University of Mumbai

Examination 2020 under cluster 4 (PCE)

Program: BE Mechanical Engineering
Curriculum Scheme: Rev2016

Examination: Fourth Year | Semester VII
Course Code: MEC701 | Course Name: Machine Design II
Time: 1 hour | Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	In ball bearing the balls, the balls are held at proper distance by:
Option A:	Races
Option B:	Retainers
Option C:	Casings
Option D:	Housing
Q2.	If Z is Number of teeth and D is Pitch circle diameter then the Module is _____
Option A:	m=Z/D
Option B:	m=DZ
Option C:	m=D/Z
Option D:	m=(πD)/Z
Q3.	Minimum distance between Journal and Bearing is _____
Option A:	Diametral Clearance
Option B:	Radial Clearance
Option C:	Eccentricity Factor
Option D:	Minimum Oil Film thickness
Q4.	In case of a multiple disc clutch, if n1 are the number of discs on the driving shaft and n2 are the number of the discs on the driven shaft, then the number of pairs of contact surfaces will be _____
Option A:	$n_1 + n_2$
Option B:	$n_1 + n_2 - 1$
Option C:	$n_1 + n_2 + 1$
Option D:	$n_1 + n_2$
Q5.	The particular application the radial load acting on a ball bearing is 5 kN and the life of the ball bearing is 696 million rev. The Dynamic load carrying capacity of the bearing would be _____
Option A:	54311 N
Option B:	44311 N
Option C:	34311 N
Option D:	24311 N
Q6.	A chain can be defined as a series of links connected by_____.
Option A:	Pin joints
Option B:	Riveted joints
Option C:	Ball joints
Option D:	Bolted joints

Q7.	The mass moment of inertia for a solid disc flywheel (m-mass in kg and R= Radius in m) is given by_____.
Option A:	m $R^2/2$
Option B:	m $R^2/3$
Option C:	m $R^2/4$
Option D:	3m $R^2/4$
Q8.	In spur gear, if module is 5mm and no of teeth on pinion and gear are 18 and 54 find the centre distance 'a'
Option A:	180 mm
Option B:	360 mm
Option C:	90 mm
Option D:	160 mm
Q9.	Crowning of a flat belt pulley is done to _____.
Option A:	Prevent the slipping of a belt
Option B:	To increase the tension of a belt
Option C:	To increase the angle of contact
Option D:	To decrease the slip
Q10.	What is meant by jump phenomenon in cam and follower system?
Option A:	Follower loses contact with cam surface when cam rotates beyond particular speed due to inertia forces
Option B:	Follower loses contact with cam surface when follower rotates beyond particular speed due to gravitational force
Option C:	Follower loses contact with cam surface when cam rotates beyond particular speed due to torsional forces
Option D:	Follower loses contact with cam surface when cam rotates beyond particular speed due to bending forces
Q11.	If (σb x Y) for pinion > (σb x Y) for gear then _____ is designed for bending.
Option A:	Pinion
Option B:	Gear
Option C:	Both Pinion and Gear
Option D:	Needs more data to decide
Q12.	In journal bearing, 4q/(DCn'L) is _____
Option A:	Pressure Ratio
Option B:	Flow Ratio
Option C:	Flow variable
Option D:	Coefficient of friction Variable
Q13.	If Radial load acting on journal bearing is 16 kN and allowable bearing pressure as 1.5 N/ mm^2. Assuming L/D=1, the diameter of the bearing would be_____
Option A:	113.72 mm
Option B:	103.27 mm
Option C:	80 mm
Option D:	88 mm

Q14.	The Lewis form factor of a spur gear depends on _____
Option A:	Circular pitch only
Option B:	Pressure angle only
Option C:	Number of teeth and the circular pitch
Option D:	Number of teeth and system of teeth
Q15.	The included angle for V belt is _____
Option A:	20 to 30 degree
Option B:	30 to 40 degree
Option C:	40 to 50 degree
Option D:	50 to 60 degree
Q16.	When two identical bevel gears are mounted on shaft, that are intersecting at right angles, they are called _____
Option A:	Miter gear
Option B:	Crown gear
Option C:	Skew bevel gear
Option D:	Internal bevel gear
Q17.	The clutch used in scooters is _____
Option A:	multi-plate clutch
Option B:	single plate clutch
Option C:	centrifugal clutch
Option D:	cone clutch
Q18.	The heat generated in brake depends upon
Option A:	pv
Option B:	p/v
Option C:	pv^2
Option D:	$pv^2/2$
Q19.	If ‘b’ denotes face width and R denotes cone distance, the bevel factor is written as _____
Option A:	1- b/R
Option B:	1-2bR
Option C:	b/(2R)
Option D:	b/R
Q20.	A cone clutch transmits 24 kW at 490 rpm. The coefficient of friction is 0.2 and allowable intensity of pressure is 0.35N/mm². The semi cone angle is 12^0. The outer diameter is fixed as 310mm.Assuming uniform wear theory; find the maximum torque which is transmitted.
Option A:	502.4 N-m
Option B:	542.3 N-m
Option C:	467.72 N-m
Option D:	454.5 N-m

Q21.	Which of the following equation is used to measure pressure angle between direction of follower motion and force exerted by the cam on follower when eccentricity is zero? Where, rb = base circle radius, y = displacement of follower
Option A:	cot Φ = (dy /dθ) / (rb + y)
Option B:	tan Φ = (dy /dθ) / (rb + y)
Option C:	tan Φ = (dy /dθ) x (rb + y)
Option D:	cot Φ = (dy /dθ) x (rb + y)
Q22.	A 1.5 KW motor is running at 1440rpm. It is to be connected to a stirrer running at 36 rpm. The gearing arrangement suitable for this application is _____
Option A:	Spur
Option B:	Helical
Option C:	Worm
Option D:	Bevel
Q23.	A circle drawn with center as the cam center and radius equal to the distance between the cam center and the point on the pitch curve at which the pressure angle is maximum is called _____
Option A:	base circle
Option B:	pitch circle
Option C:	prime circle
Option D:	pressure angle
Q24.	The bearing number XX10 indicates that the bearing is having _____
Option A:	Bore diameter of 10 mm
Option B:	Bore diameter of 100 mm.
Option C:	Bore diameter of 50 mm.
Option D:	Outer diameter of 100 mm.
Q25.	In Spur gears, the circle on which the involute is generated is called as_____
Option A:	Pitch circle
Option B:	Clearance circle
Option C:	Base circle
Option D:	Addendum Circle

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	B
Q2.	C
Q3.	D
Q4	B
Q5	B
Q6	A
Q7	A
Q8.	A
Q9.	A
Q10.	A
Q11.	B
Q12.	C
Q13.	B
Q14.	D
Q15.	B
Q16.	A
Q17.	A
Q18.	A
Q19.	A
Q20.	C
Q21.	B
Q22.	C
Q23.	B
Q24.	C
Q25.	C