24257

B. Tech. 5th Semester (F) Scheme (ME)
Examination, December–2018
DYNAMICS OF MACHINES
Paper–ME-301-F

Time allowed : 3 hours]   *[Maximum marks : 100*

Note :   *Attempt any five questions in all. **Question no. 1 is** **compulsory** and attempt at least **one** question from each section. All questions carry equal marks.*

1. Describe the following :

   (a) Effect of shaking force.   5

   (b) What is field balancing of rotor's explain the procedure ?   5

   (c) What is difference between brake and clutch ? 5

   (d) What is precision motion ?   5

Section–A

2. What do you understand by static and dynamic force analysis ? Give example.   20

3. Describe in detail the analytical and graphical method of obtaining the torque exerted on the crankshaft when weight of connecting rod is considered.   20

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Section–B

4. Explain balancing of single and multicylinder engines with labelled diagram.   20

5. A shaft carries four masses A, B, C and D of magnitude 200kg, 300kg, 400kg, and 200kg of respectively at radii 80mm, 700mm, 60mm, and 80mm in planes measured from A at 300mm, 400mm, and 700 mm. The angles between the crank measured anticlockwise are A to 45°, B to 70° and C to D 120°. The balancing masses are to be placed in planes X and Y. The distance between the planes X and A 100mm between X and Y is 400 mm and between Y and D is 200 mm. If the balance mass revolve at a radius of 100mm, find magnitude and angular positions.   20

Section–C

6. (a) Explain the working of belt transmission dynamometer.   10

   (b) Characteristics of Centrifugal governors.   10

7. (a) Explain the Band Brake dynamometer.   10

   (b) Gravity controlled and spring controlled
   _____   10

Section–D

8. Derive expression for stability of four wheel and two wheel moving on curved path.   20

9. (a) Discuss the gyroscopic effect on the vessels. 14

   (b) Gyroscopic effect on rolling.   6