

(a) 10 to 30 Nm (b) 30 to 60 Nm

(c) 60 to 100 Nm (d) 100 to 200 Nm

10. Overcharging a battery :

(a) will bring about chemical change an active member

(b) will increase the capacity of the battery

(c) will raise the specific gravity of the electrolyte

(d) None of the above will occur

SECTION – B

$6 \times 4 = 24$

(Short Answer Type Questions)

Note : This Section will contain *six* questions. Students will ask to attempt any *four* questions out of *six* questions.

1. Define the Fuel System. Explain with fig.
2. Define Ignition System. Explain one type of Ignition system with fig.
3. Explain in spark plugs with fig.
4. What are the method of water cooling ?
5. What are the various type of radiator ? Explain any *one* in detail.
6. What is the effect of high and low tyre pressure on tyre wear pattern and tyre life ?

SECTION – C

$12 \times 3 = 36$

(Long Answer Type Questions)

Note : This Section will contain *five* questions. Students will ask to attempt any *three* questions out of *five* questions.

1. (a) Describe the construction of a conventional tyre. How is the tyre size designated ?
   (b) Discuss the part of Automobile Engg.
2. (a) What is the function of gear box in an automobile ? Explain the working of a sliding mesh gear box.
   (b) What is the double declutching ? In which type of gear box it done ? What is it done ?
3. (a) Explain the construction and functions of propeller shaft, universal joint and slip joint. In what types of vehicles propeller shaft can be dispensed with Fig.
   (b) Describe various types of frames used in automobiles giving examples of each.
4. (a) Different type of frame. Explain X-member type frame with fig.
   (b) Explain briefly about the defects in chasses frames.
   (c) Name the materials used for frame.

5. (a) Draw a simplified wiring circuit for the lighting system of a car and discuss the same.

   (b) Explain the Axles with fig.

   (c) Explain the Shock absorbers with fig.

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E-451

B.E.VI Semester(Main & Re-Exam) Examination, May-2017
Automobile Engineering
Mech. Engg.

Time : Three Hours] *[Maximum Marks : 75*
[Minimum Marks : 30

Note : Attempt **all** the questions of section A, **four** from section B and **three** questions from section C.

Section-A
(Objective Type Question)

Note : This Section will contain **ten** objective type questions. They may be fill in the blanks. Ture/False or multiple choice type. 1.5×10=15

1. Which automobile car engine has three cylinder.
   (i) Standard (ii) Ambassador
   (iii) Maruti 800 (iv) Premier Padmine
2. Where is the Hook's joint used in an automobile car.
   (i) Between gearbox and propeller shaft
   (ii) Between flywheel and clutch
   (iii) Between differential gear and wheels
   (iv) Between clutch and gearbox.
3. ---------- is the part of vehicle which holds the passanger's and cango to be transported.
   (i) Hull (ii) Cabin
   (iii) Chasis (iv) Left
4. ---------- is generally provided with four wheel drive.
   (i) Metador (ii) Padmini Car
   (iii) Ambassador Car (iv) Jeep
5. What is the efficiency of hydraulic breaking system
   (i) 20 to 30 % (ii) 40 to 50 %
   (iii) 65 to 75 % (iv) About 90 %
6. ---------- Tractor has an air cooled engine.
   (i) HMT (ii) Eicher
   (iii) Hindustan (iv) Ford
7. A temperature indicator provided for automobiles indicator temp.
   (i) Engine Pistan (ii) Engine Cylinder Walls
   (iii) Air Surrounding radeator (iv) Jacket Cooling System

P.T.O.

8. The brake bleeding system serves to free the system from
   (i) Excess pressure (ii) Excess fluid
   (iii) Air (iv) None of all above
9. Only rocket engine can be propelled to 'SPACE' because
   (i) They can generate very high thrust
   (ii) They have high propulsion efficency
   (iii) These engine can work on several fuels
   (iv) They are not air-breathing engine
10. Which could be the probable cause for hard steening in a vehicle.
   (i) Excessive caster
   (ii) Bent wheel spindle
   (iii) Law type pressure
   (vi) Tie rod curls tight
   (v) Any of the above

Section-B
(Short Answer Type)

Note : This section will contain **six** questions. Students will ask to attempt any four questions out of **six** questions. 6×4=24

1. Explain briefly about the defects in chassis frames.
2. What is a "Suspension system"?
3. Describe briefly the following types of the frames.
   (i) Conventional frame
   (ii) Semi-Integral frame
   (iii) Integral or Unit frame
4. What are the method of water cooling.
5. What are the various types of radiator.
6. Discuss the Part of automobile Engg.

Section-C
(Long Answer Type)

Note : This section will contain **five** questions. Students will ask to attempt any **three** questions out of **five** questions. 12×3=36

1. (a) Explain in brief general arrangement of a steering system with fig.
   (b) Discuss the steering gears.
2. Discuss the classification of brakes for vehicles. Describe shoe and drum type mechanical brakes with help of simple sketches.
3. Discuss the common troubles occuring in the starting system of an automobile engine. Suggest also suitable remedies.
4. The various components of a battery Ignition system and explain any three of them briefly advantage and disadvantage of a battery Ignition system.
5. Why is a gearbox necessary in a motor car? Draw neat sketch of a gearbox that is normally used in a heavy duty commercial vehicle (bus or truck) and explain it?

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E-729

B. E. VI Semester (Main & Re-Exam) Examination, May – 2018

AUTOMOBILE ENGINEERING

Branch : ME

Time : Three Hours] *[Maximum Marks : 75*

[Minimum Marks : 30

Note : Attempt ***all*** questions of Section-A, ***four*** questions from Section-B and ***three*** questions from Section-C.

SECTION – A

1. The cooling system of automobile engine is most simple when the engine in placed at the :

(a) Front (b) Centre

(c) Rear on the left (d) Rear on the right

2. The coefficient of friction for the clutch facing is approximately :

(a) 0.1 (b) 0.4

(c) 0.8 (d) 1.2

3. In a simply planetary gear set, the output member to increase torque is always the :

(a) Sun gear (b) Ring gear

(c) Planet carrier (d) None of the above

P. T. O.

4. The type of rear axle used in trucks is :

(a) Semi-Floating (b) Fully-Floating

(c) Three-guarter Floating (d) Fully Floating

5. The coil spring in wishbone suspension is placed between the :

(a) two wishbones

(b) upper wishbones and the cross-member

(c) lower wishbones and cross-member

(d) shock absorber and the cross-member

6. The type of steering gear used in a Manule 800 car is :

(a) Rack and Pinion (b) Worm and roller

(c) Shock absorber and cross-member (d) Worm and wheel

7. The function of an alternator in an automobile is to :

(a) Supply Electrical Power

(b) Convert Mech Energy into Electrical Energy

(c) Continually recharge the battery

(d) Partly convert engine power into

8. The ignition coil is used to :

(a) step up current

(b) step down current

(c) step up voltage

(d) step

9. How many cells are used in a 12 volt car battery :

(a) 2 (b) 4

(c) 6 (d) 8

10. The tilting of the front wheels always from the vertical when viewed from the front of the car is called :

(a) Camber (b) Caster

(c) Toe-in (d) Toe-out

SECTION – B

1. What are the different type of Frames ?

2. Give a classification of brakes.

3. What in the function of final drive ?

4. Define :

(i) Camber

(ii) Caster

(iii) Toe-in

(iv) Toe-out

5. What are the advantage of an overdrive transmission ?

6. Name the different type of steering gear box.

SECTION – C

1. What do you understand by suspension system ? Explain the same with its types with neat sketch.

2. Write down the classification of tyres. What are the advantages of tubeless tyres ?

3. Draw the wiring circuit of a modern car lighting system and discuss the same.

4. What are the different type of wheels ? Describe their construction, advantage and disadvantage.

5. Explain the working principle of a starter motor with fig.

Total Printed Pages : 3

Roll No. .....

E-952

B. E. VIth Semester (Main & Re-Exam) Examination, May – 2019

AUTOMOBILE ENGINEERING

Branch : ME

Time : Three Hours] *[Maximum Marks : 75*

[Minimum Marks : 30

Note : Attempt *all* questions in **Section – A**, *four* questions from **Section – B** and *three* questions from **Section – C**.

SECTION – A [Marks : 1.5 × 10 = 15

1. The unit as broke power is :
   (a) Kilo Newton (b) Kilo Watt
   (c) Kilo Pascal (d) Kilo Newton Metre

2. Which is the common component between a petrol and a diesel engine ?
   (a) Crank Shaft (b) Dynamo
   (c) Exhaust silencer (d) Spray nozzle

3. Diesel engine usually work on :
   (a) Otto cycle (b) Duel cycle
   (c) Diesel cycle (d) Stirling cycle

4. The clutch is located between the transmission and the :
   (a) Engine (b) Rear axle
   (c) Propeller shaft (d) Differential

5. The smallest gears inside the differential casing are :
   (a) Pinion gears (b) Sun gears
   (c) Side gears (d) Ring gears

P. T. O.

6. In circulating ball type steering gears, the balls travel between the ball and :

(a) Gear rack (b) Warm wheel

(c) Steering wheel shaft (d) Warm shaft

7. Brake fade is :

(a) Loss of pedal (b) Loss of friction

(c) Loss of hydraulic fluid (d) None of these

8. Spring eyes in case of care are usually lined to the :

(a) Bronze bushes (b) Rubber bushes

(c) Steel bushes (d) Metal bushes

9. The contact breaker gap should be set :

(a) Before adjusting dwell angle (b) After adjusting dwell angle

(c) First after starting the engine (d) After setting spark plug gap

10. The colour of negative plate of a lead acid battery is :

(a) Brown (b) Grey

(c) White (d) Black

SECTION – B

[Marks : 4 × 6 = 24

1. What do you understand by automobile engineering ? Give a brief history of automobile stressing the milestones in its development.

2. Compare the two stroke and four stroke engines and give the reasons of their application to different automobiles. Give *two* example of each.

3. What is the function of clutch in an automobile ? Illustrate the construction and working of a single plate dry disc clutch.

4. What is the function of a gear box ? Give a brief discussion of various gear basis used in automobiles.

5. Distinguish between "Semi-floating" and "fully-floating" rear axles with the aid of suitable sketches and explain their relative merits and demerits.

6. Discuss the importance of tyre inflation. What are the effects of under-inflation and over-inflation on the life of a tyre ?

SECTION – C

[Marks : 3 × 12 = 36

1. (a) What is steering ? Which are the different type of steering systems employed ? Explain with a neat sketch the Ackerman's steering system.

   (b) Describe the various components of a steering gear with neat sketch.

2. (a) What are the essential difference between mechanical brakes and hydraulic braking system ?

   (b) Write notes on :

   (i) Leaf springs

   (ii) Coil springs

   (iii) Torsion for bar

   (iv) Tapered leaf springs

3. (a) Enlist various spark plug defects. Explain their probable causes and suitable remedies in each case.

   (b) Explain following terms :

   (i) Battery voltage

   (ii) Battery capacity

   (iii) Battery efficiency

   (iv) Battery rating

4. (a) Give the circuit diagram for the changing of a battery with the help of a generator and briefly indicate the function of each component.

   (b) Draw a simplified wiring circuit for the lighting system of a car and discuss the same.