

- Q.29 Explain the concept of fluctuation of speed and fluctuation of energy.
- Q.30 Enlist the various advantages gear drive over belt drive.
- Q.31 Explain the principle of flywheel also list its various applications.
- Q.32 Write the various application of Flywheel.
- Q.33 Draw the displacement, velocity and acceleration diagram when the follower moves with uniform velocity.
- Q.34 Draw a neat sketch of simple gear train.
- Q.35 Define the following according to vibratory motion
a) Cycle b) frequency

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Explain the terminology of cam profile with the help of diagram.
- Q.37 Drive an expression for the condition of transmission of maximum power transmission by belt.
- Q.38 What is a gear train? Explain its various types, with their applications.

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6th Sem / Mechtronics Subject:- Mechanisms and Machines

Time : 3Hrs.

M.M. : 100

SECTION-A

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

- Q.1 In structure, the degree of freedom are
a) Zero b) One
c) Two d) three
- Q.2 Higher pressure angle for gear results in
a) Weaker teeth
b) Non-uniform motion transmission
c) Bigger size of gear teeth
d) Wide base and stronger teeth
- Q.3 The equation of rotation is
a) $T=I\omega$ b) $T=mk^2$
c) $T=r\omega$ d) $T=I.\alpha$
- Q.4 A cam transmit irregular or intermittent motion by
a) Rolling contact b) Sliding contact
c) Both a) and b) d) None of the above
- Q.5 The condition for dynamic balancing of a shaft is :
a) The resultant dynamic force on the shaft is zero
b) The resultant couple due to dynamic forces on the shaft is zero.
c) Both (a) and (b)
d) None of the above

- Q.6 The vibration in which amplitude reduces over every cycle of vibration is known
 a) Free vibrations b) Forced vibrations
 c) Damped vibrations d) None of the above
- Q.7 If the initial tension in the belt is increased, then the power transmitted by the belt
 a) Decreases
 b) Increases
 c) Remain constant
 d) Increases upto a limit and then decreases
- Q.8 A railway bridge is an example of
 a) Machine b) Structure
 c) Mechanism d) None of the above
- Q.9 Foot step bearing is an example of
 a) Completely constrained motion
 b) Incompletely constrained motion
 c) Successfully constrained motion
 d) None of the above
- Q.10 _____ is used to connect two intersecting coplanar shafts are
 a) Spiral gears b) Straight bevel gear
 c) Straight spur gear d) None of the above

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 The motion of square bar in a square hole is an example of _____ constrained motion.
- Q.12 Define belt.
- Q.13 The effect of slip is to _____ the velocity ratio of the drive.

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- Q.14 The smallest circle which can be drawn to the cam profile is called _____
- Q.15 A system of rotating masses is said to be in dynamic balancing if there does not exist any resultant centrifugal force and couple. State true or false
- Q.16 Define Resonance.
- Q.17 V-belts can transmit _____ power as compared to the flat belts.
- Q.18 The maximum value of pressure angle for cam is about _____
- Q.19 The number of cycles executed in one second is called _____
- Q.20 Define closed pair.

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Explain the inversion of double slider crank chains Oldham coupling in details.
- Q.22 Define velocity ratio, slip and creep.
- Q.23 Write a short note on mechanism.
- Q.24 Explain the harmful effects of vibrations.
- Q.25 What is a kinematic chain? Explain its various types.
- Q.26 Define the follower. Classify its various types.
- Q.27 Write about balancing and need of balancing.
- Q.28 How will you explain the vibration? Give its types.

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