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

University of Mumbai
Online Examination 2020

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: MEC 603 and Course Name: Mechanical Vibrations

Time: 1 hour Max. Marks: 50

==========

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

Q1.	What are discrete or lumped parameter systems?
Option A:	Systems which have infinite number of degree of freedom
Option B:	Systems which have finite number of degree of freedom
Option C:	Systems which have no degree of freedom
Option D:	Systems which have negative number of degree of freedom
Q2.	Transverse vibrations will occur in the shaft system when the motion of particles of the shaft subjected to,
Option A:	Parallel to axis of shaft
Option B:	Perpendicular to axis of shaft
Option C:	Circle about the axis of shaft
Option D:	Stable about axis of shaft
Q3.	Formulation of the differential equation for vibratory system by using energy method can be done by considering which energies?
Option A:	Potential and Kinetic Energy
Option B:	Chemical Energy
Option C:	Nuclear energy
Option D:	Biomass energy
Q4.	Transient vibrations are also known as
Option A:	Undamped Vibration
Option B:	Damped vibration
Option C:	Torsional Vibration
Option D:	Transverse Vibration
Q5.	Which is final step involved in vibration analysis?
Option A:	Interpretation of results
Option B:	Mathematical Modelling
Option C:	Formulation of governing equations

Option D:	Solution of governing equations
Q6.	Depending upon different amounts of damping in the system if the two values of s will be real and unequal
Option A:	There said to be critical damping in the system
Option B:	There said to be over damping in the system
Option C:	There said to be under damping in the system
Option D:	There said to be stability in the system
Q7.	What is the effect of partial balancing of the reciprocating parts?
Option A:	unbalanced primary force
Option B:	unbalanced secondary force
Option C:	balanced primary force
Option D:	balanced secondary force
Q8.	A spring mass damper system has a mass of 4 kg a stiffness of spring is 300 N/m and damping coefficient of 35 N sec/m. Determine natural frequency of damped vibration?
Option A:	7.49 rad/s
Option B:	10.5 rad/s
Option C:	5.45 rad/s
Option D:	6 rad/s
Q9.	For a multi degree of freedom system, the number of Eigen values are equal to:
Option A:	Degrees of freedom
Option B:	Number of masses
Option C:	Number of springs
Option D:	Addition of masses and springs in system
Q10.	By using Dunkerley's method for natural frequency calculation of shaft, which of the following parameter is essential?
Option A:	Modulus of elasticity of shaft
Option B:	Density of shaft
Option C:	Modulus of rigidity of shaft
Option D:	temperature of shaft
Q11.	A cantilever beam carries load 50Kg at free end. Length of beam is 3m , moment of inertia of cross section of beam is 0.04 SI unit and modulus of elasticity is 196 Pa . What is the displacement influence coefficient at free end?
Option A:	6.285 SI unit
Option B:	3.273 SI unit
Option C:	1.148 SI unit
Option D:	10.552 SI unit
Q12.	For principal mode of vibration in 2 degree of freedom system , which of the following statement is correct?

Option A:	It is the mode of vibration in which masses vibrate out of phase
Option B:	It is mode of vibration having lowest natural frequency
Option C:	It is mode of vibration having highest natural frequency
Option D:	It is mode of vibration in which amplitude of masses are very small
Q13.	Which of the following option does give the correct effect of change in elastic modulus of cantilever beam?
Option A:	Natural frequencies remain same
Option B:	Mode shapes change
Option C:	Mode shapes remain same
Option D:	Amplitude of vibration decreases
Q14.	In the graph of Magnification factor Vs frequency ratio for support excitation, the effect of damping is:
Option A:	as damping increases magnification factor also increases for all frequency ratios
Option B:	as damping increases magnification factor reduces for all frequency ratios
Option C:	as damping increases magnification factor remains unity
Option D:	as damping increases magnification factor remains constant
Q15.	In a forced vibration , the zero frequency deflection is the ratio of:
Option A:	Exciting force and damping coefficient
Option B:	Exciting force and spring stiffness
Option C:	Damping force and spring stiffness
Option D:	Spring force and inertia force
Q16.	A rotating shaft carries a disc with eccentric center of gravity . This eccentricity is 'e'. For a constant speed of rotation the bending of shaft is :
Option A:	Directly proportional to ‘e’
Option B:	Inversely proportional to ‘e’
Option C:	Directly proportional to square of ‘e’
Option D:	Directly proportional to square root of ‘e’
Q17.	If K=1000 N/m, m=10kg, damping factor=0.5. If the system is subjected to harmonic excitation of frequency 15 rad/sec. what is the value of phase angle?
Option A:	150^0
Option B:	60^0
Option C:	129.81^0
Option D:	50.2^0
Q18.	The range of frequency ratio (r) for vibrometer lies in between
Option A:	Less than 1
Option B:	Greater than 1 and less than 2
Option C:	Greater than 2 and less than 3
Option D:	greater than 3
Q19.	Accelerometer is a vibration measuring device and is termed as

Option A:	Low frequency transducer
Option B:	High frequency transducer
Option C:	Natural frequency transducer
Option D:	Medium frequency transducer
Q20.	In FFT Spectrum Analyzer, FFT stands for
Option A:	Frequency Fourier Transform
Option B:	Fast Fourier Transmission
Option C:	Frequency Fourier Transmission
Option D:	Fast Fourier Transform
Q21.	In an accelerometer, the spring should be
Option A:	Short
Option B:	Long
Option C:	Medium
Option D:	size of spring does not have effect
Q22.	The closing vector in force polygon, represents
Option A:	Unbalanced force
Option B:	Unbalanced couple
Option C:	Balanced force and couple
Option D:	Position of planes of unbalanced masses
Q23.	The unbalance force due to reciprocating masses
Option A:	Varies in magnitude and varies in direction
Option B:	Varies in magnitude and constant in direction
Option C:	Constant in magnitude and varies in direction
Option D:	Constant in magnitude and constant in direction
Q24.	The closing side of the secondary force polygon gives
Option A:	Maximum unbalanced primary force
Option B:	Maximum unbalanced secondary force
Option C:	Maximum unbalanced primary couple
Option D:	Maximum unbalanced secondary couple
Q25.	In order to balance the reciprocating masses of multi-cylinder in-line engine,
Option A:	Primary force and couple polygon must be closed
Option B:	Secondary force and couple polygon must be closed
Option C:	Both primary and secondary force and couple polygons must be closed
Option D:	Only primary and secondary force polygon must be closed