These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai
Online Examination 2020

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester V

Course Code: MEC504 and Course Name: Theory of Machines - II

Time: 1hour Max. Marks: 50

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

Q1.	In which type of clutch, engagement occurs automatically when the shaft speed exceeds a certain magnitudes and disengagement takes place automatically when the shaft speed decreases a certain magnitude?
Option A:	single plate clutch
Option B:	multi-plate clutch
Option C:	Cone clutch
Option D:	centrifugal clutch
Q2.	Calculate torque transmitted by the centrifugal clutch having four shoes, which has spring force of 700 N and centrifugal force of 4000 N. Rim radius is 280 mm and coefficient of friction is 0.3
Option A:	1100 N.m
Option B:	1108.8 N.m
Option C:	1000 N.m
Option D:	1579 N.m
Q3.	The clutch pressure plate is mounted on the
Option A:	Flywheel
Option B:	Clutch cover
Option C:	Friction plate
Option D:	Crank shaft
Q4.	If number of contacting surfaces are 5, then number of disks required in multi disk clutch are?
Option A:	4
Option B:	5
Option C:	6
Option D:	7
Q5.	The brake commonly used in motor cars is

Option A:	shoe brake
Option B:	band brake
Option C:	band and block brake
Option D:	internal expanding brake
Q6.	Double block brake is a type of
Option A:	Band brake
Option B:	Internal expanding shoe brake
Option C:	Shoe brake
Option D:	Disc brake
Q7.	A rope brake dynamometer falls under the category of
Option A:	Mechanical friction type dynamometer
Option B:	Hydraulic dynamometer
Option C:	Transmission type dynamometer
Option D:	Torsion type dynamometer
Q8.	Which energy is absorbed by the brakes of an elevator during braking process
Option A:	Kinetic
Option B:	Potential
Option C:	Heat
Option D:	Mechanical
Q9.	In a Hartnell governor, if a spring of greater stiffness is used, then the governor will be
Option A:	more sensitive
Option B:	isochronous
Option C:	less sensitive
Option D:	no effect on sensitivity
Q10.	Which governor is a spring loaded governor
Option A:	Porter Governor
Option B:	Hartnell Governor
Option C:	Proell Governor
Option D:	Watt Governor
Q11.	A spring controlled governor is said to be unstable when the controlling force
Option A:	Increases as the radius of rotation decreases
Option B:	Increases as the radius of rotation increases
Option C:	Decreases as the radius of rotation increases
Option D:	Remains constant for all radii of rotation
Q12.	The height of the Watt's Governor in m is
Option A:	$8.95/N^2$
Option B:	$895/N^2$
Option C:	$8950/N^2$

Option D:	89.5/N^2
Q13.	The engine of an aeroplane rotates anticlockwise direction when seen from the tail end and the aeroplane takes a turn to the left, then the effect of reactive gyroscopic couple will be
Option A:	to raise the nose and dip the tail
Option B:	to dip the nose and raise the tail
Option C:	to raise the nose and tail
Option D:	to dip the nose and tail
Q14.	In which case the movement of complete ship up and down in a vertical plane about transverse axis
Option A:	Steering
Option B:	Rolling
Option C:	Pitching
Option D:	Stable
Q15.	The rotor of turbine of a ship has a mass moment of inertia I=400 kg-m^2 and rotates at a speed of 335 rad/s counterclockwise when viewed from the stern (aft).Determine the gyroscopic couple when the ship steers to the left in a curve of 80-m radius at a speed of 7.75m/s
Option A:	14070N-m
Option B:	15050 N-m
Option C:	12981 N-m
Option D:	11050 N-m
Q16.	For gyroscope rotor degree of freedom is
Option A:	1
Option B:	4
Option C:	2
Option D:	3
Q17.	A disc is a spinning with an angular velocity ω rad/s about the axis of spin. The angular velocity of precession is ω_p rad/s and moment of inertia I kg-m^2. Gyroscopic couple acting is equal to
Option A:	1/2 $I\omega\omega_p$
Option B:	1/2 $I.\omega^2$
Option C:	$I.\omega.\omega_p$
Option D:	$I.\omega^2$
Q18.	The combination of gears used to transmit motion from one shaft to another is
Option A:	Gear train
Option B:	drive
Option C:	Gear Box
Option D:	train

Q19.	In which type of gear train shaft axes which are mounted by gear wheels have relative motion between them?
Option A:	Compound
Option B:	Simple
Option C:	Epicyclic
Option D:	Reverted
Q20.	In simple gear train, if the number of idle gear is odd, then the motion of driven gear will
Option A:	be same as that of driving gear
Option B:	be opposite as that of driving gear
Option C:	depend upon number of teeth on the driving gear
Option D:	not depend upon the number of teeth on the driving gear
Q21.	In a simple gear train of four gear wheels A, B, C and D T_A = 45, T_B = 10, T_C = 20 & T_D = 90 then, the speed ratio of D to A and the direction are
Option A:	1/2 and opposite direction
Option B:	1/2 and same direction
Option C:	2 and opposite direction
Option D:	2 and same direction
Q22.	In case of horizontal engine, while calculating Piston effort ____ is not considered
Option A:	Inertia force
Option B:	Weight
Option C:	Frictional force
Option D:	Load on piston
Q23.	In a four stroke I.C. engine, the turning moment during the compression stroke is
Option A:	positive throughout
Option B:	negative throughout
Option C:	positive during major portion of the stroke
Option D:	negative during major portion of the stroke
Q24.	Correction couple is applied when masses are placed arbitrarily and to maintain _____
Option A:	Static equilibrium
Option B:	Dynamic equilibrium
Option C:	Stable equilibrium
Option D:	Unstable equilibrium
Q25.	When the crank is at the inner dead center, in a reciprocating steam engine, then the acceleration of the piston will be
Option A:	$\omega^2 r. (n + 1)/n$
Option B:	$\omega^2 r. (n - 1)/n$

Option C:	$\omega^2 r.\ n/(n + 1)$
Option D:	$\omega^2 r.\ n/(n - 1)$