

Vivekananda College of Engineering & Technology, Puttur
[A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]
Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08

Rev 1.14

<BS(PHY)>

CONTINUOUS INTERNAL EVALUATION - 2

Dept: BS(PHY)	Sem / Div: I/CS-A&B	Sub: Applied Physics for CSE stream	S Code: BPHYS102
09/01/2024	Time: 2:30-4:00PM	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	CO's
PART A				
1 a	Mention any four differences between classical and quantum computing and explain the concept of <i>Qubit</i> and its representation using Bloch Sphere.	10	L2	CO2
b	State the Pauli matrices and apply Pauli matrices on the states $ 0\rangle$ and $ 1\rangle$.	10	L2	CO2
c	Calculate the probability of occupation of an energy level 0.2eV above Fermi level at temperature 27°C .	5	L3	CO3
$= 1\% \neq > 0.01$ OR				
2 a	Define Fermi Energy & Fermi Factor and discuss the dependence of Fermi factor with temperature and energy.	10	L1 & L2	CO3
b	Discuss the CNOT gate and its operation on four different input states. Mention its truth table and circuit representation.	10	L2	CO2
c	A Linear Operator 'X' operates such that $X 0\rangle = 1\rangle$ and $X 1\rangle = 0\rangle$. Find the matrix representation of 'X'.	5	L3	CO2
PART B				
3 a	Discuss timing in linear motion, uniform motion, slow in and slow out.	10	L2	CO4

	b	Elucidate the importance of size and scale & weight and strength in animations.	10	L2	CO4
	c	The number of particles emitted per second by a random radioactive source has a Poisson's distribution with $\lambda = 4$. Calculate the probability of $P(X = 0)$ and $P(X = 1)$.	5	L3	CO4
$P(X=0) = 0.01$ $P(X=1) = 0.07$ <p style="text-align: center;">OR</p>					
4	a	Illustrate the odd rule and odd rule multipliers with a suitable example.	10	L2	CO4
	b	Write any four differences between descriptive and inferential statistics. Discuss the salient features of Normal distribution using bell curves.	10	L2	CO4
	c	A slowing-in object in an animation has a first frame distance 0.5m and the first slow in frame 0.35m. Calculate the base distance and the number of frames in sequence.	5	L3	CO4

Prepared by: Dr. Raveesha P M

HOD: Prof. M Ramananda Kamath