City College

Internal Examination 2021-2022
Physics (Hons. and Gen.) Semester 3
Paper: PHSA and PHSG SEC-A1
Topic: Scientific Writing
Full Marks: 20; Time: 1 Hour

Answer any ten questions. Each question carries two marks.

1. What is the difference between WYSIWYG and WYSIWYM? Explain.
2. What is the importance of document class?
3. What is the command to write an unnumbered equation?
4. Write down the LaTeX script to generate the following output: This is *how* you change color in LaTeX.
5. Write down the LaTeX script to generate the following output: This is **how** you change font size.
6. What will be LaTex command to write : $y = 1 + 2 + 3 + \cdots$
7. What will be LaTex command to write : $e^{i\pi} + 1 = 0$
8. Write down the LaTeX script to generate the following output:

$$\oint_{C=\partial V} \vec{A} \cdot d\vec{s} = \int_V \vec{\nabla} \cdot \vec{A}\, dv$$

9. Write down the LATEX script to generate the following output:

$$\int_0^a \frac{\ln(1+ax)}{1+x^2}\, dx = \frac{1}{2} \ln(1+a^2) \tan^{-1} a$$

10. Write the appropriate LaTeX script to generate the the following output:

$$i\hbar \frac{d}{dt} |\Psi(t)\rangle = \hat{H} |\Psi(t)\rangle$$

11. What is the package you need to include in the preamble for incorporating figures in your document?
12. Write down the LaTeX script to generate the following output: $\lambda^2 - \lambda\ \mathrm{Tr[A]} + \det[\mathrm{A}] = 0$.
13. Write the LaTeX script for the following nuclear reaction: $^{27}\mathrm{Si} \xrightarrow{\beta+} {}^{27}\mathrm{Al}$.
14. Write down any equation of your choice, numbering it and labeling it. Next write any statement of your choice that contains a reference to the equation you have written down.
15. Write Maxwell's equations in differential form.

Answer scripts must be emailed to ***sem3hcityphysics@gmail.com*** *within 30 minutes of the end of the examination.*