Q.23 Differentiate between S.I. engine and C.I. engine.

Q.24 What is flywheel and what are its functions?

Q25 Define the following : Base circle, Cam profile, angle of ascent angle of descent, angle of dwell.

Q.26 Explain the different types of cam.

Q.27 Explain different types of gears with their applications in brief.

Q.28 Explain different types of belt drives.

Q.29 Explain the different types of vibrations.

Q.30 Give the classification of braking system.

Q.31 Give the possible causes of vibrations in machines.

Q.32 List five harmful effects of vibrations on machines.

Q.33 Differentiate between static & dynamic balancing.

Q.34 Explain otto cycle.

Q.35 Explain the working of differential.

Section-D

Note: Long answer type questions. Attempt any two questions out of three Questions. (2x10=20)

Q.36 Explain working of four stroke petrol engine with neat sketch.

Q.37 Describe Flywheel and give its uses. Derive a relationship for the coefficient of fluctuation of speed in terms of maximum fluctuation of energy and the kinetic energy of the flywheel at mean speed.

Q.38 Define clutch. Explain any one type of clutch

4th Sem.
Branch : (T&D) Production
Subject : Basics of Mechanical Engineering

Time : 3 Hrs.   M.M. : 100

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory.   (10x1=10)

Q.1 For the same compression ratio.

a) Otto cycle is more efficient than the Diesel

b) Diesel cycle is more efficient than Otto

c) Both Otto and Diesel cycles are, equally efficient

d) Compression ratio has nothing to do with efficiency

Q.2 Diesel fuel, compared to petrol is

a) Less difficult to ignite

b) Just about the same difficult to ignite

c) More difficult to ignite

d) Highly ignitable

Q.3 Due to the centrifugal force acting on the rim, the flywheel arms will be subjected to

a) Tensile stress   b) Compressive stress

c) Shear stress   d) None of the mentioned

Q.4 The size of a cam depends upon

a) Base circle   b) Pitch circle

c) Prime circle   d) Pitch curve

Q.5 The suitable material for belt in agricultural machinery is

a) Leather   b) Balata gum

c) Cotton duck   d) Rubber

Q.6 Where is the differential located?

a) Between transmission and rear axle

b) Between engine and transmission

c) Between two propeller shaft

d) Between steering wheel and steering colum

Q.7 The following is not a Friction clutch

a) Fluid clutch   b) Centrifugal clutch

c) Cone clutch   d) Disc clutch

Q.8 An increase in the length of the shaft results in _____ in vibration frequency.

a) Increase   b) Decrease

c) Unchanged   d) None of the above

Q.9 What is the effect of a rotating mass of a shaft on a system?

a) Extend the shaft   b) Twist the shaft

c) Bend the shaft   d) Compress the shaft

Q.10 Which of the following is true for centrifugal force causing unbalance?

a) Direction changes with rotation

b) Magnitude changes with rotation

c) Direction and magnitude both change with rotation

d) Direction and magnitude both remain unchanged with rotation

Section-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define zeroth law of thermodynamics.

Q.12 Define compression ratio.

Q.13 What is turning moment diagram?

Q.14 Define lift in case of cam and follower.

Q.15 Define gear.

Q.16 Write advantages of multi plate clutch.

Q.17 Define mechanical brakes.

Q.18 Define transverse vibrations.

Q.19 Name different types of free vibrations.

Q.20 Define balancing.

Section-C

Note: Short answer type Questions. Attempt any twelve questions out of fifteen Questions. (12x5=60)

Q.21 Explain first law of thermodynamics. Also state the limitations of this law.

Q.22 Enlist the various parts of IC engine and materials used for making them.