Program: BE Automobile Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: AEC 02 and Course Name: Machine Design 1

Time: 1hour   Max. Marks: 50

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NOTE to the Question Bank Generator:

1. The question bank consists of 25 MCQ questions with each question carrying a maximum of 2 marks. It should cover all the modules with appropriate weightages.

2. You need to check the questions and their answers for their correctness. There should not be any ambiguity in the questions and the options. Only one option should be the Correct Answer.

3. You must ensure that the same question is not repeated again in this question paper.

4. Among 25-questions, 13 questions can be under the 'Simple' category, 7-questions can be under the 'Moderate' category, and the remaining 5-questions can be under the 'Difficult' category.

5. Please do not reveal answer on this Question Paper.

6. Use another template provided to enter the correct answers.

7. Please save this file with file nameas per the sample format given below:

File Name: "Date of Examination_Scheme_Program_Semester_SubjectCode_QP Set Number"

For example:
> QP set number 1 of first core course of Mechanical Engineering Semester V for Rev2016 scheme and scheduled on 25/09/2020 has to have the file name as
> > **2509_R16_Mech_V_MEC501_QP1**

> QP set number 1 of Department Level Optional Course of Computer Engineering Semester VI for Rev2012 scheme and scheduled on 28/09/2020 has to have the file name as
> > **2809_R12_Comp_VI_CSDLO6021_QP1**

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

Q1.	Factor of safety is defined as the ratio of
Option A:	Ultimate stress to working stress
Option B:	Working stress to ultimate stress
Option C:	Breaking stress to ultimate stress

Option D:	Ultimate stress to breaking stress
Q2.	the ability of the material to resist deformation under the action of an external load
Option A:	Resilience
Option B:	stiffness
Option C:	Toughness
Option D:	modulus of toughness
Q3.	A symbol Fe360 indicates a steel with
Option A:	A) Minimum Tensile Strength 360 N/mm2
Option B:	B) Maximum Tensile Strength 360N/mm2
Option C:	A) Minimum shear Strength 360N/mm2
Option D:	A) Maximum shear Strength 360N/mm2
Q4.	At the neutral axis of a beam,
Option A:	zero stress
Option B:	maximum tensile stress
Option C:	maximum compressive stress
Option D:	maximum shear stress
Q5.	In a curved beam the……………… is shifted towards the centre of curvature.
Option A:	centroidal axis
Option B:	radial axis
Option C:	neutral axis
Option D:	longitudinal axis
Q6.	In thick cylinders, the radial stress across the thickness of cylinder
Option A:	remains uniform throughout
Option B:	varies from internal pressure at the inner surface to zero at the outer surface
Option C:	varies from maximum value at the inner surface to minimum value at the outer surface
Option D:	varies from maximum value at the outer surface to minimum value at the inner surface
Q7.	shearing area of cotter is calculate by formula
Option A:	2 b × t
Option B:	(d4 – d2) t
Option C:	2 (d4 – d2) c
Option D:	2 a × d2
Q8.	Turn buckle has
Option A:	Right hand threads on bout ends
Option B:	Left hand threads on both ends
Option C:	Left hand threads on one end and right hand threads on other end
Option D:	No threads

Q9.	In the design of power screw , if the following condition is satisfied , this will be called as (where φ= friction angle and α= helix angle) $\quad \phi > \alpha$
Option A:	overhauling of screw
Option B:	back driving of screw
Option C:	self driving of screw
Option D:	self-locking of screw
Q10.	The pin of the knuckle joint is subjected to
Option A:	double shear stress
Option B:	torsional shear stress
Option C:	axial tensile stress
Option D:	axial compressive stress
Q11.	Calculate the diameter of pin from shear consideration. Assume maximum shear stress allowed is 40N/mm² and an axial tensile force of 50kN acting on the rod.
Option A:	28 mm
Option B:	44mm
Option C:	49mm
Option D:	52mm
Q12.	A screw is said to be over hauling screw, if its efficiency is
Option A:	More than 50%
Option B:	Less than 50%
Option C:	Equal to 50%
Option D:	None of these
Q13.	failure due to repeated stress is known as
Option A:	scoring
Option B:	pitting
Option C:	fatigue
Option D:	bending
Q14.	Stress concentration factor is defined as the ratio of
Option A:	maximum stress to the endurance limit
Option B:	nominal stress to the endurance limit
Option C:	maximum stress to the nominal stress
Option D:	nominal stress to the maximum stress
Q15.	The endurance limit of the component can be increased by
Option A:	increasing the size of component
Option B:	shot peening
Option C:	increasing the stress concentration
Option D:	coating
Q16.	The sleeve or muff coupling is designed as a

Option A:	Thick cylinder
Option B:	Hollow shaft
Option C:	Solid shaft
Option D:	Thin cylinder
Q17.	A transmission shaft is subjected to bending moment (Mb) and torsional moment (Mt). The equivalent torsional moment is given by,
Option A:	$\sqrt{(M_b + M_t)}$
Option B:	$\sqrt{(M_b)^2 + (M_t)^2}$
Option C:	$(M_b + M_t)$
Option D:	$M_b + \sqrt{(M_b)^2 + (M_t)^2}$
Q18.	type of Flexible coupling is
Option A:	Sleeve or muff coupling
Option B:	Flange coupling
Option C:	Oldham coupling
Option D:	compression coupling
Q19.	Slenderness ratio is the ratio of
Option A:	maximum size of column to minimum size of column
Option B:	width of column to depth of column
Option C:	effective length of column to least radius of gyration of the column
Option D:	effective length of column to width of column
Q20.	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
Q21.	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
Q22.	The spring index is,
Option A:	ratio of wire diameter to mean coil diameter
Option B:	force per unit cross-sectional area of spring
Option C:	ratio of mean coil diameter to wire diameter
Option D:	force required to produce unit deflection
Q23.	A leaf spring in automobiles is used
Option A:	to apply forces
Option B:	to measure forces
Option C:	to absorb shocks

Option D:	to store strain energy
Q24.	The load required to produce a unit deflection in the spring is called
Option A:	Modulus of Rigidity
Option B:	Spring stiffness
Option C:	Flexural rigidity
Option D:	Tensional rigidity
Q25.	What is the Wahl's factor if spring index is 6?
Option A:	1.477
Option B:	1.5
Option C:	0.995
Option D:	1.252