

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

**University of Mumbai
Online Examination 2020**

Program: BE AUTOMOBILE Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: AEC602 and Course Name: MACHINE DESIGN-I

Time: 1hour

Sample Test Paper

Max. Marks: 50

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

Q1.	Coulomb, Tresca and Guest's theory of failure is applicable to
Option A:	Ductile materials
Option B:	Composite
Option C:	Brittle material
Option D:	Non metals
Q2.	The meaning of orange colour is
Option A:	The component is hot
Option B:	The component is cold
Option C:	The component is safe
Option D:	There is possible danger
Q3.	Steels used for helical springs are
Option A:	Medium carbon steel
Option B:	Mild steel
Option C:	High carbon steel
Option D:	Alloy steel
Q4.	A cylinder is considered as thick cylinder when the ratio of inner diameter to the wall thickness is,
Option A:	Less than 10
Option B:	More than 10
Option C:	less than 15
Option D:	More than 15
Q5.	According to Indian standard specifications, a grey cast iron designated by 'FG 200' means that the
Option A:	Carbon content is 2%
Option B:	Maximum compressive strength is 200 N/mm ²

Option C:	Minimum tensile strength is 200 N/mm ²
Option D:	Maximum shear strength is 200 N/mm ²
Q6.	Longitudinal stress in a cylinder is given by
Option A:	$PD/2t$
Option B:	$PD/4t$
Option C:	$2PD/t$
Option D:	$4PD/2t$
Q7.	Hoop shrinking in thick cylinders is done to achieve
Option A:	Increased stresses
Option B:	Decreased stresses
Option C:	Zero stress
Option D:	Uniform stresses
Q8.	By using large thread angle in lifting machines
Option A:	the mechanical advantage is more
Option B:	the mechanical advantage is less
Option C:	the load will be sustained in absence of any effort
Option D:	the load is easily lifted
Q9.	The parallel fillet welds are designed for
Option A:	Tensile strength
Option B:	Shear strength
Option C:	Bending strength
Option D:	Compressive strength
Q10.	Screws used for power transmission should have
Option A:	Low efficiency
Option B:	High efficiency
Option C:	Very fine thread
Option D:	Strong teeth
Q11.	In transverse fillet welded joint, the size of weld is equal to
Option A:	$0.5 \times$ Throat of weld
Option B:	Throat of weld
Option C:	$\sqrt{2} \times$ Throat of weld
Option D:	$2 \times$ Throat of weld
Q12.	The joint in valve mechanism of reciprocating engine is
Option A:	Knuckle joint
Option B:	Universal joint
Option C:	Cotter joint
Option D:	Key joint
Q13.	The factor of safety for machine parts subjected to reversed stresses is

Option A:	Ratio of yield strength to maximum stress
Option B:	Ratio of endurance limit to amplitude stress
Option C:	Ratio of ultimate tensile strength to maximum stress
Option D:	Ratio of endurance limit to mean stress
Q14.	The reliability factor for using 50% reliability in design is
Option A:	0.897
Option B:	1
Option C:	0.5
Option D:	0.75
Q15.	As the size of the component increases, the endurance limit of the
Option A:	Increases
Option B:	Decreases
Option C:	Remains same
Option D:	Increases up to the diameter of 50 mm and then decreases
Q16.	Which of the following key transmits power through frictional resistance only
Option A:	Saddle key
Option B:	Woodruff key
Option C:	Kennedy key
Option D:	Sunk key
Q17.	The ratio of strength of a hollow shaft to that of a solid shaft subjected to torsion if both are of the same material and of the same outer diameters, the inner diameter of hollow shaft being half of the outer diameter is
Option A:	15/16
Option B:	16/15
Option C:	16/17
Option D:	17/15
Q18.	If diameter of a shaft is doubled the power transmitted capacity will be
Option A:	Either twice or half
Option B:	Four times
Option C:	Eight times
Option D:	Same
Q19.	The compressive stress induced in a square key due to the transmitted torque is the shear stress.
Option A:	Half
Option B:	Equal to
Option C:	Thrice
Option D:	Twice
Q20.	When a close coiled helical spring is compressed, its wire is subjected to
Option A:	Tension

Option B:	Shear
Option C:	Compression
Option D:	Bending
Q21.	In the design of spring, generally the diameter of spring wire is found from
Option A:	Stress-load relation
Option B:	Deflection - load relation
Option C:	Spring index
Option D:	Spring constant
Q22.	Which property is not required for Shaft Materials ?
Option A:	High Shear and Tensile strength
Option B:	Good Machinability
Option C:	High Fatigue strength
Option D:	Good Castability
Q23.	The product of the tangential force acting on the shaft and its distance from the axis of the shaft i.e. (the radius of the shaft) is known as
Option A:	Bending moment
Option B:	Twisting moment
Option C:	Torsional rigidity
Option D:	Flexural rigidity
Q24.	When a shaft is subjected to a twisting moment, every cross section of the shaft will be under
Option A:	Tensile Stress
Option B:	Compressive Stress
Option C:	Shear Stress
Option D:	Bending stress
Q25.	A feather key is generally
Option A:	loose in shaft and tight in hub
Option B:	Tight in shaft and loose in hub
Option C:	Tight in both shaft and hub
Option D:	Loose in both shaft and hub