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**17/ENG06/056**

**MECHANICAL ENGINEERING**

**300 LEVEL**

**MEE 312**

1. Comparing a Flywheel and Governors (Differences)

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| **Flywheel** | **Governor** |
| A flywheel is a machine or device which is used to furbish fluctuations in the cyclic energy by storing excess energy and releasing when its needed | A Governor is used to maintain a constant mean speed of the engine through linkages by adjusting energy input after engine speed changes due to load variation |
| Its moment of inertia is very large | It has a small moment of inertia |
| It works with energy output from engine | It works with energy input to the engine |
| It is a rotating component | It is a non-rotating component |
| It is a large part of the machine | It is much smaller than the flywheel |

Which type of control system is the governor?

It is a MECHANICAL FEEDBACK CONTROL SYSTEM which senses the output and regulates input accordingly.

Differences between Centrifugal and Inertia governors

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| **Centrifugal** | **Inertia** |
| 1.centrifuga governors are slower than the inertia governors. | 1.Inertia have Quicker response than the centrifugal governor. |
| 2.Centrifugals have parts that are easy to balance. | 2.Inertia have revolving parts that are difficult to balance. |
| 3.Only centrifugal force is in action here | 3.Both centrifugal and inertial force are in action |
| 4.Less sensitive compared to the inertia governor | 4.More sensitive than the centrifugal governor |
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1. Why is the Watt Governor rarely used?
2. Watt gorvernors are rarely used because It cannot be used in horizontal positions.
3. They lose sensitivity at high speeds therefore they cannot be used in high speed engines.
4. It is not as accurate as the other governors.
5. In what respect is the Porter governor better than the Watt governor?

The Porter Governors is better than the Watt because it is more sensitive and It has an additional downward force as the central load fixed to its sleeve. This helps increase the speed of rotation of the fly balls therefore it can be used in engines of higher speed than the watt governors.

1. For IC engines, which is preferable; Dead weight or Spring Controlled governors? Give reasons

The Spring Controlled Governors because:

1. They are more accurate because the tension in the spring balances the centrifugal force finely. The stability can be adjusted by increasing the spring’s stiffness.
2. Their speed ranges can be adjusted by calibrating the spring.