University of Mumbai

Examination 2020 under cluster ___ (Lead College Short name)

Program: Bachelor of Engineering
Curriculum Scheme: Rev2016
Examination: First Semester II
Course Code: FEC202 and Course Name: Applied Physics-II

Time: 1 hour Max. Marks: 50

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NOTE to the Question Paper Setter: (To be deleted before submitting the paper to Semester Coordinator)

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 name as per the sample format given below:

File Name: "Date of Examination_Scheme_Program_Semester_Subject Code_QP Set Number"

For example:

QP set number 1 of first core course of Mechanical Engineering Semester V for Rev2016 scheme and scheduled on 2/12/2020 has to have the file name as

0212_R16_Mech_V_MEC501_QP1

QP set number 3 of Department Level Optional Course of Computer Engineering Semester VI for Rev2012 scheme and scheduled on 12/12/2020 has to have the file name as

1212_R12_Comp_VI_CSDLO6021_QP3

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

Q1.	Calculate the number of photons, from green light of mercury (ʎ = 4961 Å), required to do one joule of work.
Option A:	4524.2×1018/m3
Option B:	2.4961×1018/m3
Option C:	2.4961/m3
Option D:	2.4961/m
Q2.	Which of the following can be used for the generation of laser pulse?
Option A:	Ruby laser
Option B:	Carbon dioxide laser
Option C:	Helium neon laser
Option D:	Nd- YAG laser
Q3.	Which of the following is used in atomic clocks?
Option A:	Laser
Option B:	Quartz
Option C:	Maser
Option D:	Helium
Q4.	What is the full form of LASER?

Option A:	Light Absorbent and Stimulated Emission of Radiations
Option B:	Light Absorbing Solar Energy Resource
Option C:	Light Amplification by Stimulated Emission of Radiations
Option D:	Light Amplification of Singular Emission of Radiations
Q5.	How shall a diffraction pattern change when white light is used instead of a monochromatic light?
Option A:	The pattern will no longer be visible
Option B:	The shape of the pattern will change from hyperbolic to circular
Option C:	The colored pattern will be observed with a white bright fringe at the center
Option D:	The bright and dark fringes will change position
Q6.	How many lenses are used in Fraunhofer Diffraction?
Option A:	Two Convex lenses
Option B:	Two Concave lenses
Option C:	One Convex lens
Option D:	No lens used
Q7.	In Fresnel diffraction, the relative phase difference between the curved wavefront is _____
Option A:	Constant
Option B:	Zero
Option C:	Linearly increasing
Option D:	Non-constant
Q8.	Which of the following does not show any interference pattern?
Option A:	Soap bubble
Option B:	Excessively thin film
Option C:	A thick film
Option D:	Wedge Shaped film
Q9.	Zero order fringe can be identified using _____
Option A:	White light
Option B:	Yellow light
Option C:	Achromatic light
Option D:	Monochromatic light
Q10.	In Fresnel Diffraction, the incident wavefront is _____
Option A:	Hyperbolic
Option B:	Linear
Option C:	Spherical
Option D:	Elliptical
Q11.	According to stoke's law, the expression for maxima is: 2μtcosr = _____
Option A:	nλ
Option B:	2nλ

Option C:	(2n + 1) λ/2
Option D:	(n + 1) λ/2
Q12.	In Double Slit Fraunhofer Diffraction, some orders of interference pattern are missing. It is called _____
Option A:	Missing Spectra
Option B:	Absent Spectra
Option C:	End Spectra
Option D:	Emission Spectra
Q13.	Nanomaterials are the materials with at least one dimension measuring less than _____
Option A:	1 nm
Option B:	10 nm
Option C:	100 nm
Option D:	1000 nm
Q14.	The colour of the nano gold particles is _____
Option A:	Yellow
Option B:	Orange
Option C:	Red
Option D:	Variable
Q15.	Which of the processes of materials was not described as Nanotechnology?
Option A:	Separation
Option B:	Creation
Option C:	Processing
Option D:	Consolidation
Q16.	What is the principle of fibre optical communication?
Option A:	Frequency modulation
Option B:	Population inversion
Option C:	Total internal reflection
Option D:	Doppler Effect
Q17.	How does the refractive index vary in Graded Index fibre?
Option A:	Tangentially
Option B:	Radially
Option C:	Longitudinally
Option D:	Transversely
Q18.	Which of the following is the expression for Lorentz force?
Option A:	qE
Option B:	q (v X B)
Option C:	ma + qE
Option D:	qE + q (v X B)

Q19.	The velocity of a charged particle to keep moving in the same direction, in a region where electric and magnetic fields are perpendicular to each other, is
Option A:	E/B
Option B:	B/E
Option C:	E/B + qE/B
Option D:	B/E + qB/E
Q20.	Differential form of Gauss's law in magneto statics is _____
Option A:	div B = ρ/εo
Option B:	div B = 0
Option C:	div B = -dB/dT
Option D:	div B = μJ
Q21.	By making use of a CRO _____
Option A:	many characteristics of a signal can be measured
Option B:	only a few characteristics of a signal can be measured
Option C:	no characteristics of a signal can be measured
Option D:	signal can only be displayed
Q22.	The amplitude of voltage is given by which of the following relation?
Option A:	Vm = Vp−p2
Option B:	Vm = Vp−p4
Option C:	Vm = 2 × Vp-p
Option D:	Vm = 4 × Vp-p
Q23.	How is frequency related to time period?
Option A:	square proportional
Option B:	not related
Option C:	directly proportional
Option D:	inversely proportional
Q24.	Magnetic field can be produced by _____
Option A:	Conduction current
Option B:	Displacement current
Option C:	Both conduction and displacement current
Option D:	It is produced naturally
Q25.	If a light is incident on a grating with 5000 lines/cm, then the angular separation of the two lines (5000 Å and 5006 Å) in first order spectrum is _____
Option A:	0.01°
Option B:	0.02°
Option C:	0.03°
Option D:	0.04°