**QUESTIONS EXAM – DRIVINGYOURDREAM**

**17.12.2021**

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|  |  | **Full name** |  |
|  |  | **Mail** |  |
|  |  | **Identity card** |  |
|  |  | **Date** |  |

You can choose to delete the wrong answer, leaving the correct one visible. Or you can bold the correct answer. The DNI / Identity card are only necessary if you wish to include it in the diploma.

1. Considering front engine cars. The car is much more protected in a side impact than in a frontal one. That is why the regulations require only frontal crash tests, and not lateral ones.
   * True
   * False
2. Vehicles are dynamically tested in all types of temperature and humidity conditions, except rain, due to the danger of fire due to the amount of measuring equipment connected to the vehicle.
   * True
   * False
3. The larger the robot arm, the faster it can perform precision movements. This is why robot arms of more than two meters high are used in manufacturing.
   * True
   * False
4. Vehicles oriented to car-sharing have less individual designs.
   * True
   * False
5. We could say that benchmarking consists of technically comparing your product with that of the competition
   * True
   * False
6. To quickly interpret how safe a car is in a frontal crash test, we don't look at what happens before reaching the A-pillar. We will only look at what happens from the A-pillar towards the rear of the car. That is, if the front is smashed, it will not be relevant for us as long as the A pillar (windscreen pillars) towards the passenger compartment remains intact.
   * True
   * False
7. It's impossible to simulate a car impact by computer, not even to make a prediction. That is why manufacturers have to carry out many expensive crash tests with real vehicles.
   * True
   * False
8. To speed up the production process of a vehicle, no quality control is performed until the vehicle is completely finished. The benefit of repairing a car in the final production line is greater than losing valuable time between stages of the process.
   * True
   * False
9. Due to digitization and the rise of connectivity, today's cars have much less wiring than cars made before the 1940s. Where everything was analog. In this way, connectivity is allowing significant weight savings in car wiring.
   * True
   * False
10. When designing a new vehicle, the environment around the car is currently being studied instead of focusing solely on the vehicle (such as consumption habits)
    * True
    * False
11. A bad design of the mirrors of a car has a negative effect on the Drag coefficient and, therefore, can increase the aerodynamic resistance of the car.
    * True
    * False
12. Ultra High Strength Steels (UHSLA) are mainly placed in the front and rear bumper area. Conventional steels (lower resistance) are used in areas close to the passenger compartment, thus achieving greater lightness in the vehicle.
    * True
    * False
13. The use of perforations in the self-supporting chassis, in addition to lightening weight, interests us despite the fact that this weakens the structure. This is because its strategic placement causes the car to deform in a controlled manner on impact.
    * True
    * False
14. As a general rule, manufacturing costs are around 50% of the final price of the car, without considering taxes.
    * True
    * False
15. Engine tests are limited to vibration, maximum load, fuel consumption and emissions tests. Current regulations don't allow manufacturers to carry out different tests on their engines, leaving really limited options to check the actual performance of the engine. In this way the parameters in the different car brands are unified.
    * True
    * False
16. Despite the fact that the majority of concept cars displayed at motor shows present futuristic solutions, the design and development time required for a concept car is shorter than that of a conventional passenger car.
    * True
    * False
17. There is a relationship in the consumer's mind between the size of the car's hood and the power that the consumer thinks the car has.
    * True
    * False
18. Different CAD programs and modules are used in the conceptual design of a car (surface design) than in the technical development of a car, in which the behavior of the different components is simulated.
    * True
    * False
19. The design language is established for each brand model. It's important to establish a design language that is as different as possible for each of the brand's models in order to reach a wider audience.
    * True
    * False
20. Manufacturers tend to add as much weight as possible outside the wheelbase (on the overhangs) to disperse the weight as much as possible. In this way, they significantly improve the stability of the vehicle, acting like snowshoes by expanding the area of action.
    * True
    * False
21. The fact that designers try to avoid 100% straight lines is not solely due to aesthetics. It's directly related to the production of the model since in the steel stamping process it's important to give it a certain bending to increase its resistance.
    * True
    * False
22. Streamlining, a movement that widely used chrome plating and aerodynamic shapes, was widely criticized because it was totally incompatible with the production processes of the time. That is why almost all models will remain in mere concepts.
    * True
    * False
23. It's important that conceptual designers don't have any information about the cost and production limitations of the model, in order not to limit their creativity.
    * True
    * False
24. Timing in car design is so important that it is much more profitable to make design changes in the final stages than in the initial stages. In this way, the brand saves time by quickly advancing the stage. Once a final prototype is obtained, the necessary design changes are made to adapt the vehicle to production. In this way, the brand will have in advance a physical car to show to the press and in auto shows, although it doesn't resemble the production vehicle at all.
    * True
    * False
25. Catia and Siemens NX are used mostly by large manufacturers as they are ideal for extremely complex projects, with thousands of components and with differeten work teams around the world. Therefore, as a general rule, programs such as Inventor and SolidWorks are used for smaller projects, with fewer teams of designers.
    * True
    * False
26. Styling was born out of the need to fight against planned obsolescence, rejecting the use of the basic principles of consumer psychology and based on the art of creating beauty.
    * True
    * False
27. On all-road cars, car designers used the floating roof with the pillars and the roof itself painted in black. This makes the car visually appear lighter and less bulky.
    * True
    * False
28. In the initial phases, prototypes are more expensive than in the final phases. Despite the fact that in the final stages the prototype is more developed, it's more complex and is closer to the production car.
    * True
    * False
29. In the supply chain, a Tier 3 company supplies the material to a Tier 2 company, and this in turn supplies the material to the Tier 1 company.
    * True
    * False
30. A large air intake in the front or in the hood (like the current Ford Mustang) helps a lot to the aerodynamics of the car since they achieve a better Cx (coefficient of penetration). That is why many sports cars have such large air intakes.
    * True
    * False

**Open question:**

How does the increase in car-sharing and non-owned vehicles impact car design? Feel free to contribute your own impressions.