

(w.e.f. Admitted Batch 2024 - 25)

Maximum: 70 Marks

I. Multiple Choice Questions:

1. The value of $\sec 30^\circ$ is _____ []
a) 2 b) $\frac{\sqrt{3}}{2}$ c) $\frac{2}{\sqrt{3}}$ d) $\sqrt{2}$
2. The value of $\cos^2 \theta + \sin^2 \theta$ is _____. []
a) 0 b) 1 c) ∞ d) $\sqrt{2}$
3. The modulus of the complex number $(1+ i)$ is _____ []
a) $\sqrt{2}$ b) 2 c) 1 d) i
4. If $\vec{a} = 3\vec{i} + 2\vec{j} - 6\vec{k}$ and $\vec{b} = 4\vec{i} - 3\vec{j} + \vec{k}$ then $\vec{a} . \vec{b} =$ _____ []
a) 1 b) 3 c) 2 d) 0
5. The average of 605, 710, 745, 835 and 910 is []
a) 3805 b) 761 c) 745 d) 710
6. Mode of the data: 15, 14, 19, 20, 14, 15, 14, 18, 14, 15, 14 []
a) 20 b) 18 c) 15 d) 14
7. What type of physics sensors are commonly used in robotics to detect proximity and obstacle[]
a) Accelerometers b) Thermocouples c) Ultra sonic sensors d) Photo electric sensors
8. What factors affect an instrument accuracy? []
a) resolution b) Automation c) Numerous d) Analyzing
9. The branch of physics which deals with forces acting on bodies in motion is called-----[]
a) Chemical physics b) mechanics c) Magnetism d) Medical physics
10. Which of the thermodynamics law is used to understand the concept of energy conservation?[]
a. Zeroth law b) First law c) second law d) None of these
11. The waves with the frequency above the audible range of human beings are called---[]
Supersonic waves b) Ultrasonic waves c) Infrasonic waves d) Hyper sonic waves
12. The part of the spectrum of the electromagnetic radiation used to cook food is-----[]
a) Ultra violet rays b) Cosmic rays c) rays d) Microwaves
13. The correct representation of de-Broglie wave length λ of matter is []
a) $\lambda = hvp^2$ b) $\lambda = mp^2$ c) $\lambda = mp$ d) $\lambda = h/mv$

14. Big bang theory is related to []
a) Continental Drifts b) Origin of the universe
c) Origin of the Himalayas d) Eruption of volcanoes
15. Who is the father of modern periodic table []
a) Douber neer b) Mosley c) Mendeleev d) Neis Bhor
16. Another name of 16 group elements is called []
a) Halogens b) Pnicogens c) Chalkogens d) Nobelgas
17. The valency of Nobel gases are []
a) 0 b) 8 c) 2 d) 6
18. Which one is P – block element []
a) Mg b) N c) V d) K
19. Which element is shown ns^2np^3 electronic configuration []
a) B b) Al c) N d) V
20. Green chemistry reactions are []
a) Abolition economic reactions b) Elimination economic reactions
c) 100% atom economic reactions d) Substitution economic reactions
21. What is the full form of ISP? []
a) Internet Server Provider b) Internet Service Provider
c) Internet Service Protocol d) None of these
22. Which category of websites helps people in establishing social relationship and function like an online community of internet users? []
a) E-shopping b) Social Networking c) Social Group d) E-reservation
23. The interconnection of networks all across the world is known as []
a) Communication b) Internet c) Web page d) Ethernet
24. Each computer on a network is recognized by a unique []
a) IP address b) HTTP c) HTTPS d) www
25. Which of these is also malicious software? []
a) Badware b) Malicious Ware c) Malware d) Illegalware
26. Which of the following malware do not replicate or reproduce through infection? []
a). Worms b) Trojans c) Viruses d) Rootkits
27. Drugs used to reduce body temperature are called []
a) Analgesics b) Antipyretics c) Antacids d) Antiseptics
28. Which of the following is an anionic detergent []
a) Sodium stearate b) Sodium lauryl sulphate
c) Sodium Lauryl benzene sulphonate d) All of the above

29. Median formula for continuous data? []

- a) $L + \frac{\frac{N}{2} - f}{p.c.f} \times C$ b) $L + \frac{\frac{N}{2} - p.c.f}{C}$
c) $L + \frac{\frac{N}{2} - p.c.f}{f} \times C$ d) $L + \frac{f_1 - f_0}{C}$

30. The relationship between mean, median and mode is []

- a) Mode = Median + Mean b) Mode = 2 Mean - Median
c) Mode = 3Median - 2Mean d) None

SECTION-B

10 x 1 = 10 M

II. Fill in the blanks :

31. The conjugate of $3+4i$ is _____
32. If $\sin \alpha = \frac{1}{2}$ then $\cos \alpha =$ _____
33. Newtonian principle involved in motion of a rocket is -----
34. Highest frequency waves in electromagnetic spectrum is -----
35. Carbohydrates are _____.
36. Pellagra disease caused by deficiency of _____.
37. _____ in computer terminology is a change in technology computer is being used.
38. First computer Mark 1 in 1937 was invented by _____.
39. Which alloy is used in Aeroplane _____
40. Drugs that are used to relieve pain are called _____.

SECTION- C (Very short answer questions) 10 X 1 = 10 M

III. Very short Answer Questions :

41. Evaluate $(1+2i)(1-3i)$
42. Find the median of the data: 5, 12, 16, 18, 20, 25, 10.
43. What are fundamental and derived quantities in physics?
44. What is Heisenberg uncertainty principle and how does it relate to particle duality?
45. How many groups are there in modern periodic table.
46. What do you mean by fats.
47. What is network security?
48. What is decrypting?
49. What is identified as a consequence of altering the carbon cycle on the planet?
50. If $\sin 2A = 2\sin A$, then find the value of A.

(I)

IV. A. Match the Following

51. $e^{i\theta}$ [] a) Newton laws
52. $\tan 45^\circ$ [] b) Astrophysics
53. The world of physics that deals with the electrical and magnetic phenomenon relating to the charged and magnetic bodies are called [] c) 1
54. Branch of physics extensively uses Differential to model natural phenomenon [] d) Electrodynamics
55. Fundamental laws in classical physics [] e) $\cos\theta + i \sin\theta$

B. Match the Following

56. Metalloid [] a) I group
57. Alkali metals [] b) Beri Beri
58. Vitamin B₁ [] c) Si
59. Third generation [] d) ARPANET
60. The first email was sent using @ sign in [] e) 1970

SECTION - E (True or False)

10 X 1 = 10 M

V. True (or) False :

61. If $Z_1, Z_2 \in \mathbb{C}$ then $\arg(Z_1 \cdot Z_2) = \arg Z_1 + \arg Z_2$. [True/False]
62. The observation that occurs most frequently in the data is called mode. [True/False]
63. Einstein's theory of special relativity, developed in 1905, introduced a revolutionary frame work for understanding the behavior of objects moving at high speeds, approaching the speed of light. [True/False]
64. The second law of thermodynamics does not affect the efficiency of heat engines. It is only concerned with the behavior of isolated systems. [True/False]
65. Chemical change is generally an irreversible process. [True/False]
66. Starch is an example of reducing sugar. [True/False]
67. Is a firewall a security system. [True/False]
68. To send an email, you must have an email address. [True/False]
69. Liquid crystal displays are common in calculators, digital watches, television displays. [True/False]
70. A line segment with a specified magnitude and direction is called a vector. [True/False]