

Hall Ticket Number:

Code No. : 12023 N (A)

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) II-Semester Main Examinations, May/June-2019

Applied Physics

(Civil & Mech. Engg)

Time: 3 hours

Max. Marks: 60

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Q.No.	Stem of the question	M	L	CO	PO
Part-A (10 × 2 = 20 Marks)					
1.	Distinguish spontaneous and stimulated emissions.	2	1	2	2
2.	Recall any four applications of Laser.				
3.	Calculate the numerical aperture and acceptance angle of a fiber of core index 1.4 and $\Delta = 0.02$.	2	3	2	2
4.	Justify the application of optical fiber as a wave guide.	2	5	3	3
5.	Explain the conditions for good acoustics of buildings	2	2	4	1
6.	Define the terms reverberation and reverberation time.	2	1	4	2
7.	Define inversion temperature	2	1	5	1
8.	Describe the properties of cryogenic helium.	2	1	5	2
9.	Explain Meissner effect.	2	2	4	3
10.	Distinguish soft and hard ferromagnetic materials.	2	3	5	2
Part-B (5 × 8 = 40 Marks)					
11. a)	Describe the construction and working of Ruby Laser with neat diagram.	4	1	1	2
b)	Discuss Einstein theory of matter-radiation interaction- A and B coefficients.	4	4	2	3
12. a)	Describe types of optical fibers based on refractive index profile.	4	1	2	2
b)	Analyze different signal losses that occur in optical fiber communication system	4	4	3	3
13. a)	Obtain an expression for intensity of sound reverberation.	4	1	3	2
b)	State and explain Sabine's formula for reverberation time.	4	2	4	3
14. a)	Explain Linde process for the liquification of helium gas.	4	1	4	2
b)	What is Joule Thomson effect? Interpret J-K effect for a Vanderwaal's gas.	4	5	3	2
15. a)	Explain Weiss molecular field theory of Ferro magnetism.	4	5	5	3
b)	Distinguish Type-I and Type-II super conductors.	4	3	5	2
16. a)	Obtain the relation between Einstein coefficients.	4	1	2	3
b)	Discuss the propagation of light through an optical fiber.	4	4	3	3
17.	Answer any <i>two</i> of the following:				
a)	Define absorption coefficient and describe different sound absorbent materials.	4	1	4	2
b)	Recall any four applications of cryogenic liquids.	4	1	4	11
c)	Explain any four general properties of super conductors.	4	1	5	3

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	60%
2	Knowledge on application and analysis (Level-3 & 4)	30%
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	10%
