Program: BE Mechanical Engineering
Curriculum Scheme: 2016-R (CBCGS)
Examination: Second Year Semester: IV
Course Code: MEC 405 and Course Name: Kinematics of Machinery
Time:1 Hour Max Marks:50

Q1.	When does the moment of inertia of a body come into the picture?
Option A:	When the motion is rotational
Option B:	When the motion is along a curved path
Option C:	When the motion is linear
Option D:	When stationary
Q2.	When a body of mass moment of inertia *I* (about a given axis) is rotated about that axis with an angular velocity, then the kinetic energy of rotation is
Option A:	$0.5\ I\ \omega$
Option B:	$I\ \omega$
Option C:	$0.5\ I\ \omega^2$
Option D:	$I\ \omega^2$
Q3.	When the motion between two elements of a pair is in a definite direction irrespective of the direction of the force applied
Option A:	Successfully constrained motion
Option B:	Incompletely constrained motion
Option C:	Completely constrained motion
Option D:	Circular constrained motion
Q4.	ABCD is a four-link mechanism.AD is the fixed link. AB=30mm, BC=50mm,CD=60mm and AD=70mm. It is a _____
Option A:	Crank-rocker mechanism
Option B:	Crank-slotted lever mechanism
Option C:	Double-rocker mechanism
Option D:	Double-crank mechanism
Q5.	In kinematic pair, when the elements have point or line contact while in motion it is a
Option A:	Higher pair
Option B:	Closed pair
Option C:	Lower pair
Option D:	Spherical pair
Q6.	Inversion of a mechanism means
Option A:	Fixing different links in a kinematic chain
Option B:	Turning it upside down
Option C:	Changing a higher pair to lower pair
Option D:	Changing the input and the output links

Q7.	In Tchebicheff mechanism four links OA , QB, AB and OQ(fixed), the links OA and QB are equal and crossed, then the links AB:OQ:OA are in the following proportions
Option A:	2.5:3:2
Option B:	2:1:2.5
Option C:	1:2:2.5
Option D:	3:2.5:1
Q8.	Determine the maximum permissible angle between the shaft axes of a universal joint if the driving shaft rotates at 800rpm and the total fluctuations of speed does not exceed 60rpm
Option A:	11.9^0
Option B:	13.4^0
Option C:	15.6^0
Option D:	14.5^0
Q9.	The Coriolis component of acceleration exists whenever a point moves along a path that has
Option A:	Linear displacement
Option B:	Rotational motion
Option C:	Gravitational acceleration
Option D:	Tangential acceleration
Q10.	Instantaneous center of rotation of a link in a four bar mechanism lies on
Option A:	right side pivot of this link
Option B:	left side pivot of this link
Option C:	a point obtained by intersection on extending adjoining links
Option D:	none of the mentioned
Q11.	The number of links and instantaneous centers in a reciprocating engine mechanism are
Option A:	4,4
Option B:	4,5
Option C:	5,4
Option D:	4,6
Q12.	The linear velocity of a rotating body is given by the relation
Option A:	$v = r\omega$
Option B:	$v = r/\omega$
Option C:	$v = \omega/r$
Option D:	$v = \omega^2/r$
Q13.	The component of the acceleration directed towards the center of rotation of a revolving body is known as _____ component.

Option A:	tangential
Option B:	centripetal
Option C:	coriolis
Option D:	none of the mentioned
Q14.	The linear velocity of a point relative to another point on the same link is _____ to the line joining the points.
Option A:	perpendicular
Option B:	parallel
Option C:	at 45^0
Option D:	at 60^0
Q15.	Which of the following statements is false for SHM follower motion?
Option A:	SHM can be used only for moderate speed purpose
Option B:	The acceleration is zero at the beginning and the end of each stroke
Option C:	The jerk is maximum at the mid of each stroke
Option D:	Velocity of follower is maximum at the mid of each stroke
Q16	Which motion of follower is best for high speed cams?
Option A:	SHM follower motion
Option B:	Uniform acceleration and retardation of follower motion
Option C:	Cycloidal motion follower
Option D:	Uniform velocity
Q17	The reference point on the follower to lay the cam profile is known as the
Option A:	Cam centre
Option B:	Trace point
Option C:	Pitch point
Option D:	Prime point
Q18	Two gear wheels mesh externally and are to give a velocity ratio of 3 to 1.The teeth are of involute form ; module = 6 mm, addendum = one module, pressure angle = 20°. The pinion rotates at 90 r.p.m. Determine : 1. The number of teeth on the pinion to avoid interference on it and the corresponding number of teeth on the wheel
Option A:	15
Option B:	39
Option C:	19
Option D:	29
Q19	The radial distance from the top of a tooth to the bottom of a tooth in a meshing gear, is called
Option A:	dedendum
Option B:	addendum
Option C:	clearance
Option D:	working depth

Q20	The size of a gear is usually specified by
Option A:	pressure angle
Option B:	circular pitch
Option C:	diametral pitch
Option D:	pitch circle diameter
Q21	A pinion having 30 teeth drives a gear having 80 teeth. The profile of the gears is involute with 20° pressure angle, 12 mm module and 10 mm addendum. Find the length of path of contact
Option A:	52.3
Option B:	62.3
Option C:	42.3
Option D:	33.2
Q22	The velocity ratio of two pulleys connected by an open belt or crossed belt is
Option A:	directly proportional to their diameters
Option B:	inversely proportional to their diameters
Option C:	directly proportional to the square of their diameters
Option D:	inversely proportional to the square of their diameters
Q23	Due to slip of the belt, the velocity ratio of the belt drive
Option A:	decreases
Option B:	increases
Option C:	does not change
Option D:	none of the mentioned
Q24	The velocity of the belt for maximum power is
Option A:	√T/3m
Option B:	√T/4m
Option C:	√T/5m
Option D:	√T/6m
Q25	The distance between hinge centers of two corresponding links is known as _____
Option A:	Pitch
Option B:	Pitch circle diameter
Option C:	Sprocket length
Option D:	Sprocket diameter