

- Q.27 Differentiate between radial and offset followers.
 - Q.28 State the functions of a cam.
 - Q.29 Write merits and demerits of gear drive.
 - Q.30 What is a gear train? Write two differences between simple and compound gear train.
 - Q.31 Write a short note on conical clutch.
 - Q.32 Explain the main parts and lay out of mechanical braking system.
 - Q.33 How to control the vibrations in Machines?
 - Q.34 Write the need of balancing.
 - Q.35 Write a short note on dynamic balancing.

SECTION-D

Note: Long Answer type question. Attempt any two questions. (2x10=20)

- Q.36 Explain various operations of an otto cycle in details.

Q.37 Define belt drive. Explain its types. Explain the comparison between belt drives and gear drives.

Q.38 Explain causes, remedies and harmful effects of vibrations.

b)

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4th Sem, Mechanical Engineering (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 The first law of thermodynamics states that energy can not be

 - a) Created only
 - b) Destroyed only
 - c) Converted
 - d) Created & destroyed

Q.2 The thermal efficiency of diesel engines is about _____.

 - a) 65%
 - b) 50%
 - c) 80%
 - d) 70%

Q.3 The ratio of maximum fluctuation of energy to the work done per cycle is called

 - a) Fluctuations of energy
 - b) Maximum fluctuation of energy
 - c) Coefficient of fluctuation of speed
 - 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) Rubber
 c) Cotton duck d) Balata gum
- Q.6 As compared to belt drive, the chain drive transmits
 a) More power b) Less power
 c) Same power d) None of the above
- Q.7 Multi disk clutches are dry clutches.
 a) Plasma clutches
 b) Wet clutches
 c) Yes
 d) Depends on the lubrication used
- Q.8 An automobile brake is only used to reduce the speed or bring the vehicle to halt.
 a) Yes
 b) No, it also be used to hold the car
 c) Brake acts only on moving vehicles
 d) None of the mentioned
- Q.9 The factor which affects the critical speed of a shaft is
 a) Diameter of the disc b) Span of the shaft
 c) Eccentricity d) All of the mentioned
- Q.10 If the unbalanced system is not set right then
 a) Static force develop
 b) Dynamic force develop
 c) Tangential forces develop
 d) Radial force develop

SECTION-B

- Note :** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 Define compression ratio.
 Q.12 Describe TDC.
 Q.13 Write the function of a Flywheel.
 Q.14 Describe base circle.
 Q.15 Define gear.
 Q.16 Describe differential
 Q.17 Define clutch.
 Q.18 Write function of brakes.
 Q.19 Define vibration.
 Q.20 Define static balancing.

SECTION-C

- Note :** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Enlist the various parts of IC engine and materials used for making them.
 Q.22 Explain first law of thermodynamics and its applications.
 Q.23 Differentiate between C.I and S.I engine.
 Q.24 Explain different types of flywheels in brief.
 Q.25 Write short note on applications of flywheel.
 Q.26 What is the co-efficient of fluctuation of energy of a flywheel? Explain.