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: Final Year Semester VIII
Course Code: MEC801
Course Name: Design of mechanical systems

Time: 1 hour Max. Marks: 50

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

Q	Experimental Models are prepared in which phase?
A	Conceptual Design
B	Embodiment Design
C	Detailed design
D	Planning for manufacture
	A- Conceptual design B- Detailed design C- Embodiment design D- Planning for manufacture,
Q	Correct sequence is-
A	A B D C
B	A C B D
C	D C B A
D	C A B D
Q	Which type of optimization problems give finite feasible solutions?
A	Continuous
B	non continuous
C	Combinatorial
D	exponential
Q	In designing hook, the standard practice is to adopt the dimensions of the hook based on ----
A	number of falls
B	diameter of steel wire rope
C	the load capacity, material and manufacturing process.
D	hoisting motor capacity
Q	The Cross lay ropes are so constructed that the direction of twist of wires --
A	in the strand is opposite to that of the strands in the rope.
B	in the strand is same as that of the strands in the rope.
C	in two adjacent strands are twisted to the opposite direction.
D	may be either right or left hand dirction.
Q	The top part of the hook ends in a round shank operating in ---
A	only tension
B	only compression
C	only torsion
D	only shear
Q	Which type of cross section is preferred for crane hook?

A	Circular
B	Trapezoidal
C	elliptical
D	square
Q	As the number of bends increases, the life of steel wire ropes ---
A	increases
B	decreases
C	remains constant
D	may increses or decreses
Q	In belt conveyor system , resistance on the top run (kgf) Wo = CFL ((Gg+Gb)cos δ +Gro) +/- H (Gg+Gb) . In this formulla minus sign indicates ....In belt conveyor system , resistance on the top run (kgf) Wo = CFL ((Gg+Gb)cos δ +Gro) +/- H (Gg+Gb) . In this formulla minus sign indicates ....In belt conveyor system , resistance on the top run (kgf) Wo = CFL ((Gg+Gb)cos δ +Gro) +/- H (Gg+Gb) . In this formulla minus sign indicates ....In belt conveyor system , resistance on the top run (kgf) Wo = CFL ((Gg+Gb)cos δ +Gro) +/- H (Gg+Gb) . In this formulla minus sign indicates ....In belt conveyor system , resistance on the top run (kgf) Wo = CFL ((Gg+Gb)cos δ +Gro) +/- H (Gg+Gb) . In this formulla minus sign indicates ....In belt conveyor system , resistance on the top run (kgf) Wo = CFL ((Gg+Gb)cos δ +Gro) +/- H (Gg+Gb) . In this formulla minus sign indicates ....
A	Conveying down
B	Conveying up
C	Conveying horizontal
D	Conveying inclined
Q	In case of conveyor, limitations on inclination angle depend upon-
A	Density
B	required hourly capacity
C	Angle of repose of material with belt surface
D	number of load carrying rollers
Q	In case of conveyor, power requirement depend upon-
A	Resistance on top run only
B	Resistance on top run and bottom run only
C	Resistance on top run and bottom run, conveying velocity and coefficient of friction
D	Resistance on top run and bottom run and diameter of pulley
Q	Working tension , kgf/mm width per ply of mechanical joints and gravity take up or vulcanized and screw take up for 42oz is ....
A	0.62
B	1.07
C	0.82
D	0.77
Q	For one complete cycle four stroke engine requires -
A	One complete revolutions of cramkshaft
B	two complete revolutions of cramkshaft
C	Three complete revolutions of cramkshaft
D	Four complete revolutions of cramkshaft

Q	The cubic capacity of a four strike engine spark ignition engine is 245 cc. the D/ L = 1.1 clearence volume is 27.2 cc, calculate compression ratio.
A	10
B	6
C	13
D	18
Q	The mechanical efficiency of single cylinder four stroke engine is 80 %, the frictional power is estimated to be 25 KW then calculate brake power developed by engine.
A	125 KW
B	25 KW
C	100 KW
D	150 KW
Q	Function of piston pin is to connect -
A	crank with crankshaft
B	volve with spring
C	piston with connecting rod
D	connecting rod with crank
Q	Number of piston rings are n = 0.4*√D , if bore diameter is 100 mm then how may piston rings are required?
A	5
B	4
C	6
D	10
Q	In which of following pump we can provide discharge valve?
A	Centrifugal pump
B	Screw pump
C	Diaphragm pump
D	Peristaltic pumps
Q	In case of gear pump which type of forces act on shaft?
A	Tangential and radial force by gears
B	Tangential force only
C	Tangential and radial force by gears and hydraulic forces
D	Only axial force
Q	In case of gear pump horizantal component of hydraulic force is given by-
A	Pmax * R * b
B	1.6366 * Pmax * R * b
C	6.5676 * Pmax * R * b
D	6.5676 * Pmax
Q	For clear clean water which type of impeller is preffered?
A	open impeller
B	semiopen impeller
C	closed impeller
D	radial impeller
Q	In which method ratio of two successive amplitude remains same?
A	Arithmetic progression
B	Geometric progression
C	Harmonic progression

D	Logarithmic progression
Q	Geometric progression is prefered in design of machine tool gear box because of
A	Variable loss of economic cutting speed
B	Constant loss of economic cutting speed
C	lesser loss of economic cutting speed
D	easy to understand
Q	If structural formula is written like 3(1) 2(6) 2(3) then how many speed steps are obtained?
A	9
B	6
C	12
D	4
Q	If Nmax =2000, Nmin= 160 and speed steps are 12 then geometric progression ratio is -
A	1.5674
B	1.2581
C	2.6754
D	1.4565