

1st Year Exam of English Name:

First Semester 2017/2018 Group:

Date: -01-2018 Duration: 1h 30

**Section One: Reading Comprehension:**

How Do Hybrid Car Engines Work?

The hybrid design combines a high-efficiency gas motor with an electric motor on the same drivetrain. Independently, electric drive and gasoline drive vehicles have a range of advantages and disadvantages. By combining both of these in one package, a hybrid vehicle is able to garner the benefits of each option. The gasoline motor is just as functional as in a normal vehicle and runs like the engine in any comparable conventional car. Hybrid cars are often able to use motors with a smaller displacement than a conventional car, because of the addition of the electric drive system. The electric motor can function as a “helper” to the gas motor; when the vehicle needs extra power the electric motor activates and helps drive the car.

The Electric Drive System

A gasoline car actually wastes a good deal of energy when operating under normal conditions. What the hybrid system does is harvest the power that is usually lost and store it in the form of electricity. The batteries in a hybrid act like an extra gas tank that is able to fill and refill itself while the car is operating. Every car generates electricity to work, but most of that energy is wasted. The hybrid car stores that energy to be used later. The hybrid’s electric motor not only assists the gas motor with acceleration and power, but it is able to function independently as well. That means that when the vehicle is operating under conditions where the electric motor can drive the vehicle on its own, the gas engine shuts down and the car relies solely on electric power. Every second that the car’s gas motor doesn’t have to run is a second that the car doesn’t have to use gasoline.

Unique Advantages

There are quite a few benefits to using a hybrid drive system. A hybrid car is able to use electric power to operate which is much more efficient. However, it can also use gas power when necessary. One of the biggest downsides of an all-electric vehicle has to do with range; since the batteries act as the car’s “gas tank” once the power in the batteries has discharged, the car can’t be driven until they have been refilled. The recharging process can take hours, and that’s inconvenient for long trips. The hybrid can operate on gas alone, which means the car has two “gas tanks,” the batteries that power the electric drive system, and the conventional gas that fuels the gasoline engine. Hybrids are also able to save power other ways by using systems like regenerative braking. This is one of the reasons that hybrids are able to achieve such excellent gas mileage in city driving conditions. Regenerative braking systems harvest the energy that it takes to stop the car once it is moving. In a normal car all this energy is wasted as heat, but in a hybrid it is stored in the battery as power for the electric drive system.

adapted from HowStuffWorks.com

**Activity One**: Read the text then decide whether the statements are true or false.

Rewrite the false statements if necessary. **(2 points)**

All kinds of cars produce electricity to work. ( )

………………………………………………………………………..……………………………………………………………………………………………….

Under normal conditions, a gasoline car loses a lot of energy when the engine is running. ( )

……………………………………………………………………………………………………………………………………………………………………………………………………

In normal cars, heat is stored. ( )

………………………………………………………………..……………………………………………………………………………………………………………………………………..

**Activity Two**: Read the text and answer the following questions **(3 points)**

1. What are the advantages of hybrid cars? .............................................................. ………………………………………………………...................................................................

………………………………………………………………………………………………...…

2. What are the disadvantages of hybrid cars? ........................................................................................................ …………………………….

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3. The hybrid’s electric motor can act as an “assistant” and can function separately. Explain.

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**Activity Three**: **(2 points)**

1- Find in the text words that are closest in meaning to the following ones:

a- gather (§ 1) = ………………… … b- much (§ 2) = ……………………..

c- additional (§ 2) = ………………………… d- disadvantages (§ 3) ………………....

**Section Two: Language study**

**Activity One:** Put the verbs in the correct tense (present simple or present progressive)**(5 points)**

1. Ms Davis - ……………………… (teach) Maths.
2. Classes -……………………….. (start) at nine o'clock.
3. Alec - …………………….. (take) an HND course.
4. He - ……………………… (study) at Telford College this year
5. On Tuesdays, he ………………………………. (study) in the library.
6. He ………………………………. (want)to be a CÍvil EngÍneer.
7. He …………………………….. (work) on a project about a new bridge.
8. A lot of local people …………………………….. (not / Iike) the proposal.
9. They…………………. (think) it will increase the amount of traffic near their homes.

 10. The old bridge …………………………. (carry) ten times the traffic it was designed to carry.

**Activity Two:** Insert the required word or expression*: MAKE IT POSSIBLE • SO THAT • PURPOSE • AIMS • DESIGNED • IN ORDER TO.* **(3 points)**

1. It is a new generation of artificial organs specifically …………………..to be implanted in patients with diabetes.

2. The software will ………………………….to detect the virus before any harm is done.

3. Cadmium can be used …………………………….lower the melting point of alloys.

4. The sensors are orientated ……………………………cosmic y-rays will be detected.

5. It should be pointed out that quantum mechanics was originally introduced for the ………............................. of explaining chemical facts.

6. Biochemistry, like other sciences, …………………... at quantifying or measuring results.

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 **Writing:** **(5 points)**

Write a twelve-line paragraph in which you describe a device, what it is used for, and how it functions.