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Answers Key:

Assertion and reason

1. D) If the assertion and reason both are false.
   Rate of flow of liquid is expressed as the volume of liquid flowing per second and it has dimension $[L^3T^{-1}]$.
2. C) If assertion is true but reason is false.
   Because density can be derived from fundamental quantities.
3. A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
   As radar is most accurate instrument used to detect aeroplane in sky based on principle of reflection of radio waves.
4. A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
   Unit of quantity (L/R) is Henry/ohm. As Henry = ohm ´ sec, hence unit of L/R is sec i.e. [L/R] = [T]. Similarly, unit of product CR is farad ´ ohm or, $\frac{\text{Coulomb}}{\text{Volt}} \times \frac{\text{Volt}}{Amp}$ | or, $\frac{Sec \times Amp}{Amp}$ |, or, sec i.e. [CR] = [T] therefore [L/R] and [CR] both have the same dimension.
5. (a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
   Explanation:
   As the distance of star increases, the parallax angle decreases, and great degree of accuracy is required for its measurement. Keeping in view the practical limitation in measuring the parallax angle, the maximum distance of a star we can measure is limited to 100 light year.
6. (b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
7. (a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
8. (c) Assertion is correct, reason is incorrect
9. (c) A is true but R is false.
10. a) If both Assertion and Reason are true and Reason is correct explanation of Assertion.

Multiple Choice Question

11. (d) ρ = mu
12. (c) Velocity
13. (d) Light year
14. (d) 4% and 3%
15. (b)

A	B	C	D
3	2	4	1

16. (d) all the above
17. (d) $ML^2T^{-2}K^{-1}$
18. (b) 10 cm
19. (c) 1.9×10^{12}
20. (c) Barn
21. (d) Either (a) or (b)
22. (a) 10^{15}
23. (a) 4.9 cm
24. (a) $\frac{a}{(N+1)}$
25. (a) 0.076 s
26. (c) (300 ± 7) Ω
27. (a) Dipole moment, Electric field and Electric flux
28. (a) $[ML^2T^{-2}mol^{-1}K^{-1}]$
29. (c) $[M^{-3}L^{-2}T^8A^4]$
30. (b) $[\text{mole}^{-1}]$
31. (b) π
32. (b) homogeneity of dimensions
33. (b) 5.8 g
34. (c) lT^{-2} ; L; T
35. (a) Length, time and velocity
36. (c) Ampere/sec
37. (a) Reynolds number and coefficient of friction
38. (b) Angular impulse
39. (d) Force/Volume
40. (b) Parsec