Q.22 Write short note on Gudgeon pin and valve.

Q.23 Explain the working of diesel engine.

Q.24 Explain different types of flywheels in brief.

Q.25 Describe the different types of followers with diagram.

Q.26 State the functions of a cam.

Q.27 Differentiate between open & crossed belt drives.

Q.28 Give any five terms of gear nomenclature.

Q.29 Explain the working of multi plate clutch.

Q.30 Explain the main parts and lay out of air braking system.

Q.31 Write short note on damping of vibrations.

Q.32 Classify vibrations and explain each type briefly.

Q.33 Write the need of balancing.

Q.34 Differentiate between static & Dynamic balancing.

Q.35 Explain the method of balancing a single rotating mass by another mass in same plane.

SECTION-D

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

Q.36 Explain various operations of an otto cycle in detail.

Q.37 A fly wheel having a mass of 4000 kg has a radius of 2 m. What amount of energy this flywheel will store in it in changing it's speed from 460 rpm to 462 rpm?

Q.38 Discuss the different types of power transmission devices & Write their advantages and disadvantages.

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4th Sem / T & D, Prod
Subject:- Basics of Mechanical Engineering

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The working cycle in case of four stroke engine is completed in following number of revolutions of crankshaft

a) 1/2 b) 1
c) 2 d) 4

Q.2 Compression ratio of IC. engines is

a) the ratio of volumes of air in cylinder before compression stroke and after compression stroke
b) volume displaced by piston per stroke and clearance volume in cylinder
c) ratio of pressure after compression and before compression
d) swept volume/cylinder volume

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

a) fluctuation of energy

b) maximum fluctuation of energy
c) coefficient of fluctuation of speed
d) none of the mentioned

Q.4 The angle between the direction of the follower motion and a normal to the pitch curve is called
a) pitch angle b) prime angle
c) base angle d) pressure angle

Q.5 The type of gears used to connect two non parallel and non intersecting shafts is
a) Spur gear b) Helical gear
c) Bevel gear d) Spiral gear

Q.6 The following is known as positive clutch
a) Single plate clutch b) Cone clutch
c) Dog clutch d) Centrifugal clutch

Q.7 Hand brake is applicable for_____
a) Only front wheels
b) Only rear wheels
c) Both front and rear wheels
d) None of these

Q.8 If the unbalanced system is not set right then.
a) Static forces develop
b) Dynamic forces develop
c) Tangential forces develop
d) Radial forces develop

Q.9 At a nodal point in the shaft, the frequency of vibration is_____.

a) Minimum
b) Maximum
c) Double than at the end
d) Zero

Q.10 Often an unbalance of forces is produced in rotary or reciprocating machinery due to the_____
a) Centripetal forces b) Centrifugal forces
c) Friction forces d) Inertia forces

SECTION-B

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

Q.11 Give the statement of third law of thermodynamics.
Q.12 Write the function of piston in an IC engine.
Q.13 Write the function of a Flywheel.
Q.14 Define cam.
Q.15 Write function of differential in an automobile.
Q.16 What is use of clutch?
Q.17 Define reference plane.
Q.18 Name different types of free vibrations.
Q.19 Define static balancing.
Q.20 Write types of balancing.

SECTION-C

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

Q.21 Differentiate between two stroke and four stroke engine.