**MECHANICS OF MACHINES**

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17/ENG06/002

MECHANICAL ENGR.

MEE 312

**ASSIGNMENT 1**

SAQ 1.

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| --- | --- | --- |
| S/N | FLYWHEEL | GOVERNOR |
| 1 | It has no control over the quantity of working fluid | It takes care of the quantity of working fluid. |
| 2 | It operation does not depend upon the change in load or output required | The operation depends on the variation of load or output required |
| 3 | It has speed control in a single cycle  | It has speed control over a period of time |
| 4 | It controls the speed variation caused by the fluctuations of the engine turning moment during each cycle of operation. | The function of a governor is to regulate the mean speed of an engine, when there are variations in the load. |
| 5 | It stores energy and gives up the energy when required. | It regulates the speed by regulating the quantity of charge. |
| 6 | It is not essential for every prime mover. | It is an essential element of a prime mover |
|  |  |  |

2.

It is a MECHANICAL FEEDBACK CONTROL SYSTEM whose output is controlled using its measurements as a feedback signal. This feedback signal is compared with a reference signal to generate an error which is filtered by a controller to produce the system’s control input.

 3.

* The response of the centrifugal governor is slower than that of the inertia governor.
* The revolving parts of the centrifugal governor are easier to balance than that of the inertia governor.
* The sensitivity of the inertia governor is greater than that of the centrifugal governor.
* Only centrifugal force controls the centrifugal governor while both the centrifugal and inertia forces control the inertia governor.

SAQ 2.

* Watt governor are rarely used due to their limitation in in-vertical position applications.
* Watt governor are also limited to very slow speed engine, at higher speed the sensitivity will decrease.

SAQ 3.

 The porter governor is more sensitive than the watt governor.

SAQ 4.

A dead weight/gravity controlled governor is preferred in IC engines as the basic principles of engines operation is centrifugal.