DIPLOMA IN MECHANICAL ENGINEERING (DME)
DIPLOMA VIEP MECHANICAL ENGINEERING
ADVANCED LEVEL CERTIFICATE COURSE IN MECHANICAL ENGINEERING (DMEVI/ACMEVI)

Term-End Examination

December, 2013

BME-056 : THEORY OF MACHINE

Time : 3 hours   *Maximum Marks : 70*

*Note : Answer **any seven** questions. Assume any missing data suitably. Use of scientific calculator **is allowed.***

1.   Explain *any four* of the following terms :   2½x4=10
     (a)   Velocity and Acceleration
     (b)   Degree of Freedom
     (c)   Spherical Pair
     (d)   Kinematic chain
     (e)   Structure

2.   Explain the principle of straight line motion   **10** generation mechanism with diagram.

3.   Write about the different types of Cams with   **10** suitable diagrams.

4. What is a governor ? Classify them and explain about different characteristics of Governors. **10**

5. An open flat belt drive is required to transmit 20 kW. The diameter of one of the pulleys is 150 cm having speed equal to 300 rpm. The minimum angle of contact may be taken as 170°. The permissible stress in the belt may be taken as 300 N/Cm². The co-efficient of friction between belt and pulley surface is 0.30. Determine width of the belt neglecting effect of centrifugal tension for belt thickness equal to 8mm. **10**

6. Explain working of 'Davis steering Gear' mechanism with suitable diagram. **10**

7. Four masses W_1, W_2, W_3 and W_4 at radii of 225mm, 175mm, 250mm and 300mm are connected at angles of zero, 45°, 75° and 120° from horizontal line as shown. If the shaft rotates at 500 rpm, find what unbalanced force acts upon the shaft and at what angle from mass W_1. **10**
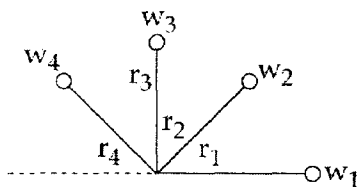
If a mass to balance the system can be placed at a radius of 200mm. Find the weight of the mass.

8. What is a clutch ? Explain about single plate **10** clutch.

9. Write about Turning moment diagram of a **10** "Single cylinder double acting steam engine".

10. Write short notes on **any two** of the following. **5+5**
   (a) Law of Belting
   (b) Types of Gears
   (c) Journal Bearing

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