SEMESTER	I	QP CODE	23CORE11

P.R. GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
SEM I END EXAMINATIONS JANUARY-2024
I B.SC(MATHS STREAM), SUBJECT: ESSENTIALS&APPLICATIONS OF MATHS,PHYSICS&CHEMISTRY

DATE & SESSION	10.01.2024 AN	REG NO								MAX MARKS	50

Section -I

Answer any three of the following questions.
Must attempt at least one question from each part. Each question carries 10 Marks.
3 X 10 = 30M

Part – A

1. Estimate a Unit vector Perpendicular to both $\bar{a} = 2\hat{\imath} + \hat{\jmath} - 2\hat{k}$ and $\bar{b} = 3\hat{\imath} - \hat{\jmath} + \hat{k}$. (BT-1)
2. Write a short note on Wave particle duality and Explain Heisenberg Uncertainty Principle. (BT 1)
3. Explain the following with suitable examples. (BT 1)
   a) Ionic bond b) Vander wall forces

Part-B

4. Spring has a natural length of 1m. A force of 24 N Stretches the spring to a length of 1.8m
   (a) Find the force constant k
   (b)How much work will be taken to stretch the spring 2 m beyond its natural length? (BT-4)
5. What is internet? Explain Applications of the internet. (BT 1)
6. Analyze the various applications of Physics in Electronics and Semiconductor Industry. (BT 2)

Section-II

Answer any Four of the following questions. **4 X 5 = 20M**

7. Estimate the Modulus and the Argument of the complex number $Z = -1 - i\sqrt{3}$. (BT-1)
8. Evaluate the angle between the vectors $\bar{a} = 2\hat{\imath} - 2\hat{\jmath} + \hat{k}$ and $\bar{b} = 3\hat{\imath} + \hat{\jmath} - 2\hat{k}$. (BT-3)
9. Explain the behavior of Atomic and Nuclear particles. (BT2)
10. What is Internet Protocol (IP)? Explain its versions. (BT 1)
11. Generalize the principles of Green Chemistry. (BT 2)
12. Discuss the application of Chemistry in daily life. (BT 1)
13. What is cryptography? What are its fundamental types? (BT 1)

@@@