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Subject Code
- Any - ▼

Question Type
- Any - ▼

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Question Number
- Any - ▼

Sub Number Question
- Any - ▼

Sub Sub question Number
- Any - ▼

Apply

Examination: 2017 SUMMER

Que.No	Question/Problem	marks
Q 2 a)	Draw a neat sketch and explain working of beam engine.	4
Q 2 c)	Draw and explain in short, types of followers used in cam and follower.	4
Q 2 d)	Explain condition for maximum power transmission.	4
Q 2 e)	Explain the compound gear train with neat sketch and write down the velocity ratio's equation.	4
Q 3 a)	Differentiate between mechanism and machine.	4
Q 3 b)	Explain the working of Whitworth quick return mechanism.	4
Q 3 e)	Explain the working of Watt governor with neat diagram.	4
Q 3 f)	Centrifugal Clutch	4

Que.No	Question/Problem	marks
Q 4 a)	Explain the working of freewheel mechanism of bicycle with sketch.	4
Q 4 c)	What are the advantages of 'V' belt drive over flat belt drive ?	4
Q 4 d)	Explain the working of flywheel with the help of turning moment diagram.	4
Q 4 e)	Explain the working of internal expanding brake with neat sketch.	4
Q 6 a)	Draw a neat sketch of Oldham's coupling and explain the working of it.	4
Q 6 b)	Define following terms Fluctuation of energy, co-efficient of fluctuation of energy, co-efficient of fluctuation speed, maximum fluctuation of energy	4
Q 6 c)	Explain the working of rope brake dynamometer with neat sketch	4
Q 6 d)	Explain the working of single plate clutch with neat diagram.	4
Q 6 e)	State reasons for balancing of rotating elements of machine. Explain balancing concept.	4

Examination: 2017 WINTER

Que.No	Question/Problem	marks
Q 1 b)	State any four types of friction clutch, along with its application each.	4
Q 1b)(a)	Define completely constrained motion and successfully constrained motion with neat sketch. State one example of each.	4
Q 1b)(b)	State function of clutch. Explain working principle of clutch.	4
Q 2 a)	What is a machine ? Differentiate between a machine and a structure.	4
Q 2 a)	Differentiate between machine and structure.	4
Q 2 b)	Describe with neat sketch the working of scotch yoke mechanism.	4
Q 2 b)	Explain with the neat sketch working of crank and slotted lever quick return mechanism.	4

Que.No	Question/Problem	marks
Q 2 c)	Explain the inter-relation between linear and angular velocity, linear and angular acceleration with suitable example.	4
Q 2 c)	Define linear velocity, angular velocity, absolute velocity and state the relation between linear velocity and angular velocity.	4
Q 2 d)	Explain the Klein's construction to determine velocity and acceleration of a link in an I.C. engine mechanism.	4
Q 2 d)	Explain the Klein's construction to determine velocity and acceleration of single slider crank mechanism	4
Q 2 e)	Draw the labelled displacement, velocity and acceleration diagrams for a follower when it moves with simple harmonic motion.	4
Q 2 e)	Draw the labelled displacement, velocity and acceleration diagrams for a follower when it moves with uniform velocity.	4
Q 2 f)	A pulley rotating at 50 m/s transmits 40 kW. The safe pull in belt is 400 N/cm width of belt. The angle of lap is 170º. If coefficient of friction is 0.24, find required width of belt.	4
Q 2 f)	A flat belt drive is required to transmit 35 kW from a pulley of 1.5 m effective diameter running at speed of 300 rpm. The angle of contact is spread over 11/24 of the circumference co-efficient of friction for the surface is 0.3. Determine the maximum t	4
Q 3 a)	In a four bar chain ABCD, AD is fixed and is 150 mm long. The crank AB is 40 mm long and rotates at 120 r.p.m. clockwise, while the link CD = 80 mm oscillates about D. BC and AB are of equal length. Find the angular velocity of link CD when angle BAD = 60	4
Q 3 b)	In a slider crank mechanism, the length of crank OB and connecting rod AB are 125 mm and 500 mm respectively. The centre of gravity G of the connecting rod is 275 mm from the slider. The crank speed is 600 rpm clockwise. When the crank has turned 45 from	4
Q 3 c)	Explain slip and creep phenomenon in belts.	4
Q 3 d)	Draw the neat sketch of diaphragm clutch and explain its working.	4
Q 3 e)	Write the procedure for balancing of a single rotating mass by single masses rotating in the same plane.	4

Que.No	Question/Problem	marks
Q 3 f)	Give detailed classification of followers.	4
Q 4 a)	State advantages and disadvantages of chain drive over belt drive	4
Q 4 b)	Justify that slider crank mechanism is a modification of the basic four bar mechanism with neat sketch.	4
Q 4 c)	Compare flywheel and governor.	4
Q 4 d)	Explain with neat sketch construction and working of eddy current dynamometer.	4
Q 4 e)	A flat foot step bearing 225 mm in diameter supports a load of 7500 N. If the co-efficient of friction is 0.09 and the shaft rotates at 600 rpm, calculate the power lost in friction.	4
Q 4 f)	Four masses attached to a shaft and their respective radii of rotation are given as : m 1 = 180 kg m 2 = 300 kg m 3 = 230 kg m 4 = 260 kg r 1 = 0.2 m r 2 = 0.15 m r 3 = 0.25 m r 4 = 0.3 m The angles between successive masses are 45□, 75□ and 135□. Find th	4

Examination: 2016 SUMMER

Que.No	Question/Problem	marks
Q a)(ii)	Explain single cylinder 4-stroke I.C. engine using turning moment diagram.	4
Q 1b)(i)	State inversions of double slider crank chain. Explain Oldham's coupling with neat sketch	4
Q 1b)(ii)	Explain: (i) Uniform pressure theory. (ii) Uniform wear theory in clutches and bearing.	4
Q 1b)(iii)	Compare cross belt drive and open belt drive on the basis of: (i) Velocity ratio. (ii) Direction of driven pulley. (iii) Length of belt drives (iv) Application.	4
Q 2 a)	Draw a labeled sketch of quick return mechanism of shaper and explain its working....	4
Q 2 b)	What are the types of kinematic pair ? Give its examples. .....MSBTE TOM SUMMER 2016 Q 2 b	4
Q 2 c)	Define linear velocity, angular velocity, absolute velocity and state the relation between linear velocity and angular velocity.	4
Q 2 d)	Explain the Klein's construction to determine velocity and acceleration of single slider crank mechanism.	4

Que.No	Question/Problem	marks
Q 2 e)	Draw neat sketch of radial cam with follower and show on it (i) Base circle. (ii) Pitch point. (iii) Prime Circle. (iv) Cam profile	4
Q 3 c)	Explain epicyclic gear train with neat sketch.	4
Q 3 d)	Draw a labelled sketch of multiplate clutch and state its applications.	4
Q 3 e)	Write the procedure of balancing single rotating mass when it balance mass is rotating in the same plane as that of disturbing mass.	4
Q 3 f)	What are the different types of follower motion ? Also draw displacement diagram for uniform velocity.	4
Q 4 b)	Justify with neat sketch elliptical trammel as an inversion of double slider crank chain.	4
Q 4 c)	Differentiate between flywheel and governor.	4
Q 4 d)	Explain construction and working of eddy current dynamometer.	4
Q 5 a)	Law of gearing	4
Q 6a)(i)	Explain sleep and creep phenomenon in belts.	4
Q 6a)(ii)	Explain single cylinder 4-stroke I.C. engine using turning moment diagram.	4

Examination: 2016 WINTER

Que.No	Question/Problem	marks
Q 1b)(i)	State any four inversions of single slider crane chain. Describe any one with neat sketch.	4
Q 1b)(ii)	Compare multiplate clutch with cone clutch on the following basis.	4
Q 2 a)	Explain a scotch yoke mechanism with a neat sketch.	4
Q 2 b)	What is machine ? Differentiate between a machine and a structure.	4
Q 2 c)	Explain Klein’s construction to determine velocity and acceleration of different links in single slider crank mechanism.	4
Q 2 d)	Define the terms	4
Q 2 d)	Explain with neat sketch different types of follower.	4

Que.No	Question/Problem	marks
Q 3 a)	Discuss the following motion of the follower by drawing the displacement velocity and acceleration diagram.	4
Q 3 b)	The crank and connecting rod of steam engine are 0.5m	4
Q 3 c)	Compare cross belt drive and open belt drive on the basis of.....	4
Q 3 d)	State the applications of (i) Band brake (ii) Disc brake (iii) Internal expanding shoe brake (iv) External shoe brake	4
Q 3 f)	Explain with neat sketch working principle of epicyclic gear train.	4
Q 4 a)	Generally, the lower side is kept “Tight side” and upper side is kept as “Slack side” with the belt drives having small driving pulley and big driven pulley. Why ?	4
Q 4 b)	Describe with neat sketch the working of Oldham’s coupling.	4
Q 4 c)	Distinguish between flywheel and governor.	4
Q 4 d)	Discuss the working of Rope brake dynamometer with the help of a neat sketch.	4
Q 4 e)	Explain the working of internal expanding shoe brake with the help of neat sketch.	4
Q 4 f)	Explain the process of balancing of single rotating mass by a single mass rotating in the same plane.	4
Q 6a)(i)	Define the following terms as applied to cam with neat sketch.	4
Q 6a)(ii)	Differentiate between disc brake and internally expanding brake.	4

Examination: 2015 SUMMER

Que.No	Question/Problem	marks
Q 1b)(a)	Define completely constrained motion and successfully constrained motion with neat sketch. State one example of each.	4
Q 1b)(b)	Explain working principle of clutch. State its location in transmission system of an automobile.	4
Q 1b)(c)	Compare cross belt drive and open belt drive on the basis of	4

Que.No	Question/Problem	marks
Q 2 a)	Differentiate machine and structure on any four points.	4
Q 2 b)	Explain with neat sketch working principle of Oldham's coupling.	4
Q 2 c)	Define linear velocity, angular velocity, absolute velocity and state the relation between linear velocity and angular velocity.	4
Q 2 d)	Describe stepwise procedure for determination of velocity and acceleration by Klein's construction with suitable data.	4
Q 2 e)	Draw a neat sketch of radial cam with roller follower and show the following on it.....	4
Q 3 a)	Draw a neat labelled sketch of "Multiplate Clutch".	4
Q 3 b)	Why roller follower is preferred over a knife follower ? State two advantages and application of roller follower.	4
Q 3 c)	Write the procedure for balancing of a single rotating mass by single masses rotating in the same plane.	4
Q 3 d)	State the type of power transmission chains. Describe any one with its sketch.	4
Q 4 a)	Explain the phenomenon of slip and creep in a belt drive. State its effect on velocity ratio.	4
Q 4 b)	Explain with the diagram working of crank and slotted lever quick return mechanism.	4
Q 4 c)	Explain with sketch working of hartnell governor.	4
Q 4 d)	Explain working of hydraulic brake dynamometer with sketch.	4
Q 6a)(ii)	Explain the concept of fluctuation of energy related with turning moment diagram with sketch.	4

Examination: 2015 WINTER

Que.No	Question/Problem	marks
Q 1b)(iii)	Draw the neat sketch of epicyclic gear train and explain how it works.	4
Q 2 a)	State and explain various types of constrained motions with suitable examples.	4
Q 2 b)	Draw the neat labeled sketch of Oldham's coupling. State its applications.	4

Que.No	Question/Problem	marks
Q 2 c)	Define the terms linear velocity, relative velocity, angular velocity and angular acceleration.	4
Q 2 d)	For a single slider crank mechanism , state the formulae to calculate by analytical method – Also state the meaning of each term.	4
Q 2 e)	Define the following terms related to cams.	4
Q 3 a)	Space diagram 01 Mark, Velocity Diagram 02 marks , Calculations 01 Mark	4
Q 3 b)	A Single slider crank mechanism:	4
Q 3 c)	Formulae to calculate the length of open belt drive and length of Cross belt drive	4
Q 3 d)	Draw the neat sketch of single plate clutch and explain its working.	4
Q 3 e)	Procedure for balancing single rotating mass when its balancing mass is rotating in same plane:	4
Q 3 f)	Give detailed classification of followers.	4
Q 4 a)	What is centrifugal tension ? State its formula. Explain its effect on power transmitted by a belt drive	4
Q 4 b)	State the meaning of sliding pair, turning pair, rolling pair and spherical pair with one example each.	4
Q 4 c)	Draw turning moment diagram for single cylinder four stroke I.C. Engine. Label all parts.	4
Q 4 d)	Explain the working of rope brake dynamometer with neat sketch.	4
Q 4 e)	Problem : A vertical shaft 150 mm in diameter and rotating at 100 rpm rests on a flat end footstep bearing. The shaft carries.....	4
Q 4 f)	Position and magnitude of balance mass required	4
Q 6a)(i)	State and explain law of gearing with the help of suitable sketch.	4
Q 6a)(ii)	Compare flywheel and governor.	4