Questions from M.S.B.T.E. Question Papers

(1) Define error, state basic types of errors. **(4 M, W-06)**

(2) Define system of units. State different types of system of units and name fundamental quantities in them with their units. **(4 M, S-07)**

(3) Define errors and state types of errors with examples. **(4 M, S-07)**

(4) Explain different types of errors. Define percentage error. **(4 M, S-07)**

(5) Define (i) Absolute error, (ii) Average absolute error, (iii) Relative error, (iv) Percentage error. **(4 M, S-08)**

(6) Classify the following physical quantities as fundamental and derived quantities :
Length, force, temperature, acceleration, area, luminous intensity, pressure, time. **(2 M, W-08)**

(7) Define unit of physical quantity and state requirements of good unit. **(4 M, W-08)**

(8) Classify following physical quantities as fundamental and derived quantities :
mass, velocity, length, force **(2 M, S-09)**

(9) Define fundamental quantity, derived quantity, instrumental error, systematic error.

(10) Write CGS and SI unit of the following physical quantities:
mass, length, force and density **(2 M, W-09)**

(11) Define unit and give any two requirements of standard unit. **(2 M, S-10)**

(12) Define significant figures. State the rules to find number of significant figures in measurement. **(4 M, S-10)**

(13) Classify the following into fundamental and derived units : kilogram, coulomb, second, volt, candela. **(2 M, W-10)**

(14) Define derived physical quantity. Give two examples. **(2 M, S-11)**

MCQs on Units and Measurements

1. *To calculate weight of the man, which of the following parameters is used .....*
   (a) length *(b) mass*
   (c) time *(d) none of these*
2. *Which of the following quantity is measured in Kelvin ?*
   (a) length *(b) mass*
   (c) time *(d) temperature*
3. *The unit of acceleration in S.I. is .....*
   (a) m/s *(b) km/h*
   (c) m/s^2 *(d) km/h^2*

4. The unit of force in C.G.S. is .....
   (a) pound force (b) Newton
   (c) kg force (d) dyne

5. Kilogram metre per second square is the unit of .....
   (a) force (b) pressure
   (c) work (d) velocity

6. The unit of work is .....
   (a) Newton-metre (b) Newton
   (c) Joule/s (d) kilogram-metre

7. The unit of plane angle is .....
   (a) degree Celsius (b) radian
   (c) steradian (d) none of these

8. The length of the table is 3 metre, here 3 is the .....
   (a) standard (b) unit
   (c) magnitude (d) quantity

9. Which of the following is not a requirement of standard unit .....
   (a) it should be same for all quantities (b) it should be universally accepted
   (c) it should be well defined (d) it should be fixed with time and place

10. The ..... used for measurement of physical quantity is called unit of that quantity.
    (a) quantity (b) dimension
    (c) time (d) standard

11. A physical quantity is a quantity which can .....
    (a) be defined (b) be measured
    (c) not quantified (d) not computed

12. The physical quantity which do not depend on any other physical quantity for their measurement is called .....
    (a) fundamental quantity (b) derived quantity
    (c) scalar quantity (d) vector quantity

13. Which of the following is not a fundamental quantity ?
    (a) length (b) speed
    (c) mass (d) time

14. Which of the following is a fundamental quantity ?
    (a) density (b) pressure
    (c) momentum (d) time

15. *Physical quantity which depends on one or more fundamental quantities for their measurement is called as .....*

(a) *fundamental quantity* (b) *derived quantity*

(c) *MKS quantity* (d) *CGS quantity*

16. *Which of the following is not a fundamental unit ?*

(a) *metre* (b) *kilogram*

(c) *newton* (d) *second*

17. *Which of the following is a derived unit ?*

(a) *metre* (b) *kilogram*

(c) *second* (d) *joule*

18. *Pascal is the S.I. unit of .....*

(a) *force* (b) *pressure*

(c) *density* (d) *momentum*

19. *The system of units which are in use are .....*

(a) *C.G.S., M.K.S., P.S.T. and S.I.* (b) *M.K.S., C.G.S., V.I.T. and S.I.*

(c) *C.G.S., M.K.S., P.S.T. and F.I.* (d) *C.G.S., M.K.S., F.P.S. and S.I.*

20. *In M.K.S. system, the units of length, mass and time are .....*

(a) *millisecond, kilohertz and second* (b) *metre, kilogram and second*

(c) *millimetre, kilobyte and second* (d) *mile, kilogram and second*

21. *The units of length, mass and time are centimetre, gram and second which are used in the ..... system.*

(a) *C.G.S.* (b) *M.K.S.*

(c) *F.P.S.* (d) *S.I.*

22. *1 gigahertz means .....*

(a) 10^6 *Hz* (b) 10^3 *Hz*

(c) 10^{12} *Hz* (d) 10^9 *Hz*

23. *1 millimetre means .....*

(a) 10^{-2} *m* (b) 10^{-3} *m*

(c) 10^{-6} *m* (d) 10^{-9} *m*

24. 10^{-6} *metre means .....*

(a) *1 mm* (b) *1 cm*

(c) *1 nm* (d) *1 μm*

25. *1 nanometre equals to .....*

(a) 10^{-9} *m* (b) 10^{-6} *m*

(c) 10^{-3} *m* (d) 10^{-1} *m*