English Medium

General Science

Chapterwise, Topicwise
& sub-Topicwise

Solved Papers

Youth Competition Times

Railway Recruitment Board

RRB 2022-23

• Group D • NTPC Stage- I & II • ALP Stage-I & II
• RRB JE • Paramedical • RPF Constable/SI etc.

GENERAL SCIENCE

Up-to-date

Chapterwise,

Topicwise & Sub-Topicwise

Solved Papers

Computer Based Test

9585+ Objective Questions

Includes Chapterwise Presentation of
511+ Online Question Papers (All Sets)

Youth Competition Times

RRB
General Science

Chapterwise Solved Papers

Computer Based Test

CHIEF EDITOR
A.K. Mahajan

EDITOR
Advocate Abhishek Singh

WRITERS
Ambuj Kumar, Anand Soni, Rajkaran Patel
Abhishek Singh, Amit Prajapati, Rahul Varma

COMPUTER GRAPHICS BY
Balkrishna, Charan Singh, Vinay Sahu

EDITORIAL OFFICE
Youth Competition Times
12, Church Lane Prayagraj-211002
Mob. : 9415650134
Email : yctap12@gmail.com
website : www.yctbooks.com

PUBLISHER DECLARATION
Edited and Published by A.K. Mahajan printed by R.A. Security Printers, Prayagraj.
Youth Competition Times 12, Church Lane, Prayagraj

In order to publish the book, full care has been taken by the editor and the publisher,
Still your suggestions and queries are welcomed.

In case of any dispute, the judicial area will be Prayagraj.

Rs. : 495/-

CONTENT

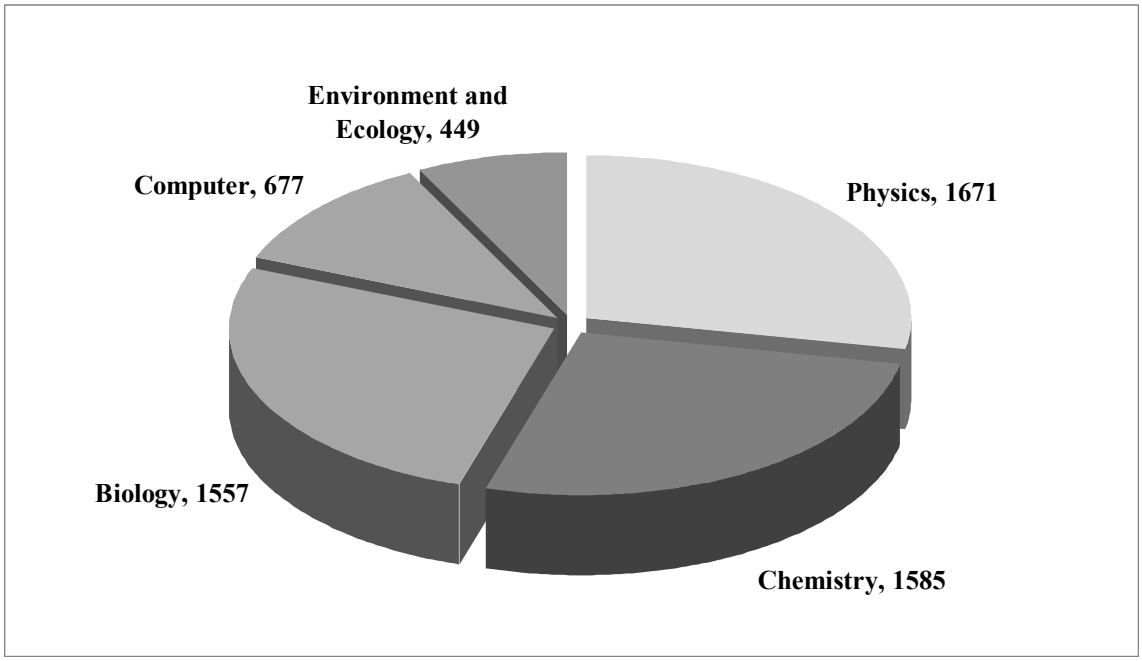
Analysis Chart of Question Papers of Various Previous Exams of RRB

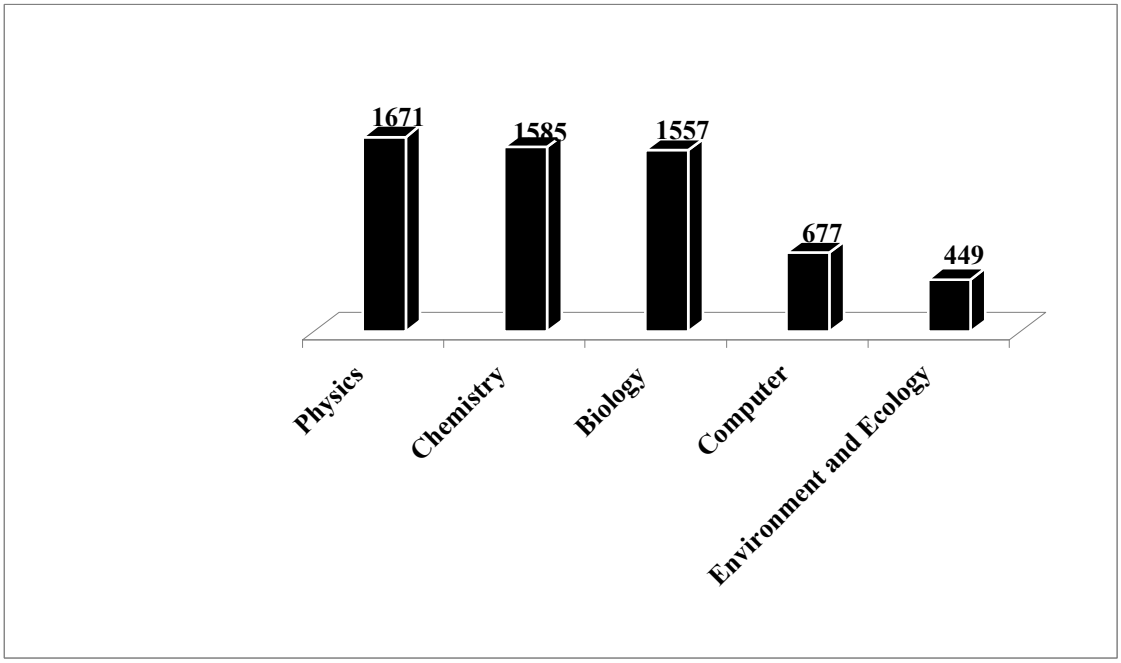
S.N.	Exam	Exam year	Total Question Papers	General Science + General Awareness	Total Questions of General Science
1.	RRB NTPC-2019 Stage-I	2020-2021	133	10 + 30 = 40	10×133= 1330
2.	RRB JE-2018 Stage-II	2019	9	35 + 15 = 50	35×9 = 315
3.	RPF Constable 2018	2019	17	20 + 30 = 50	20×17 = 340
4.	RPF SI 2018	2019	23	20 + 30 = 50	20×23 = 460
5.	RRB JE-2018 Stage-I	2019	38	30 +15 = 45	30×38 = 1140
6.	RRB ALP/Tech.-2018 Stage-II	2019	18	40+10 = 50	40×18 = 720
7.	RRB ALP/Tech.-2018 Stage-I	2018	30	20+10 = 30	20 × 30 = 600
8.	RRB Group D 2018	2018	135	25+20 = 45	25 × 135 = 3375
9.	RRB NTPC-2015 Stage-II	2017	9	35+15 = 50	35 × 9 = 315
10.	RRB NTPC-2015 Stage-I	2016	63	10 + 30 = 40	10 × 63 = 630
11.	RRB JE 2015	2015	26	10 + 15 = 25	10 × 26 = 260
12.	RRB JE 2014	2014	10	10 + 15 = 25	10 × 10 = 100
Total			**511**		**9585**

Note–

- In this book, a total of 511 question papers of NTPC Stage-I and II, Group D, JE Stage-I and II, ALP Stage-I and II, RPF Constable and RPF SI online examinations conducted by RRB have been included.
- In this book, out of total 9585 questions related to General Science, by removing the repetitive questions, a chapterwise compilation has been presented with explanation of 1671 questions of Physics, 1585 of Chemistry, 1557 of Biology, 677 of Computer and 449 questions of Environment and Ecology. Out of which the name of the concerned examination and the date of examination have been added to the original question by removing the repetitive questions, so that the examinee can properly assess the importance of questions.

Trend Analysis of Previous Year RRB JE, ALP, NTPC & Group-D Papers Through Pie Chart and Bar Graph





Part-1

PHYSICS

1. Unit/Measurement/Measuring Instrument

(i) Unit

1. Newton is the unit to measure _____.

(a) Power (b) Force
(c) Pressure (d) Resistance

RRB NTPC 08.02.2021 (Shift-II) Stage Ist

Ans : (b) :

Quantity	SI - Unit
Power	Watt
Force	Newton
Pressure	Pascal
Resistance	Ohm

2. The SI unit of sound wave frequency was named in honour of which physicist?

(a) Werner Karl Heisenberg
(b) Heinrich Rudolf Hertz
(c) Albert Einstein
(d) J C Maxwell

RRB NTPC 19.01.2021 (Shift-II) Stage Ist

Ans : (b) The term 'Hertz' was proposed in the early 1920s by German scientists to honour the 19th century German physicist Heinrich Hertz. Hertz is a part of International System of Units or SI System which is based on the Metric System.

3. The work done by a force acting on an object is equal to the amount of force multiplied by the distance travelled in the direction of the force. Which of the following is NOT a unit of work ?

(a) Kgm/sec^2 (b) Kgm^2/sec^2
(c) Newton meter (d) Joule

RRB NTPC 13.03.2021 (Shift-I) Stage Ist

Ans : (a) Work can be defined as 'workdone by a force on an object is equal to the magnitude of the force multiplied by the distance travelled by the object the object in the direction of force.

$$\Rightarrow W = FS\cos\theta$$

The SI unit of work is Newton-metre (N-m) or Joule (J) or $Kg\text{-}m^2/sec^2$ and its CGS unit is Erg. Newton ($Kg\text{-}m/sec^2$) is the unit of Force.

4. The unit of Force is:

(a) gms^{-1} (b) $Kgms^{-2}$
(c) gms^{-2} (d) $Kgms^{-1}$

RRB NTPC 13.03.2021 (Shift-I) Stage Ist

Ans : (b) The SI unit of Force is $kg.ms^{-2}$. The quantity of force is expressed by the vector product of mass (m) and acceleration (a).

$\Rightarrow \boxed{F = ma}$

5. Which of the following is not a unit of temperature?

(a) Fahrenheit (b) Pascal
(c) Celsius (d) Kelvin

RRB Group-D 31-10-2018 (Shift-II)

Ans : (b) Fahrenheit, Celsius and Kelvin are the units of temperature. Pascal is a unit of pressure.

6. The SI unit of electrical resistivity is ……

(a) Ohm-meter (b) Ohm
(d) Coulomb (d) Ampere

RRB Group-D 04-12-2018 (Shift-III)
RRB Group-D 23-10-2018 (Shift-I)

Ans : (a) The electrical resistivity of a substance indicates its ability to resist the flow of electric current by the substance. Low resistivity of materials allow electric charge to flow smoothly. Its SI unit is Ohm meter (Ωm).

7. The commercial unit of electric energy is .....

(a) watt (b) kW
(c) kilowatt-hour (d) joule

RRB Group-D 20-09-2018 (Shift-II)

Ans : (c) The commercial unit of electric energy is the kilowatt hour. A 1 kilowatt hour or a unit is the amount of electrical energy that will be spent in an hour in a circuit by an instrument of 1000 watt of power.
$1\ kWh = 3.6 \times 10^6$ joule = 1 unit

8. The amount of radiation being emitted by a radioactive material is measured using the conventional unit ———.

(a) Watt (b) Pascal
(c) Ampere (d) Curie

RRB NTPC 29.01.2021 (Shift-II) Stage Ist

Ans : (d) The amount of radiation being emitted by a radioactive material is measured in Curie. It is the traditional unit of radioactivity and shows the activity of 1g of pure radium and is equal to 3.7×10^{10} disintegration/second.
Becquerel is also the SI unit of radioactivity and is defined as the amount of a radioactive substance showing one disintegration/second.

9. What is measured in 'joules'?

(a) Energy (b) Velocity
(c) Force (d) Power

RRB NTPC 28.01.2021 (Shift-I) Stage Ist

Ans : (a)

Physical Quantity	**SI Unit**
Energy and Work	Joule
Velocity	m/s.
Force	Newton
Power	Watt
Pressure	Pascal
Wavelength	Angstrom

10. Henry per meter is the unit of_____.
(a) Watt per steradian
(b) Electronegativity
(c) Magnetic permeability
(d) electrical conductivity

ALP Stage -II 23.01.2019 (shift - II)

Ans : (c) "Henry per Metre" is the SI unit of magnetic permeability.

11. A light-year is a unit of _____
(a) Time (b) Intensity of light
(c) Mass (d) Distance

RRB NTPC 01.02.2021 (Shift-I) Stage Ist

Ans : (d) A light year is a measurement of distance. A light year is the distance that a beam of light travels in a single Earth year or 6 trillion miles. One light year is equal to 9.461×10^{12} kilometres.
Another units of distance are:
1 Parsec = 3.26 light year
1 Astronomical Unit = 1.496×10^{11}m.

12. Light-year is the unit of –
(a) Time (b) Distance
(c) Speed of light (d) Intensity of light

RRB JE (14-12-2014, Green Paper)

Ans : (b) See the explanation of above question.

13. What is the SI unit of power of a lens called?
(a) Hypermetropic (b) Dioptre
(c) Myopic (d) Presbyopic

RRB NTPC 13.01.2021 (Shift-II) Stage Ist

Ans : (b) Power of lens - The inverse of the focal length of the lens is called the power of lens. If the focal length of a lens is 'f' in meter, then its power 'P' = $\frac{1}{f}$ in diopters. Its SI unit is diopter which is represent by D.

- **Myopia (Near sightedness) →** A person suffering from this disease can see the near object, but is unable to see the distant object. A concave lens is used to correct myopia.
- **Hypermetropia (Far sightedness) →** A person suffering from this disease can see distant objects clearly but near objects are not clearly visible. A convex lens is used to correct hypermetropia.
- **Presbyopia →** Due to old age, the coordination ability of the eye decrease or ends, due to which a person is neither able to see distant objects nor near objects. This defect can be corrected by using bi-focal lens.

14. The SI unit of 'Magnetic Flux' is:
(a) Farad (b) Henry
(c) Pascal (d) Weber

RRB NTPC 03.03.2021 (Shift-II) Stage Ist
RRB NTPC 07.04.2021 (Shift-II) Stage Ist

Ans : (d) The measurement of the total magnetic field which passes through a given area is known as magnetic flux. It is useful in describing the effects of the magnetic force acting on something occupying a given area. The SI unit of magnetic flux is Weber and is represented by wb.

15. Which of the following quantities has the SI unit as Candela?
(a) Impulse (b) Velocity
(c) Force (d) Luminous intensity

RRB JE CBT-II 29–08–2019 (evening)

Ans : (d) The Candela (cd) is the SI unit of luminous intensity, which is a measure of power emitted from a light source.

16. The rate of doing work is called power. The unit of power is
(a) Ampere (b) Volt
(c) Kelvin (d) Watt

RRB NTPC 11.02.2021 (Shift-I) Stage Ist

Ans : (d) In physics, power is the rate of doing work. It is the amount of energy consumed per unit of time. The unit of power is the joule per second (J/s), known as the Watt (in honor of James Watt, the eighteenth century developer of the steam engine). (1 HP =746 watt).

17. Unit of power is known as –
(a) Watt (b) Joule
(c) Newton (d) Pascal

RRB JE (24-05-2019, Shift -I)
RRB Group-D, 01-10-2018 (Shift –II)
RRB Group-D, 22-10-2018 (Shift –I)
RRB ALP & Tec.(21-08-2018, Shift-I)

Ans : (a) See the explanation of above question.

18. Which of the following units is used to measure the intensity of sound?
(a) Pascal (b) Curie
(c) Decibel (d) Joule

RRB NTPC 25.01.2021 (Shift-I) Stage Ist

Ans : (c) The decibel is the unit used to measure the intensity of sound. It is also widely used in electronics, signals and communication.

19. Unit used for measuring the sound is –
(a) Decibel (b) Hertz
(c) Ohm (d) Volt

RRB NTPC Stage-Ist, 22-04-2016, Shift -II
RRB NTPC Stage-Ist, 18-04-2016, Shift -II

Ans : (a) See the explanation of above question.

20. Which of the following units is used for measuring the amount of a substance?
(a) Lux (b) Mole
(c) Tesla (d) Joule

RRB NTPC 28.12.2020 (Shift-I) Stage Ist

Ans : (b) The mole is used for measuring the amount of a substance. It is the SI unit of amount of substance. One mole contains 6.022×10^{23} molecule of the substance.
Tesla → SI unit of Magnetic flux density.
Joule → SI unit of Work and Energy.
Lux → SI unit of Illumination.

21. What is the SI Unit of amount of substances

(a) Radian (b) Mole
(c) Jule (d) Kelvin

RPF Constable 05.02.2019

Ans : (b) See the explanation of above question.

22. S.I. unit of weight is -

(a) Kilogram (b) Newton
(c) Gram (d) Dyne

RRB JE (24-05-2019, Shift-I)
RRB Group-D, 03-10-2018 (Shift –II)
RRB ALP & Tec.(17-08-2018, Shift-II)

Ans : (b) The SI unit of measurement of weight is Newton. Since weight is the force on an object due to gravity. The dyne is a derived unit of force specified in the centimeter–gram–second (CGS) system of units.

Dimensional formula of the weight is MLT^{-2}

23. Unit of momentum is –

(a) $kgms^2$ (b) $kgms^{-1}$
(c) kgms (d) $kgms^{-2}$

RRB ALP & Tec.(14-08-2018, Shift-II)
RRB Group-D, 23-10-2018 (Shift –I)
RRB Group-D, 19-09-2018 (Shift –III)

Ans : (b) Momentum (P) = mass (m) × velocity (v)
= kg × m/s
Unit of momentum (P) = $kgms^{-1}$
Dimensional formula of momentum = MLT^{-1}

24. Unit of power in industry is –

(a) Kilowatt (b) Watt
(c) Joule (d) Horsepower

RRB ALP & Tec.(13-08-2018, Shift-III)

Ans : (d) The industrial unit of power is Horsepower.
1 Horsepower (HP) = 746 watt

25. S.I. unit of electric charge is –

(a) Volt (b) Coulomb
(c) Kelvin (d) kg

RRB Group-D, 26-11-2018 (Shift –III)
RRB Group-D, 04-10-2018 (Shift –II)
RRB ALP & Tec.(31-08-2018, Shift-III)
RRB ALP & Tec.(10-08-2018, Shift-III)
RRB NTPC Stage-Ist,28-03-2016, Shift -II

Ans : (b) The S.I. unit of electric charge is coulomb and is represented by the symbol 'C'.
A coulomb is defined as the amount of charge that passes through an electrical conductor carrying one ampere of current in one second.
Electric charge = Electric Current × Time

$E \Rightarrow Q = I.\ t$
$= 1\ I \times 1\ t$
= One Coulomb (c)

26. S.I. unit of resistance is –

(a) Coulomb (b) Ohm
(c) Joule (d) Newton

RRB Group-D, 23-11-2018 (Shift –I)
RRB Group-D, 31-10-2018 (Shift –II)
RRB ALP & Tec.(09-08-2018, Shift-I)
RRB NTPC Stage-Ist,26-04-2016, Shift -III
RRB NTPC 21.01.2021 (Shift-II) Stage Ist

Ans : (b) The SI unit of electrical resistance is ohm (Ω). Its denoted by 'R'. The resistance (R) of an object is defined as the ratio of voltage (V) across to current (I) through it.

Resistance (R) = $\frac{V}{I}$ ohm.

27. Ohm is unit of which physical quantity?

(a) Resistance (b) Charge
(c) Voltage (d) Current

RRB JE (28-06-2019, Shift -IV)

Ans : (a) See the explanation of above question.

28. S.I. unit of stress is –

(a) kg/cm^2 (b) N
(c) N/m^2 (d) Watt

RRB SSE (21-12-2014,Set-8, Green Paper)

Ans : (c) SI unit of stress is N/m^2 or Pa(Pascal). It is represented by (σ)

$$1Pa = \frac{1N}{m^2}$$

29. S.I. unit of electric current is –

(a) Ampere (b) Coulomb
(c) Joule (d) Watt

RRB Group-D, 04-12-2018 (Shift –II)
RRB Group-D, 24-10-2018 (Shift –II)
RRB ALP & Tec.(30-08-2018, Shift-II)

Ans : (a) The SI unit of electric current is ampere, which is the flow of electric charge across a wire at the rate of one coulomb per second. Ampere is represented by symbol 'A'. Electric current is measured by using a device called an ammeter.
Electrical charge (Q) = I.t

$$I = \frac{Q}{t} \text{ amp.}$$

30. Match the following –

(1) Magnetic flux density - (a) Tesla
(2) Self inductance - (b) Weber
(3) Magnetic flux - (c) Henry

Match –

(a) 1-b, 2-c, 3-a (b) 1-c, 2-a, 3-b
(c) 1-a, 2-b, 3-c (d) 1-a, 2-c,3-b

RRB SSE (21-12-2014, Set-8, Green Paper

Ans : (d) SI unit of magnetic flux density (b) is Tesla (T).
CGS unit of magnetic flux density (b) is Gauss (G).
SI unit of self inductance is Henry (H).
S.I unit of magnetic flux is weber (Wb), magnetic flux is commonly denoted by (ϕ_s). The CGS unit is Maxwell.

31. Which unit is equal to unit of energy –

(a) Power (b) Density
(c) Work (d) Force

RRB ALP & Tec.(21-08-2018, Shift-II)

Ans : (c) The SI unit of energy and work is same i.e. Joule (J), named after English physicist James Prescott Joule (1818 - 1889). Joule discovered the relationship between heat and mechanical work, which led to the development of the laws of thermodynamics.

32. Which of the following has no unit –
(a) Density (b) Relative density
(c) Displacement (d) Pressure
RRB ALP & Tec.(29-08-2018, Shift-I)
RRB Group-D, 03-12-2018 (Shift –III)

Ans : (b) Relative density of a substance is defined as the ratio of density of the substance to the density of water at 4°c.

$$\text{Thus, Relative Density} = \frac{\text{Density of the substance}}{\text{Density of water}}$$

It has no unit.

33. Ampere second is the unit of –
(a) Charge (b) Power
(c) Voltage (d) Energy
RRB JE (14-12-2014, Red Paper)

Ans : (a) Ampere second is the unit of charge.
Electric Charge (Q) = Ampere (I) × Second (t)

34. Gallon is generally used for –
(a) For velocity
(b) For a container
(c) For measuring the volume
(d) None of these
RRB NTPC Stage-Ist,31-03-2016, Shift -II

Ans : (c) The gallon is a unit of measurement of volume. Gallon is represented by symbol (gal).
One gallon is equal to 3.7854 liters and 1 Imperial gallon is equal to 4.54609 liters .

35. Which unit is used for measuring Astronomical distance?
(a) Pedometer (b) Parsec
(c) Light year (d) Length of Hubble
RRB NTPC Stage-Ist,04-04-2016, Shift -II

Ans : (c) A light year is a unit of length used to express astronomical distances. Its equivalent to about 9.4607×10^{12} km.

36. S.I. unit of pressure is –
(a) Newton/cm^2 (b) Newton-m^2
(c) Newton/m^2 (d) Newton-cm^2
RRB Group-D, 04-10-2018 (Shift –I)
RRB Group-D, 01-10-2018 (Shift –III)
RRB Group-D, 25-09-2018 (Shift –II)
RRB Group-D, 25-09-2018 (Shift –III)
RRB NTPC Stage-Ist, 09-04-2016, (Shift -II)
RRB JE, 25-05-2014, (Shift -III)

Ans : (c) The unit of pressure in the SI system is the Pascal (Pa), defined as a force of one Newton per square meter. Hence one pascal is equal to the one newton per square metre.
(1 Pa = 1N/m^2) or (1Pa = 1N.m^{-2})
The conversion between atm, Pa and torr is follows.
1 atm = 101325 Pa = 760 Torr.
1 atm = 1.01325 Bar

37. What is the SI unit of pressure?
(a) Pascal (b) Radian
(c) Ampere (d) Steradian
RRB NTPC 15.03.2021 (Shift-II) Stage Ist

Ans : (a) See the explanation of above question.

38. Nm^{-2} is S.I. unit of –
(a) Force (b) Repulsion
(c) Momentum (d) Pressure
RRB Group-D, 05-11-2018 (Shift –I)

Ans : (d) See the explanation of above question.

39. The unit of approximate distance from the earth to the sun is –
(a) Light year (b) Astronomical Unit
(c) Kelvin (d) Joule
RRB NTPC Stage-Ist,16-04-2016, Shift -I

Ans : (b) The unit of approximate distance from the earth to the sun is Astronomical unit (symbol : au or AU).
$\Rightarrow$ 1AU =1.5 $\times 10^{11}$m

40. S.I. unit of force is -
(a) Kelvin (b) Newton
(c) Pascal (d) Volt
RRB NTPC Stage-Ist,16-04-2016, Shift -II

Ans : (b) The SI unit of force is Newton or kg m/s^2.
1 Newton = 10^5 dyne
Force is product of mass and acceleration
$\therefore$ Force = mass × acceleration

41. What is the SI unit of force?
(a) Newton (b) Dyne
(c) Pascal (d) Kip
RRB NTPC 30.12.2020 (Shift-II) Stage Ist

Ans : (a) See the explanation of above question.

42. Which of the following is not correctly matched -
(a) Frequency - Hertz
(b) Magnetic flux - Tesla
(c) Pressure - Pascal
(d) Electric conductance - Siemens
RRB NTPC Stage-Ist,30-04-2016, Shift -II

Ans : (b)

Physical Quantities		**Unit**
Frequency	-	Hertz
Pressure	-	Pascal
Electric Conductance	-	Siemens or ohm^{-1} (Ω^{-1})
Magnetic flux	-	Weber

Note : SI unit of Magnetic Flux Density (b) is Tesla (T).

43. S.I. unit of displacement is –
(a) Meter (b) Kilometer
(c) Centimeter (d) Meter per second
RRB Group-D, 02-11-2018 (Shift –II)

Ans : (a) The shortest distance between the starting and ending point is referred as displacement. Displacement always takes place in a straight line between the initial and ending or final position of the body.
Displacement is a vector quantity. 'Meter ' is the SI unit of displacement and in CGS system, unit of displacement is centimeter.

44. The S.I. unit of 'g' is same as –
(a) Pressure (b) Momentum
(c) Velocity (d) Acceleration
RRB Group-D, 13-12-2018 (Shift –II)

Ans : (d) The S.I. unit of gravitational acceleration 'g' is same as the S.I. unit of linear acceleration, The SI unit of acceleration is meter per second square (m s^{-2}).
Dimensional formula of acceleration is (LT^{-2}).
CGS unit of acceleration = cm/s^2.

45. Which of the following has same unit ?
(a) Work & Energy (b) Force & Pressure
(c) Force & Momentum (d) Force & Work
RRB Group-D, 12-12-2018 (Shift –III)
RRB Group-D, 03-10-2018 (Shift –II)

Ans : (a) Work and energy has the same unit. The SI unit of work and energy is the Joule (J), which is defined as the work done by a force of one Newton for the displacement of one meter.
Energy/Workdone (W) = Force (F) × Displacement (d)
W = 1 N × 1 m
W = 1 N-m = 1 Joule

46. Nm^2kg^{-2} is S.I. unit of –
(a) Pressure
(b) Momentum
(c) Acceleration
(d) Universal constant of gravitation.
RRB Group-D, 01-10-2018 (Shift –I)

Ans : (d) Nm^2kg^{-2} is S.I. unit of Universal constant of Gravitation (G).
The value of G = 6.67×10^{-11} Nm^2kg^{-2}

47. Weight has equal S.I. unit of-
(a) Impulse (b) Acceleration
(c) Force (d) Mass
RRB Group-D, 12-11-2018 (Shift –II)
RRB Group-D, 07-12-2018 (Shift –III)

Ans : (c) The SI unit of measurement of weight is 'Newton'. Since weight is the force on an object due to gravity. The dyne is a derived unit of force specified in the Centimeter–Gram–Second (CGS) system of units.
Force or Weight (W) = m × g
where, W = weight or force
m= mass of the object in (kg)
g = acceleration due to gravity in (m/s^2).
Dimensional formula of the weight is [MLT^{-2}]

48. Which of the following two physical quantities have the same unit?
(a) Pressure and Force
(b) Force and Dyne
(c) Force and Speed
(d) Force and Weight
RRB Group-D, 09-10-2018 (Shift –II)

Ans : (d) See the explanation of above question.

49. Newton is S.I. unit of …… ?
(a) Weight and Velocity
(b) Weight and Force
(c) Weight and Mass
(d) Weight and Acceleration
RRB Group-D, 01-10-2018 (Shift –I)

Ans : (b) See the explanation of above question.

50. Which of the following pairs does not have the same S.I. units?
(a) Speed and Velocity
(b) Work and Energy
(c) Force and Pressure
(d) Displacement and distance
RRB Group-D, 01-10-2018 (Shift –III)
RRB Group-D, 05-10-2018 (Shift –II)

Ans : (c) The Newton is the SI unit of force defined as the force is the external factor that produces an acceleration of one meter per second square in an object of one kilogram.
F = mass × acceleration
F = m × a
= 1 kg × 1 m/s^2 = 1N
Whereas the unit of Pressure in the SI system is the Pascal (Pa), defined as a force of one Newton per square meter.
1 Pascal (Pa) = 1 N/m^2

51. In the following which pair has not same unit?
(a) Speed and Velocity
(b) Work and Energy
(c) Distance and Displacement
(d) Force and Pressure
RRB Group-D, 05-10-2018 (Shift –II)

Ans : (d) See the explanation of above question.

52. The international unit of Speed is-
(a) m/s (b) km/h
(c) m/minute (d) km/s
RRB Group-D, 01-10-2018 (Shift –III)

Ans : (a) Speed is defined as the distance covered in unit time $\Rightarrow \text{Speed} = \frac{\text{Distance}}{\text{Time}}$
Its SI unit is metre/sec.

53. ms^{-2} is S.I. unit of which of the following?
(a) Velocity (b) Speed
(c) Force (d) Acceleration
RRB Group-D, 15-10-2018 (Shift –III)
RRB Group-D, 24-09-2018 (Shift –I)
RRB Group-D, 11-10-2018 (Shift –II)
RRB Group-D, 19-09-2018 (Shift –III)

Ans : (d) Acceleration is defined as the rate of change of velocity with respect to time.
i.e. $\text{Acceleration} = \frac{\Delta v}{\Delta t}$
It is a vector quantity and its SI unit is m/s^2.

54. Which of the following has S.I. unit Joule / second?
(a) Work (b) Force
(c) Thrust (d) Power
RRB Group-D, 02-11-2018 (Shift –II)

Ans : (d) Power is defined as the rate of work done by a body.
$\Rightarrow \text{Power} = \frac{\text{Work}}{\text{Time}}$
It is a scalar quantity and its SI unit is Joule/sec or watt (w).

55. Volt is S.I. unit of……?
(a) Resistance (b) Electric charge
(c) Electric current (d) Electric potential
RRB Group-D, 05-10-2018(shift -I)

Ans : (d) The SI unit for voltage is Volt and is represented by the letter 'V'. Volt is a derived SI unit of electric potential.
Voltage (V) = I × R
where, V = Voltage in (volt)
I = Current in (ampere)
R = Resistance in (ohm Ω)

56. What is the unit of electric potential?
(a) Volt (V) (b) Coulomb (c)
(c) Joule (J) (d) Ampere (a)
RRB JE CBT-II 31.08.2019 IInd Shift

Ans : (a) See the explanation of above question.

57. S.I. unit of voltage is –
(a) Coulomb (b) Joule
(c) Volt (d) Watt
RRB Group-D, 11-12-2018 (Shift –II)
RRB Group-D, 25-10-2018 (Shift –III)

Ans : (c) See the explanation of above question.

58. Which of the following is unit of temperature -
(a) Degree (b) Celsius
(c) Fahrenheit (d) Kelvin
RRB Group-D, 15-11-2018 (Shift –II)

Ans : (d) The SI unit of temperature according to the International System of unit is Kelvin, which is represented by the symbol K.
Celsius to Kelvin,
$K = {}^{0}C + 273.15$

59. Ohm-m is unit of…….?
(a) Resistivity (b) Electric current
(c) Charge (d) Resistance
RRB Group-D, 05-10-2018 (shift–II)

Ans : (a) The S.I. unit of electrical resistivity is Ohm-meter.
Resistivity is the resistance offered by an object per unit length and per unit cross-sectional area at a specified temperature.
The Ohm (symbol : Ω) is the S.I. unit of electrical resistance, named in honor of German physicist Georg Simon Ohm.

60. …….. has S.I. unit ampere?
(a) Voltage (b) Electric charge
(c) Electric current (d) Resistance
RRB Group-D, 03-10-2018 (Shift –III)

Ans : (c) The SI unit of electric current is ampere, which is the flow of electric charge across a wire at the rate of one coulomb per second.

$$\text{Electric current (I)} = \frac{\text{Electric Charge}(Q)}{\text{Time}(t)}$$

Electric current is measured using a device called ammeter.

61. What is the S.I. unit of retardation ?
(a) ms^2 (b) ms
(c) ms^{-1} (d) ms^{-2}
RRB Group-D, 03-10-2018 (Shift –III)

Ans : (d) The SI unit of retardation is m/s^2 (meter per second square). Retardation is nothing but it is a negative acceleration that acts in the opposite direction to that of motion.

62. 1Pascal=?
(a) $1Nm^{-2}$ (b) 100 atmosphere
(c) 1 dyne cm^{-2} (d) $1Nm^2$
RRB Group-D, 11-12-2018 (Shift –II)

Ans : (a) 1 Pascal = 1 N/m^2 = 1 $(kg\ m/sec^2)/m^2$.

63. Match the following with the correct response-
(1) Watt - (a) N-m/sec
(2) 1 Kilowatt - (b) $3.6 \times 10^6 J$
(3) 1 Kilowatt hour - (c) 1000W
(4) 1 Horsepower - (d) 746W
(a) 1-A, 2-C, 3-B, 4-D
(b) 1-A, 2-C, 3-D, 4-B
(c) 1-D, 2-B, 3-C, 4-A
(d) 1-A, 2-B, 3-C, 4-D
RRB ALP & Tec.(31-08-2018, Shift-I)

Ans : (a) Watt - Nm/sec
1kilowatt - 1000W
1 kilowatt hour - $3.6 \times 10^6 J$
1 Horsepower - 746W

64. What is the S.I. unit of wavelength?
(a) Hertz (b) Kilogram
(c) Second (d) Meter
RRB JE (26-06-2019,Shift-IV)

Ans : (d) Wavelength is the distance between two successive crests or troughs of a wave. It is always measured in the direction of the propagation of wave. The SI unit of wavelength is meter (m).

65. Which one of these is a symbol of mole in S.I. unit ?
(a) g (b) mol
(c) kg (d) mg
RRB JE (28-06-2019,Shift-IV)

Ans : (b) 'Mol' is the symbol of mole in S.I. unit. One mole is equal to 6.023×10^{23} atom.

$$\text{Number of moles (m)} = \frac{\text{Total mass}}{\text{Molecular mass}}$$

66. What is the unit of electric power expenditure ?
(a) kWh (b) Joule
(c) Watt (d) Volt
RRB JE (02-06-2019,Shift-I)

Ans : (a) A unit (as mentioned on the electricity bills) is represented in kWh or Kilowatt Hour. If you use 1000 Watts or 1 Kilowatt of power for 1 hour then you consume 1 unit or 1 Kilowatt-Hour (kWh) of electricity.

67. What is another name for coulomb / second ?
(a) Joule (b) Ampere
(c) Volt (d) Second
RRB JE (28-05-2019,Shift-III)

Ans : (b) A coulomb per second is the definition of one ampere. Ampere is the SI unit of electric current.
1 Q/s = 1 A.

$$\text{Electric Current (I)} = \frac{\text{Electric Charge}(Q)}{\text{Time}(t)}$$

$$= \frac{1Q}{1s} = 1 \text{ ampere}$$

68. Lux is the SI unit of
(a) Intensity of illumination
(b) Luminous efficiency
(c) Luminous flux
(d) Luminous intensity

RRB JE (14-12-2019,Green Paper)

Ans : (a) The SI unit of intensity of illumination (illuminance) is lux. An illuminance of 1.0 lux is produced by 1.0 lumen of light shining in an area of 1.0 m^2.

69. What is the S.I. unit of wave speed ?
(a) Meter (b) Meter/second
(c) Second (d) Hertz

RRB JE (28-05-2019, Shift-III)

Ans : (b) Speed = Wavelength × Wave Frequency
$v = \lambda \times n$
In this equation, wavelength is measured in meters and frequency is measured in hertz (Hz), or number of vibration per second. Therefore, wave speed is given in metre per second, which is the SI unit of wave speed.

(ii) Measurement

70. A 'light year' is a unit that is use to measure:
(a) Time (b) Distance
(c) Motion (d) Speed

RRB NTPC 14.03.2021 (Shift-II) Stage Ist

Ans : (b) Light year is a unit that used to measure distance. A light-year is the distance that light travels in vacuum in one year (365.25 days). The distance that light travels in one year is about 9.4607×10^{12} kilometers.

71. 1 atmosphere = ?
(a) 1.01×10^5Pa (b) 10.1×10^5Pa
(c) 1.01×10^6Pa (d) 10.1×10^6Pa

RRB Group-D, 28-11-2018 (Shift –I)
RRB Group-D, 24-11-2018 (Shift –III)

Ans : (a) 1 Atmosphere = 101325 Pa
$= 1.01325 \times 10^5$ Pa
$\because$ 1 Bar = 1×10^5 Pa
1 Atmosphere = 1.01325 bar
= 1 atmosphere = 101.325 kPa
1 atmosphere = 760 Torr
1 Atmosphere = 760 mm Hg column.

72. 1 horse power is equal to -
(a) 764 watt (b) 768 watt
(c) 746 watt (d) 786 watt

RRB ALP & Tec.(20-08-2018, Shift-II)

Ans : (c) The electrical equivalent of one horsepower is 746 watts in the International System of Unit (SI) or one horse power is equal to the 746 Joule per sec.

73. What is 746 watt called?
(a) 1 horsepower (b) 1 kW
(c) 1 Pascal (d) 1 Joule

RRB Group D 05-11-2018(Shift-III)

Ans : (a) See the explanation of above question.

74. 1 Diopter is equal to –
(a) 1 mm^{-1} (b) 1 m^{-1}
(c) 1 dm^{-1} (d) 1 cm^{-1}

RRB JE (02-06-2019,Shift-III)

Ans : (b) • 1 diopter of power of a lens is described as the unit of measurement of the optical power of a lens which is equal to reciprocal of the focal length (f), measured in meter.
• The SI unit of power of lens is diopter whose focal length is one meter, which is denoted by the letter 'D'.

$$1 \text{ diopter (d)} = \frac{1}{f(\text{meter})} = \frac{1}{(\text{meter})}$$
$$= 1m^{-1}$$

where, (f) = focal length

75. What does a meter equal ?
(a) 10^{-6} micron (b) 10^6 micron
(c) 10^{-3} micron (d) 10^3 micron

RRB JE (14-12-2019,Yellow Paper)

Ans : (b)
1 micron = 1×10^{-6} meter
1 meter = 10^6 micron
Micrometer is represented by 'μm'

76. Sound pollution is measured in-
(a) Decibel (b) Joule
(c) Ampere (d) Ohm

RRB JE (22-05-2019, Shift-IV)
R.R.B. JE. Stage - II 30-08-2019 (Shift - III)

Ans : (a) Sound pollution is measured in 'Decibel'.

77. Loudness of sound is measured in ?
(a) Resonance (b) Frequency
(c) Decibel (d) Hertz

RRB Group-D, 12-11-2018 (Shift –II)

Ans : (c) The loudness of sound is measured in units called decibels (dB). A decibel unit expresses the relative intensity of sounds on a scale from zero for the average least perceptible sound to about 100 dB, which is near the level most people find uncomfortably loud.

78. 1 kWh = ?
(a) 3.6×10^5J (b) 3.6×10^{-6J}
(c) 3.6×10^6J (d) 3.6×10^{-5}J

RRB Group-D, 20-09-2018 (Shift –III)
RRB Group-D, 18-09-2018 (Shift –II)
RRB Group-D, 27-09-2018 (Shift –I)
RRB Group-D, 09-08-2018 (Shift –II)
RRB ALP & Tec.(09-08-2018, Shift-I)

Ans : (c) 1 kWh = 3.6×10^6J

79. 1 kilowatt is equal to?
(a) 100 watt (b) 10000watt
(c) 10watt (d) 1000watt

RRB Group-D, 26-05-2019 (Shift –III)

Ans : (d) A kilowatt, is a globally recognized standard for measuring electricity. One kilowatt is equal to 1,000 watt or 1 KW = 1000 Joule per second. Companies charge an electric bill by how much electricity we use per kilowatt hour (kWh).

80. 1 KW= ?
(a) $1000Js^{-1}$ (b) $100Js^{-1}$
(c) $10Js^{-1}$ (d) $10000Js^{-1}$
RRB Group-D, 12-11-2018 (Shift –I)

Ans : (a) See the explanation of above question.

81. 5.5 kWh = ?
(a) $14.4 \times 10^8 J$ (b) $14.4 \times 10^5 J$
(c) $14.0 \times 10^6 J$ (d) $19.80 \times 10^6 J$
RRB Group-D, 04-12-2018 (Shift –II)

Ans : (d) We know that,
$1kWh = 3.6 \times 10^6 J$
$5.5\ kWh = 5.5 \times 3.6 \times 10^6 J = 19.80 \times 10^6 J$

82. 5.6 kWh = ?
(a) $20.16 \times 10^8 J$ (b) $14.4 \times 10^6 J$
(c) $14.4 \times 10^5 J$ (d) $19.8 \times 10^6 J$
RRB Group-D, 22-09-2018 (Shift –II)

Ans : (a) We know that,
$1kWh = 3.6 \times 10^6 J$
$5.6\ kWh = 5.6 \times 3.6 \times 10^6 J = 20.16 \times 10^6 J$

83. Atomic radius is measured in-
(a) Millimeter (b) Centimeter
(c) Kilogram (d) Nanometer
RRB-JE 30.08.2019, Ist Shift

Ans : (d) Atomic Radius is measured in Nanometres (10^{-19}m). Atomic Radius is defined as the Shortest distance Nucleus to its Outermost Orbit.

84. 1 Newton = ?
(a) $1\ kg \times 1\ ms^1$ (b) $1\ kg \times 1\ ms^{-2}$
(c) $1\ kg \times 1\ ms^{-1}$ (d) $1\ kg \times 1\ ms^2$
RRB Group-D, 10-12-2018 (Shift –III)
RRB Group-D, 22-10-2018 (Shift –II)

Ans : (b) A Newton (N) is the international unit of force. One Newton is equal to 1 kilogram meter per second square.
$1\ N = 1\ kg \times \frac{1m}{sec^2} = 1\ kg \times 1\ ms^{-2}$

85. 4.6 kWh = ?
(a) $14.0 \times 10^6 J$ (b) $16.56 \times 10^6 J$
(c) $14.1 \times 10^8 J$ (d) $14.4 \times 10^5 J$
RRB Group-D, 05-12-2018 (Shift –II)

Ans : (b) $4.6kWh = 4.6 \times 3.6 \times 10^6 J = 16.56 \times 10^6 J$

86. 2 kWh = ?
(a) $7.2 \times 10^8 J$ (b) $7.2 \times 10^6 J$
(c) $7.2 \times 10^5 J$ (d) $72 \times 10^5 J$
RRB Group-D, 03-12-2018 (Shift –II)

Ans : (b) We know that,
$1kWh = 3.6 \times 10^6 J$
$2\ kWh = 2 \times 3.6 \times 10^6 J = 7.2 \times 10^6 J$

87. 4.2 kWh = ?
(a) $14.4 \times 10^5 J$ (b) $15.12 \times 10^6 J$
(c) $14.0 \times 10^6 J$ (d) $14.4 \times 10^6 J$
RRB Group-D, 05-12-2018 (Shift –I)

Ans : (b) We know that,
$1kWh = 3.6 \times 10^6 J$
$4.2\ kWh = 4.2 \times 3.6 \times 10^6 J$
$= 15.12 \times 10^6 J$

88. 1 Nano meter = ?
(a) $1/10^{-8}$m (b) $1/10^{-9}$m
(c) $1/10^8$m (d) $1/10^9$m
RRB Group-D, 16-11-2018 (Shift –I)

Ans : (d) 1 Nano meter = 1×10^{-9} m = $1/10^9$m

89. 1 coulomb/1s = ?
(a) 1 volt (b) 1 ampere
(c) 1 ohm (d) 1 watt
RRB Group-D, 12-10-2018 (Shift –III)

Ans : (b) In terms of SI unit, 1 Coulomb is equivalent to one Ampere/second.
$1\ ampere = \frac{1\ coulomb}{1\ sec}$

90. 1 Pico meter = ?
(a) 10^{-11}m (b) 10^{12}m
(c) 10^{-12}m (d) 10^{11}m
RRB Group-D, 20-09-2018 (Shift –III)

Ans : (c) 1 Pico meter = 10^{-12}m

91. 1 Joule = ?
(a) 1N ×1m (b) 1W ×1h
(c) 1N ×1cm (d) 1Pa ×1m
RRB Group-D, 15-10-2018 (Shift –II)

Ans : (a) One joule is defined as the amount of energy exerted, when a force of one Newton is applied over an object and the displacement of object is one meter . (1 Joule = 1 N × 1 m). One joule (1 Joule = 1 watt × 1 second) is the equivalent to one watt of power radiated or dissipated for one second.

92. The strength of winds is measured with the help of
(a) Tintometer (b) Wind indicator
(c) Barometers (d) Beaufort scale
RRB JE CBT-II 28–08–2019 (evening)

Ans : (d) The strength of winds is measured with the help of Beaufort scale which starts with Zero (0) and goes to a force of 12. It was developed by British Admiral Sir Francis Beaufort in 1805 to help sailors.

93. Korotkoff sounds are observed during measuring the-
(a) Electrical insulation
(b) Almospheric pressure
(c) Blood pressure
(d) Speed of wind flow
R.R.B. JE. Stage - II 01-09-2019 (Shift - III)

Ans : (c) Korotkoff sounds are usually observed when one measures blood pressure.

94. A particular household has consumed 100 unit of energy during 5 days. How much energy is this converted to Joule.
(a) $360 \times 10^8 J$ (b) $360 \times 10^{-8} J$
(c) $3.6 \times 10^{-8} J$ (d) $3.6 \times 10^8 J$
RRB Group-D, 03-10-2018 (Shift –III)

Ans : (d) 1 unit = 1 kWh
1 kWh = 3.6×10^6 J
Therefore, 100 units = $100 \times 3.6 \times 10^6 = 3.6 \times 10^8 J$

(iii) Measuring Instrument

95. Which of the following does NOT match?

(a) Compass – used for navigation and indicates north-south directions
(b) Cyclotron – measures small magnitude Cyclones
(c) Actinometer – measures the intensity of radiation
(d) Electroscope – detects the presence of electric charge

RRB NTPC 23.02.2021 (Shift-I) Stage Ist

Ans : (b) A cyclotron is a type of compact particle accelerator which produces radioactive isotopes that can be used for imaging procedure. Rests are correctly matched.

96. Which instrument is used to detect the presence of electric charge on an object?

(a) Multimeter (b) Electroscope
(c) Amperemeter (d) Ohmmeter

RRB NTPC 19.03.2021 (Shift-I) Stage Ist

Ans : (b) The electroscope is an early scientific instrument used to detect the presence of electric charge on a body. It detects charge by the movement of a test object due to the Coulomb electrostatic force on it. An electroscope can only give a rough indication of the quantity of charge. An instrument that measures electric charge quantitatively is called an electrometer.

97. What does a hygrometer measure?

(a) Heat (b) Humidity
(c) Force (d) Radiation

RRB NTPC 27.01.2021 (Shift-II) Stage Ist

Ans : (b) A hygrometer is an instrument used to measure the amount of water vapour or humidity in atmosphere.

Measuring Quantity	Instruments
Temperature	Thermometer
Force	Force gauge
Amount of heat	Calorimeter

98. A lie detector apparatus is also known as a :

(a) Seismograph (b) Barograph
(c) Polarimeter (d) Polygraph

RRB NTPC 01.02.2021 (Shift-II) Stage Ist

Ans : (d) (i) Polygraph:– used as lie detector apparatus/machine
(ii) Seismograph – used to measure seismic waves.
(iii) Barograph – used to measure change in atmospheric pressure.
(iv) Polarimeter – used to measure the angle of rotation caused by passing polarized light.

99. Which of the following is a lie detector machine?

(a) Telescope (b) Photometer
(c) Polygraph (d) Tachometer

RRB NTPC 03.03.2021 (Shift-I) Stage Ist

Ans : (c) See the explanation of above question.

100. Which instrument is used to show the direction of flow of current in a circuit?

(a) Galvanometer (b) Ammeter
(c) Rheostat (d) Voltmeter

RRB NTPC 19.01.2021 (Shift-I) Stage Ist

Ans : (a)

Instruments	Uses
♦ Galvanometer	to measure small electrical current & direction.
♦ Ammeter	to meausre wide range of current value.
♦ Rheostat	to adjust resistance.
♦ Voltmeter	to measure voltage.

101. Which of the following devices is used to measure relatively high temperature, such as are encountered in furnaces?

(a) Bolometer (b) Pyrometer
(c) Ammeter (d) Fluxmeter

RRB NTPC 07.01.2021 (Shift-II) Stage Ist

Ans : (b) Pyrometer is an instrument used to measure high temperature, such as are encountered in furnances. When the temperature of an object is very high its temperature cannot be measured with a normal thermometer.

102. Which device is used in submarines to see things above the level of the sea ?

(a) Pyrometer (b) Epidiascope
(c) Periscope (d) Odometer

RRB NTPC 10.04.2016 (SHIFT-III) Stage-I

Ans : (c) Submarines have a special device called a periscope that allows people inside the submarine to see what's going on above the level of sea. The main part of a periscope is a long tube that has a mirror at each end. The mirrors are attached so that they are parallel to each other at a 45-degree angle. Arranged in this way, the mirrors bounce reflection of light between them.

103. Which instrument is used to measure atmospheric pressure?

(a) Lactometer (b) Barometer
(c) Thermometer (d) Multimeter

RRB NTPC (12.04.2016) SHIFT) Stage- Ist

Ans : (b) Barometer is a device used to measure atmospheric pressure.

- A barometer can also be used to measure altitude. There are two main types of barometers: mercury and aneroid.
- A lactometer is used to find out the amount of water in the milk.
- A thermometer is an instrument that measures temperature.
- Multimeter is a testing tool used to measure two or more electrical values.

104. Which among the following devices is used to measure the atmospheric pressure?

(a) Tetrameter (b) Odometer
(c) Thermometer (d) Barometer

RRB NTPC 10.01.2021 (Shift-I) Stage Ist

Ans : (d) See the explanation of above question.

105. Which device is used to see the Sun?
(a) Stroboscope (b) Telescope
(c) Helioscope (d) Sun meter
RRB NTPC 10.04.2016 (SHIFT-I) Stage-I[st]

Ans : (c) The helioscope is an instrument that is used to see the Sun and Sun's surface area etc.

106. Potentiometer basically –
(a) Is a measuring instrument
(b) Is a connective device
(c) Is a calibration equipment
(d) Is a notation tool
RRB J.E. (14.12.2014), Green paper

Ans : (a) Potentiometer is a measuring instrument used for measuring an electromotive force by balancing it against the potential difference produced by passing a known current through a known variable resistance.
Potentiometers are commonly used to control electrical devices such as volume controls on audio equipment.

107. From which device is the electric current measured?
(a) Voltmeter (b) Ammeter
(c) Ohmmeter (d) Wavemeter
RRB J.E. (14.12.2014), Red paper

Ans : (b) An ammeter is a measuring instrument used to measure the current in a circuit. Electric currents are measured in amperes (a), hence the named Instruments are used to measure smaller currents, in the milliampere or microampere range, are designated as milliammeters or microammeters.
Hence-
(i) Ammeter is connected in series to the circuit.
(ii) It must have the following legitimate resistance.
(iii) Ammeter Draws less power.

108. Ammeter is –
(a) Is connected in a series to the circuit
(b) Must have the following legitimate resistance
(c) Draws less power
(d) All of the above
RRB J.E. (14.12.2014, Set-2), Red paper

Ans : (d) See the explanation of above question.

109. What does stalagmometer used to measure?
(a) Dynamic viscosity (b) Surface tension
(c) Refractive index (d) Lighted activity
RRB SSE 21.12.2014

Ans : (b) A stalagmometer is a device used for measuring surface tension using the stalagmometric method. It is also called a stactometer or stalagmometer. The device is a capillary glass tube whose middle section is widened. The volume of a drop can be predetermined by the design of the stalagmometer.

110. Odometer is an instrument which is used in motor vehicle for measuring-
(a) Direction (b) Distance
(c) Smell (d) Speed
RRB Group –D, 10-10-2018 (Shift-III)
RRB ALP & TECH (14.08.2018) Shift – I

Ans : (b) An odometer is an instrument used for measuring the distance travelled by a vehicle. The device may be electronic, mechanical, or a combination of both.
It is sometimes called a milometer.

111. Odometer in vehicle measures –
(a) Fuel (b) Distance
(c) Smell (d) Speed
RRB Group –D, 25-10-2018 (Shift-II)

Ans : (b) See the explanation of above question.

112. Which instrument is used for measuring distance travelled by vehicle?
(a) Accelerometer (b) Odometer
(c) Speedometer (d) Tachometer
RRB Group- D,05-11-2018(Shift-II)

Ans : (b) See the explanation of above question.

113. Which of the following speed of flow measuring instrument is area meter?
(a) Venturimeter (b) Rotameter
(c) Pitot tube (d) None of these
RRB SSE 21.12.2014

Ans : (b) Rotameter measuring instrument is an area meter. A rotameter is a device that measure the volumetric flow rate of liquids in a closed pipe or tube. It belongs to a class of meters called variable-area flow meters, which measure flow rate by allowing the cross sectional area the liquid travells through the pipe or tube.

114. Tachometer is used for-
(a) R.P.M.
(b) Torque
(c) Rotational kinetic energy
(d) Distance
RRB J.E. 2014(14-12-2014 ,Green Paper)
RRB NTPC Stage-I[st] 31.03.2016 (SHIFT-II)
RRB S.S.E. 2014(21-12-2014 ,Set-08,Green Paper)

Ans : (a) Tachometer is an instrument used for measuring the rotation or revolution speed of objects, such as an engine or a shaft. The tachometer measures rotations per minute (RPM) of engines shafts and is widely used in automobiles, airplanes, marine engineering field and many others.

115. Multimeter consist of-
(a) Current and Ohm meter
(b) Voltmeter & Ohm meter
(c) Voltmeter & Current
(d) Voltmeter, Currentmeter & Ohm meter
RRB J.E. 2014(14-12-2014, Green Paper)

Ans : (d) A multimeter is the combination of a DC voltmeter, AC voltmeter, Ammeter, and Ohmmeter. An un-amplified analog multimeter combines a meter movement, range resistors and switches; VTVMs are amplified analog meters and contain active circuitry.

116. What is false about richter scale?
(a) It was developed by Charles Richter and Gutenberg in 1935.
(b) It is a logarithmic scale
(c) It can be measured using seismometer
(d) A magnitude of 8-9 on the Richter scale means a light earthquake.
RRB NTPC Stage-I[st] 03.04.2016 (SHIFT-I)

Ans : (d) A magnitude of 8-9 on the Richter scale means a destructive earthquake. The Richter magnitude scale is a scale of numbers used to tell the power (or magnitude) of earthquake. Charles Richter And Gutenberg developed the Richter Scale in 1935.

117. Instrument used for measuring density of liquid is-
(a) Hygrometer (b) Hydrometer
(c) Hypsometer (d) Fathometer
RRB NTPC Stage-I[st] 05.04.2016 (SHIFT-I)

Ans : (b) A hydrometer is an instrument used for measuring the relative density of liquids based on the concept of buoyancy. They are typically calibrated and graduated with one or more scales such as specific gravity.
Fathometer is a depth finder that uses sound waves to determine the depth of water. A hygrometer is a meteorological instrument that is used to measure the humidity of the air. The common way these devices work by using a material that attracts moisture.
A hypsometer is an instrument for measuring height or elevation.

118. Which instrument is used for discovering the things in water?
(a) Laser (b) Radar
(c) Sonar (d) Scuba
RRB NTPC Stage-I[st] 28.03.2016 (SHIFT-II)

Ans : (c) SONAR (Sound Navigation and Ranging) is a technique that uses sound propagation (usually underwater, as in submarine navigation) to navigate, communicate with or detect objects under the surface of the water, such as other vessels.

119. Echolocation in ships is used for measuring-
(a) Depth of light
(b) Density of fish
(c) Depth of water
(d) Density of oceanic vegetation
RRB Group- D, 12-11-2018(Shift-I)

Ans : (c) Echolocation in ships is used for measuring depth of water. The principle of echolocation is same as SONAR system. Hence, SONAR is the type of Echolocation.

120. .....is type of Echolocation –
(a) Vibration (b) Frequency
(c) Radar (d) Sonar
RRB Group –D, 01-11-2018 (Shift-II)

Ans : (d) See the explanation of above question.

121. Which instrument is used for measuring density of milk?
(a) Hydrometer (b) Lactometer
(c) Barometer (d) Thermometer
RRB Group- D,12-11-2018(Shift-III)

Ans : (b) A lactometer is an instrument that is used to check the purity of milk by measuring its density. The lactometer works on the principle of specific gravity of milk.

122. Voltmeter is used for measuring-
(a) Air resistance (b) Voltage
(c) Magnetic flux (d) Electric current
RRB J.E., 29-05-2019(Shift-III)
RRB Group –D, 27-09-2018 (Shift-III)

Ans : (b) A voltmeter is an instrument used for measuring electrical potential difference between two points in an electric circuit. Analog voltmeters move a pointer across a scale in voltmeter for the voltage of the circuit; digital voltmeters give a numerical display of voltage by the use of an analog-to-digital converter.

123. Which instrument is used for measuring voltage?
(a) Ammeter (b) Potentiometer
(c) Galvanometer (d) Voltmeter
RRB Group- D, 08.10.2018 (Shift-I)
RRB Group –D, 08-10-2018 (Shift-II)

Ans : (d) See the explanation of above question.

124. Galvanometer is used for measuring-
(a) Direction of speed
(b) Direction of magnetic flux
(c) Direction of sound
(d) Direction of current
RRB Group- D, 24-09-2018(Shift-I)
RRB Group –D, 22-09-2018 (Shift-I)

Ans : (d) A galvanometer is an electromechanical instrument used for detecting and indicating an electric current on a circuit. A galvanometer works as an actuator, by producing a rotary deflection, in response to electric current flowing through a coil in a constant magnetic field.

125. Which of the following is used to detect current in a circuit?
(a) Galvanometer (b) Anemometer
(c) Barometer (d) Lactometer
RRB NTPC Stage-I[st] 26.04.2016 (SHIFT-II)

Ans : (a) See the explanation of above question.

126. Which is used for measuring speed of motor-
(a) Speedometer (b) Voltmeter
(c) Velometer (d) Lactometer
RRB Group- D,05-11-2018(Shift-I)

Ans : (a) A speedometer is a device used to measure the travelling speed of a vehicle, usually for the purpose of maintaining a sensible speed.

127. Ammeter : Electric current :: Ohmmeter : ?
(a) Voltage (b) Pressure
(c) Resistance (d) Speed
RRB Group –D, 03-10-2018 (Shift-II)

Ans : (c) Ohmmeter is related to measure resistance in a circuit. It measures the resistance in ohms.

128. Which instrument is used for measuring power and speed of wind?
(a) Lactometer (b) Speedometer
(c) Thermometer (d) Anemometer
RRB Group –D, 12-10-2018 (Shift-I)
RRB NTPC 25.01.2021 (Shift-I) Stage Ist
RRB NTPC 23.07.2021 (Shift-II) Stage Ist

Ans : (d) An anemometer is an instrument that measures wind speed and wind pressure and power. Anemometers are important tools for meteorologists, who study weather patterns. The anemometer counts the number of rotations, or turns, which is used to calculate wind speed. It is also a common weather station instruments.

129. Which of the following can be measured temperature without touching to object?
(a) Infrared thermometer
(b) Filled system thermometer
(c) Mercury glass thermometer
(d) Electric thermometer

RRB J.E. (14.12.2014, Green paper)

Ans : (a) Infrared thermometer enables to measure temperature quickly, at a distance and without touching the object. They are so useful, easy to use even fun to use that they have become as common in kitchens as they have on factory floors. Infrared thermometer are often used to find over heated equipment and electrical circuits temperature but they have hundreds of other uses.

(iv) Physical Quantities

130. Which of the following is a scalar quantity?
(a) Pressure (b) Displacement
(c) Force (d) Momentum

RRB Group-D 26-10-2018 (Shift-II)

Ans : (a) Pressure is a scalar quantity, because it has magnitude but does not have direction, whereas force, displacement and momentum all are vector quantities because they have both direction and magnitude.

131. Which of the following is not a vector quantity-
(a) Speed / Impulse (b) Force of gravity
(c) Electric current (d) Displacement

RRB NTPC 12.04.2016 (Shift-I) Stage Ist

132. A vector quantity has both magnitude and direction, whereas a scalar quantity has only magnitude and no direction. Which of the following is a vector quantity?
(a) Work (b) Speed
(c) Displacement (d) Energy

RRB Group-D 12-11-2018 (Shift-I)

Ans : (c) Vector Quantity– The physical quantities which need both magnitude and direction for their complete description are called 'vectors' or 'vector quantities'. Displacement, velocity, force, etc. are all vector quantities.

133. What is an example of vector quantity?
(a) Weight (b) Temperature
(c) Velocity (d) Length

RRB NTPC Stage Ist 28.04.2016 (Shift-I)

Ans : (c) See the explanation of above question.

134. Which of the following is a vector quantity?
(a) Time (b) Temperature
(c) Distance (d) Velocity

RRB NTPC 09.04.2016 (Shift-III) Stage Ist

Ans : (d) See the explanation of above question.

135. Which of the following has both direction and magnitude?
(a) Mass (b) Distance
(c) Momentum (d) Speed

RRB Group-D 05-11-2018 (Shift-II)

Ans : (c) Momentum is a vector quantity, as it has both direction and magnitude. Mass, distance and speed are scalar quantities because they contain only magnitude.

136. In the given physical quantities which is not a relative quantity?
(a) Time (b) Acceleration
(c) Velocity (d) Distance

RRB Group-D, 03-12-2018 (Shift –III)

Ans : (a) Time is not a relative quantity.
Velocity is defined as the rate of displacement of an object

$$\text{Velocity (V)} = \frac{\text{Displacement}}{\text{Time}}$$

- Acceleration is defined as the rate of change of velocity.
- Velocity and acceleration is a vector quantity.

Note : Negative acceleration is called as retardation.

137. Which of the following is vector quantity ?
(a) Volume (b) Mass
(c) Force (d) Length

RRB JE (14-12-2014, Red Paper)

Ans : (c) Vector quantities refers to that physical quantities characterized by the presence of both magnitude as well as direction. For example, displacement, force, torque, momentum, acceleration, velocity, etc.

138. Which of the given below is NOT a vector quantity?
(a) Power (b) Torque
(c) Displacement (d) Acceleration

RRB NTPC 09.03.2021 (Shift-I) Stage Ist

Ans : (a) The physical quantities which require magnitude as well as direction to be fully represented are called vector quantities. Example- Momentum, impulse, acceleration, force, displacement, velocity, electric field, torque etc. Whereas energy, distance, time, power etc, are scalar quantities.

139. Which of the following is a scalar quantity?
(a) Momentum (b) Force
(c) Mass (d) Velocity

RRB NTPC 28.12.2020 (Shift-II) Stage Ist

Ans : (c) A quantity that has magnitude but no particular direction is described as scalar quantity. A quantity that has magnitude and acts in a particular direction is described as vector quantity. Scalar quantities include: mass, distance, speed, time, power, energy etc. Vector quantities include: displacement, velocity, acceleration, force, weight, momentum etc.

140. Which of the following only gives magnitude and not direction?
(a) Momentum (b) Displacement
(c) Work (d) Force

RRB Group –D, 25-09-2018 (Shift-III)

Ans : (c) Work is a scalar quantity because it is the dot product of two vectors (Force and Displacement).
Work (W) = F.d

Work	=	Force	·	Displacement
↓		↓		↓
Scalar quantity		Vector		Vector

Thus, dot product of two vectors becomes scalar quantity. So, work done has only magnitude but not direction.

141. In work –
(a) There is no direction , only have magnitude
(b) There are no direction & magnitude
(c) Both magnitude and direction is present
(d) Only direction, no magnitude

RRB Group –D, 27-11-2018 (Shift-II)

Ans : (a) See the explanation of above question.

142. Which of the following has magnitude and no direction?
(a) Work (b) Impulse
(c) Displacement (d) Force

RRB Group –D, 12-11-2018 (Shift-II)

Ans : (a) Work is a scalar quantity which has only magnitude, no direction.

2. Mechanics
(i) Work

1. Which of the following can do more work?
(a) A raised hammer
(b) A bullet fired by the gun
(c) A moving stone
(d) A rotating wheel

RRB ALP & Tec.(31-08-2018)Shift-III
RRB Group –D, 12-10-2018 (Shift-II)

Ans : (b) A bullet fired by gun has the maximum work.

2. A force of 20 N displaces an object through 2 m and does a work of 20 J. The angle between the force and displacement is:
(a) 60^0 (b) 30^0
(c) 90^0 (d) 0^0

RRB ALP & Tec.(20-08-2018)Shift-II

Ans : (a) Given that,
F = 20N
d = 2m
W = 20J
$\Rightarrow$ Work (W) = F. d cosθ
$20 = 20 \times 2 \times \cos\theta$
$1 = 2\cos\theta$
$\cos\theta = 1/2$
$\cos\theta = \cos 60^0$
$\theta = 60^0$

3. A porter raise 12 kg object from surface of earth and put object 1.5 meter above from surface on his head. Calculate the work done on object ($g = 10\ ms^{-2}$).
(a) 140 J (b) 150 J
(c) 180 J (d) 150 J

RRB Group-D, 04.10.2018 (shift-I)

Ans : (c)
m = 12kg
$g = 10\ m/s^2$
h = 1.5m
So, if an object of mass (m) is raised through a height h, the work done on the object is equal to potential energy (mgh) of an object.
Therefore,
W = mgh
$= 12 \times 10 \times 1.5$
= 180J.

4. If an aeroplane travelled 4000m distance and work done is 20000J. Then force applied on it is
(a) 5 N (b) 50 N
(c) 0.20 N (d) 10 N

RRB Group –D, 10-12-2018 (Shift-I)

Ans : (a) Work = Force × Displacement
20000 = Force × 4000
F = 20000/4000
= 5 N

5. The gravitational potential energy of an object at a point above the ground. Is defined as the work done in. . . . . .
(a) Lifting it from the ground to the point opposite gravity
(b) Applying gravitational force on it
(c) Keep it at the center
(d) Placing it on the ground of against gravity

RRB Group –D, 22-10-2018 (Shift-II)

Ans : (a) The gravitational potential energy of an object at a point above the ground is defined as the work done to lift it from the ground to the point opposite to gravity.

6. The work done, to increase speed 5 m/s to 10 m/s by a car of 800kg is.....
(a) 30kJ (b) 40kJ
(c) 20kJ (d) 10kJ

RRB Group-D 22-09-2018(Shift-II)

Ans : (a) Work done = change in kinetic energy
$= 1/2m(v_2^2 - v_1^2)$
$= 1/2 \times 800(10^2 - 5^2)$
$= ½ \times 800 \times 75$
= 30000 J = 30kJ

7. An object of 1kg is dropped to the ground from a height of 30m. What is the work done by the force of gravity ? ($g = 10\ m/s^2$)
(a) 10J (b) 300J
(c) 0.33J (d) 30J

RRB Group-D 19-09-2018(Shift-I)

Ans : (b) m = 1 kg
$g = 10\ m/s^2$
h = 30 m
P.E. = mgh
Or work done by the force of gravity
$= 1 \times 10 \times 30 = 300$ Joule

8. A person picks up 20kg of goods at 2m above the ground and keeps it on his head, work done by the person is?

(a) 200J (b) 400J
(c) 40J (d) 20J

RRB Group-D 17-09-2018(Shift-II)

Ans : (b) Given that, m = 20 kg
height (h) = 2 m
$g = 10\ m/s^2$
$W = mgh = 20 \times 10 \times 2 = 400\ J$

9. An object of 1 kg, raised 10m above the surface of earth then work done by gravitational force will- ($g = 9.8\ m/s^2$)

(a) 98J (b) -9.8J
(c) 9.8J (d) -98J

RRB Group –D, 20-09-2018 (Shift-II)

Ans : (d) m = 1kg
$g = 9.8 m/s^2$ (object raise from surface against gravitational force)
h = 10m
As work done by an object is equal to the potential energy stored in an object.
Therefore,
W = mgh
= 1×9.8×10
= 98J.
When the displacement is opposite to the direction of force, work is automatically -98J

10. A man raised 20kg object from the surface of earth and put the object 2m above on his head. Calculate the work done by the man is- ($g = 10\ m/s^2$)

(a) 350J (b) 200J
(c) 400J (d) 150

RRB Group –D, 24-09-2018 (Shift-II)

Ans : (c) m = 20kg
$g = 10 m/s^2$
h = 2.0m
So, if an object of mass (m) is raised through a height h, the work done on the object is equal to potential energy (mgh).
Therefore,
W = mgh
= 20×10×2
= 400J.

11. When an object move 1m distance by 1N force on the direction of force then work done will-

(a) 10J (b) 100J
(c) 0.01J (d) 1J

RRB ALP & Tec.(20-08-2018)Shift-II

Ans : (d) Given, Force = 1 N, Distance = 1 m
Work done = F.d cosθ
$=1\times1\times\cos0^0$ (because force and displacement are in same direction)
Hence work done = 1J

12. Work done by a man standing on a platform holding 10kg suitcase is-

(a) 100J (b) 0J
(c) 98J (d) 980J

RRB ALP & Tec.(21-08-2018)Shift-I

Ans : (b) W = F × d
Here, F = force
d = displacement
But there is no displacement of the man,
Hence, d = 0
Work done = F×0
W = 0

13. A 4.0 kg object is moving horizontally with a speed of 5.0 m/s. To increase its speed to 10 m/s, the amount of net work required to be done on this object is:

(a) 150J (b) 100J
(c) 75J (d) 50J

RRB ALP & Tec.(09-08-2018)Shift-I

Ans : (a)
Given that, m = 4kg, $V_1 = 5$ m/s and $V_2 = 10$ m/s
For raising speed of the object, the work done is equal to kinetic energy,
Work done (W) = K.E

$$= \frac{1}{2}m\left(v_2^2 - v_1^2\right)$$

$$= \frac{1}{2}\times 4\left(10^2 - 5^2\right)$$

Work done = $\{4\times(10^2-5^2)\}/2=150$ J

14. A ball weighing 0.1 kilogram is dropped from a stationary position when it falls from a distance of 2 meters, then what will be the work done by the force of gravity.

(a) 1.96 J (b) - 1.96 J
(c) - 0.98 J (d) 0.98 J

RRB ALP & Tec.(10-08-2018)Shift-III

Ans : (a) Given, Mass of ball (m) = 0.1 kg
Total height (h) = 2m
Acceleration due to gravity (g) = 9.8 m/s^2
Here, work done by the gravitational force = potential energy of ball at 2 m height.
W = 0.1×9.8×2=1.96 J

15. When the force exerted on an object, then the work done will be zero if it has displacement.

(a) Negative (b) Positive
(c) Neutral (d) Zero

RRB ALP & Tec.(21-08-2018)Shift-III

Ans : (d) If displacement of the object is zero then work done also will be zero.
$\because$ W = F×d
Where, F = force
d = displacement
W = F × 0
W = 0

16. A boy raises a box with a weight of 120 N through a height of 2 m. The work done by the boy is-

(a) 60 J (b) 120 J
(c) 240 J (d) 180 J

RRB ALP & Tec.(30-08-2018)Shift-I

Ans : (c) Given, Weight = mg = 120N, Height (h)= 2 m
Work done = mgh
= 120×2
= 240J.

17. Capacity of doing work is known as-
(a) Power (b) Pressure
(c) Energy (d) Force

RRB ALP & Tec.(31-08-2018)Shift-III

Ans : (c) Energy is defined as the capacity to do work. Work and energy has same S.I. unit i.e. 'Joule (J)'. Work and energy both are scalar quantity.

18. If the value of work is positive then the kinetic energy of the body -
(a) Decrease his energy
(b) Its value will be zero
(c) It will stay
(d) Increase his energy

RRB Group –D, 20-09-2018 (Shift-I)

Ans : (d) If work done by conservative forces is positive, then $\vec{F}.\vec{s} > 0$. Thus, the one component of force is along the direction of displacement. Thus, speed of the object tends to increase as the force continues to be applied on the object. Since, the total energy is increased.

19. Which of the following position is no work done?
(a) Kapil stands with a weight of 10 kg on his shoulder
(b) Sachin walks 4 km.
(c) A porter carries weight from a bus to a car.
(d) Arun plays cricket on the field.

RRB Group –D, 19-09-2018 (Shift-III)

Ans : (a) Kapil is standing with a weight of 10 kg on his shoulder. It is clear that displacement is zero, so the work done by Kapil will be zero.

20. The work done by the force is positive when-
(a) Displacement occurs in the direction of force
(b) Displacement is perpendicular to the force
(c) There is no displacement due to the force
(d) Displacement occurs in opposite direction of force

RRB Group –D, 19-09-2018 (Shift-III)

Ans : (a) Positive Work–When force and displacement are in the same direction, the work performed on an object is said to be positive work.
Negative Work–Negative work is performed if the displacement is opposite to the direction of the force applied.
Zero Work–When force and displacement are perpendicular to each other, or when force or displacement is zero then there will be no work done.

21. Which of the following activities can be said to have work done ?
(a) Harsh is reading the book
(b) Pinky is walking on a flat road with a book on her head
(c) Shruti is sitting on the chair
(d) Khusi is pushing the wall of the house, but fails to do it.

RRB Group –D, 18-09-2018 (Shift-II)

Ans. (*) Pinky is walking on a flat road with a book on her head, it can be said their will be no work done. Because here, the force due to the gravity is perpendicular to the displacement of object. In other options their are no any displacement of object.
So here remaining option also work done will be zero.

22. A porter lifts 500 N up to a distance of 100 meters work done by the porter is-
(a) 50N (b) 0.20N
(c) 0N (d) 5N

RRB Group –D, 06-12-2018 (Shift-I)

Ans : (c) A porter lifts 500N up to a distance of 100 meters then the work done by porter is zero because the displacement of the object is perpendicular to the direction of the force applied. So, the angle between the force and displacement is 90 degrees ($\theta = 90°$).
Work done = F.dcosθ
$= F.d\cos 90^0 = 0$

23. In which of the following work is not done –
(a) A wind mill raising the water from well
(b) A donkey put a weight on his back
(c) Suman is swimming in a pool
(d) A engine is pulling a train

RRB Group –D, 02-11-2018 (Shift-II)

Ans : (b) A donkey is carrying weight on its back, in this case no work is being done because the displacement of the object is perpendicular to the direction of the force applied.
$W = f.d\cos\theta$
$= f.d\cos 90^0 = 0$
$W = 0$

24. Efficiency of work is known as-
(a) Energy (b) Velocity
(c) Force (d) Speed

RRB Group –D, 16-11-2018 (Shift-II)

Ans : (a) Energy is called the ability to do work. Efficiency can be determined quantitatively by the ratio of energy transferred to useful form compared to the total energy supplied initially is called the efficiency.

25. If the work done is zero, then the angle between force and displacement is –
(a) 0° (b) 90°
(c) 45° (d) 30°

RRB Group –D, 08-10-2018 (Shift-II)
RRB Group –D, 17-09-2018 (Shift-II)

Ans : (b) We know that,
$W = F.d\cos\theta$
when, $W = 0$
$0 = F.d\cos\theta$
$\therefore \cos\theta = 0 = \cos 90^0$
$0 = 90^0$
In the case of zero work the angle between the displacement and the applied force is 90 degree.

26. 20 N force is acting on a body. Body moves 4 meter in direction of applied force, then work done is-
(a) 80W (b) 80Pa
(c) 80N (d) 80J

RRB Group –D, 05-10-2018 (Shift-II)

Ans : (d) Given, Force (F) = 20 N, Displacement (d) = 4 m
Work done (W) = F.dcosθ
[θ = 0º Displacement occurs in the direction of the force]
Work = 20 N × 4 m × cos 0º
Work = 20 N × 4 m × 1
Work = 80 Nm = 80 J

27. A worker takes 15kg object and put the object 1 meter above on his head from the surface of earth. Then work done by the worker is – (g = 10 ms^{-2}).
(a) 155J (b) 150J
(c) 140J (d) 100J
RRB Group –D, 05-10-2018 (Shift-II)

Ans : (b) Given, m = 15kg
g = 10m/s^2
h = 1.0m
As work done by an object is equal to the potential energy stored in an object.
Therefore,
W = mgh = 15×10×1 = 150J.

28. Work present if there is –
(a) Force (b) Energy
(c) Friction (d) Power
RRB Group –D, 26-09-2018 (Shift-I)

Ans : (a) Work is said to be done when body or object moves with the application of external force. We can define work as an activity involving a movement and force.
Work = force × displacement

29. If displacement is horizontal to the applied force, then work done is –
(a) Zero (b) Negative
(c) Positive (d) Neutral
RRB Group –D, 26-10-2018 (Shift-II)

Ans : (c) When a body moves on the horizontal surface, force and displacement act in the same direction. The work done in this case is known as positive work.

30. Which of the following work done does not depend -
(a) Applied force
(b) Mass of object
(c) Displacement
(d) The angle between force and displacement
RRB Group –D, 09-10-2018 (Shift-II)
RRB Group –D, 03-10-2018 (Shift-III)
RRB Group –D, 09-10-2018 (Shift-II)

Ans : (b) Work done (W) = F.d cosθ
where, F = External/applied force
d = Displacement of the body/object
θ = Angle between force and displacement
From the above equation, the work done depends upon applied force, displacement and angle between the force and displacement but does not depend upon mass or initial velocity of object/body.

31. Which of the following the work done by a body does not depend on ?
(a) Initial velocity of object
(b) Displacement
(c) Angle between force and displacement
(d) Applied force
RRB Group –D, 15-11-2018 (Shift-II)
RRB Group –D, 12-12-2018 (Shift-I)
RRB Group –D, 13-12-2018 (Shift-II)
RRB Group –D, 02-11-2018 (Shift-I)
RRB Group –D, 08-10-2018 (Shift-III)

Ans : (a) See the explanation of above question.

32. A worker raise 10kg object from the ground and put 1.2m above on his head then work done is- (g = 10 ms^{-2})
(a) 120J (b) 155J
(c) 150J (d) 140J
RRB Group –D, 08-10-2018 (Shift-II)

Ans : (a) Given, m= 10kg
h = 1.2m
acceleration due to gravity (g) = 10 ms^{-2}
As work done by an object is equal to the potential energy stored in an object. Therefore,
Work done = m ×g× h =10×1.2× 10= 120J

33. Work known as-
(a) Force × displacement
(b) Mass × acceleration
(c) Length × width
(d) Mass × volume
RRB Group –D, 08-10-2018 (Shift-I)

Ans : (a) Work = Force × displacement

34. The work done by an object is 56 J and applied force on object is 7 N. Find the displacement.
(a) 80ms^{-1} (b) 80m
(c) 8 m (d) 80ms^{1}
RRB Group –D, 08-10-2018 (Shift-III)

Ans : (c) Given, Work (W) = 56J, displacement (d) =?
F = 7N
Work = Force × Displacement
Displacement = W/F = 56/7 = 8m

35. 10 N force is working on an object. Object displaced 5m in the direction of applied force, then work done is -
(a) 50N (b) -50N
(c) 50J (d) -50J
RRB Group –D, 04-10-2018 (Shift-I)
RRB Group –D, 01-11-2018 (Shift-II)

Ans : (c) Given, Force (F) = 10 N, Displacement (d) = 5 m
Work = force × displacement in the direction of force
= 10×5= 50J

36. If force F=0, then work done W = ?
(a) 20 (b) 0
(c) 1 (d) 100
RRB Group –D, 31-10-2018 (Shift-III)

Ans : (b) Given, Force = 0, Work done = ?
W = F.d
= 0.d
= 0

37. A porter picks up 12 kg of goods from the ground and places it on his head 1.5 meters above the ground then work on the goods to be done by him is: ($g = 10\ ms^{-2}$)

(a) 140J (b) 150J
(c) 180J (d) 155J

RRB Group –D, 04-10-2018 (Shift-II)

Ans : (c) Given,
$m = 12\ kg,\quad g = 10\ ms^{-2},\ h = 1.5m$
As work done by the porter is equal to the potential energy stored in an object.
Therefore, $W = mgh$
$= 12\times10\times1.5 = 180J$

38. The force of 25 N is working on an object, that object is moved in the direction of force by 5 m, the work done by the force is:

(a) 125W (b) 125N
(c) 125J (d) 125Pa

RRB Group –D, 26-10-2018 (Shift-II)

Ans : (c) Force (F) = 25N
Displacement (d) = 5m
Work = force × displacement
$W = F.d$
$= 25\times5 = 125J$

39. When a man pushes a wall but fails to displace it, it does ?

(a) Positive work (b) Negative work
(c) Most positive work (d) No any work

RRB Group –D, 12-12-2018 (Shift-II)

Ans : (d) When a man pushes the wall but fails to displace it, he does absolutely zero work.
Work done (W) = Force × displacement
Here, displacement = 0
$W = 0$

40. When a person walks 4 meters with a constant force of 12N, the work done by him is –

(a) 6J (b) 2J
(c) 48J (d) 3J

RRB Group –D, 12-12-2018 (Shift-I)

Ans : (c) Given, Force (F) = 12N
Displacement (d) = 4m
Work (W) = ?
Work (W) = F.d
$W = 12\times4 = 48J$

41. To say that the work has been done, two conditions must be completed, one of them is-

(a) Force is not required
(b) Object must be displaced
(c) There should be no absorption and emission of energy
(d) There should be no change in the condition of the object

RRB Group –D, 24-10-2018 (Shift-III)

Ans : (b) To say that the work has been done, there are two conditions must be completed–
1- Force is required
2- Object must be displaced

42. The product of force and displacement is called-

(a) Momentum (b) Acceleration
(c) Work (d) Burden

RRB Group –D, 19-09-2018 (Shift-I)

Ans : (c) Work done(W)=Force(F)×Displacement(d)

43. The work is product of –

(a) Energy and volume
(b) Power and displacement
(c) Force and Displacement of object towards the direction of force
(d) Displacement of the object in the direction of the force

RRB Group –D, 08-08-2018 (Shift-I)

Ans : (c) The work is the product of force and displacement of object towards the direction of force.
Work done (W)=Force (F)×Displacement (d)

44. If a stationary force applied to an object, the object moved in the direction of force, is expressed as a result of force and displacement, it is called –

(a) Retardment (b) Work done
(c) Impulse (d) Acceleration

RRB Group –D, 27-09-2018 (Shift-III)

Ans : (b) If a force applied to an object, the object moved in the direction of force, is expressed as a result of force and displacement, it is called work done. Work is a dot product of force and displacement. The dot product of vector quantities (force and displacement) is always scalar which means it has only magnitude not direction.
Work done (W) = Force (F). Displacement (d)

45. Work is done on a body only when –

(a) It experiences energy gain through a mechanical effect
(b) Forces work on it
(c) There is displacement
(d) It moves through a certain distance

RRB Group –D, 11-12-2018 (Shift-III)

Ans : (a) Work is done on a body only when it experiences energy gain through a mechanical effect.

46. What is the work done if the angle between applied force and the direction of the displacement is 90^0?

(a) Disintegrated (b) Negative
(c) Positive (d) Zero

RRB Group –D, 10-12-2018 (Shift-III)
RRB Group –D, 05-11-2018 (Shift-III)

Ans : (d) If the angle between the applied force and the direction of displacement is 90 degrees ($\theta = 90^o$), the work done will be zero.
Work done = $F.d\cos\theta$
$= F.d\cos90^0 = 0$

47. The ability of an object to do the work energy contained in an object is depend on the-

(a) Mass and volume of object
(b) Motion of object in a certain direction
(c) State and condition of object
(d) The magnitude and the direction of the object

RRB Group –D, 16-10-2018 (Shift-I)

Ans : (c) The ability of an object to do the work or the energy contained in an object depends on the condition and state of the object.

48. A worker takes 10 kg of goods from the ground and puts it on 1.1m above the land on his head. What will be the work done by the worker.

(a) 140J (b) 155J
(c) 165J (d) 110J

RRB Group –D, 05-10-2018 (Shift-III)

Ans : (d) Given that,
$m = 10$ kg, $g = 10$ m/s^2, $h = 1.1$ m
As workdone by an object is equal to the potential energy stored in an object.
Therefore, $W = mgh$
$= 10 \times 10 \times 1.1$
$= 10 \times 10 \times 11/10$
$= 110$J

49. A moving car faces the wind in the opposite direction. What will be the work done by the wind on the car?

(a) Negative (b) Zero
(c) Infinite (d) Positive

RRB Group –D, 01-10-2018 (Shift-III)

Ans : (a) When a car in motion faces the wind in the opposite direction, then the force exerted on the car by the wind acts opposite to the displacement of the car. Therefore, the angle between the direction of the applied force and the displacement of the car is 180 °.
Work done (W) = F.d cos 180^0 [$\because \cos 180^o = -1$]
W = -F.d
So, the work done by air on the car will be negative

50. A girl whose weight is 200 N, climbs on a tree which height is 2-meter. What was the work done by the girl after climbing the tree? (g = 10 m /sec^2)

(a) 800J (b) 400J
(c) 200J (d) 2000J

RRB Group –D, 12-12-2018 (Shift-III)

Ans : (b) Given, Weight = mg = 200N
h = 2m
Work done by the girl = Potential energy
= mgh = 200×2 = 400J

51. If someone travels 15 km distance with a fixed force of 500N, then calculate the work done.

(a) 750000J (b) 75000J
(c) 7500000J (d) 7500J

RRB Group –D, 13-12-2018 (Shift-II)

Ans : (c) Force = 500N , Work = ?
Displacement = 15km = 15000m
Work = force×displacement
W = 500×15000
= 7500000J

52. A horizontal force of 10 N displaces an object of 5 kg to a distance of 2 m in the direction of the force. What will be the work done by the object?

(a) 20J (b) 5J
(c) 50J (d) 10J

RRB Group –D, 20-09-2018 (Shift-III)

Ans : (a) Work = force ×displacement in the direction of force
W = F×d
[$\therefore$ Given, F = 10N, d = 2m]
W = 10×2
= 20J

53. What is the amount of work done when an object moves under a force of 10 N at a distance of 10 m in the direction of force?

(a) 1J (b) 10J
(c) 100J (d) 0.01J

RRB Group –D, 31-10-2018 (Shift-II)

Ans : (c) Given,
d = 10m
F = 10N
Work = F.d
= 10×10
= 100J

54. A force of 50 N displaces an object 10 m. What will be the work done by the force?

(a) 500J (b) 5J
(c) 10J (d) 50J

RRB Group –D, 03-12-2018 (Shift-III)

Ans : (a) Given,
F = 50N, displacement = 10m, work =?
Work = force × displacement
W = 50×10 = 500J

55. If an object not moving after applying a force, then we can say that –

(a) Maximum power has used
(b) Work has done
(c) Minimum power has used
(d) Any work has not done

RRB Group –D, 16-11-2018 (Shift-I)

Ans : (d) If an object is not moving after applying a force, then we can say that work done on an object will be zero.
$\therefore$ Displacement (d) = 0
Work done (W) = Force × Displacement
= F.d
Work done (W) = F × 0
Work done (W) = 0

56. If the displacement of an object is zero. Then work done by the applied force is –

(a) Neutral (b) Negative
(c) Positive (d) Zero

RRB Group –D, 16-11-2018 (Shift-I)

Ans : (d) If the displacement of an object is zero, then the work done will be zero. If a applied force on a object is zero, then the work done on an object will be zero, such as - if a person pushes a wall and that wall remains stationary.
Work done (W) = Force × Displacement (d)
= F × d (Where d = 0)
Work done (W) = 0

57. The work done is zero with zero-

(a) Velocity
(b) Displacement
(c) Power
(d) Momentum

RRB Group –D, 11-10-2018 (Shift-I)

Ans : (b) See the explanation of above question.

58. Which of the following is not a characteristic of work?

(a) Work has a direction
(b) For doing work it is necessary to apply a force on an object
(c) Work has only magnitude
(d) For work done their should be a displacement of an object

RRB Group –D, 16-11-2018 (Shift-III)

Ans : (a) Work is a scalar quantity, because it has only magnitude, not direction.

59. A bus runs with a force of 4000 N. The work done by the bus is 2000 J. What is the distance covered by the bus?

(a) 1 meter (b) 2 meter
(c) 1.5 meter (d) 0.5 meter

RRB Group –D, 06-12-2018 (Shift-III)

Ans : (d) Given,
Force (F) = 4000 N
Work done (W) = 2000 J
Work = force × displacement
Displacement = Work/force
= 2000/4000
= 0.5 meter

60. If a man pulls a trolly by applying force of 50N and trolly is displaced 30m. What is work done?

(a) 1500J (b) 80J
(c) 1500J (d) 20J

RRB Group –D, 15-11-2018 (Shift-II)

Ans : (a) Given, Force = 50N
Displacement = 30m
Work = force × displacement
W = 50 × 30 = 1500J

61. A man puts 20kg object on his head by raising the object 2m above from the surface of earth. Then work done will be –

(a) 400W (b) 400J
(c) 200W (d) 200J

RRB Group –D, 30-10-2018 (Shift-II)

Ans : (b) Given,
m = 20 kg, $g = 10\ m/s^2$, h = 2 m
Work done = Potential energy of object
W = mgh
= 20× 10× 2 = 400J

62. A man puts 13kg object on his head by raising the object 1.5m above from the surface of earth. Then work done will be: ($g=10ms^{-2}$)

(a) 195J (b) 100N
(c) 150J (d) 140J

RRB Group –D, 05-10-2018 (Shift-I)

Ans : (a) The work done by the man is equal to the potential energy stored in an object.
Work done by the man = Potential energy of object
W = mgh
[Given, m = 13kg, $g = 10ms^{-2}$, h = 1.5m]
W = 13×10×1.5
= 195J

63. A boy hold 4 kg school bag for 30 seconds, the work done by him will be in joule.

(a) 4 (b) 4
(c) Zero (d) 39.20

RRB Group –D, 24-09-2018 (Shift-II)

Ans : (c) If the boy holds a school bag of 4 kg for 30 seconds, the force exerted by bag will be mg = 4 ×10 = 40 N.
The boy holds this force for 30 seconds, the work done is zero because displacement is zero
Work done = force × displacement = 40 × 0
Work done (W) = 0

64. Work can only be done when ___is present.

(a) Energy (b) Force
(c) Momentum (d) Power

RRB Group –D, 05-11-2018 (Shift-III)

Ans : (a) Work can only be done when energy is present. Energy is the ability to do work. Energy is a conserved quantity and the law of conservation of energy states that energy can neither be created nor be destroyed but can only be converted from one form to another.
Work and energy both has same S.I unit 'Joule (J)'.
Both are a scalar quantities.

65. Which of the following is not an example of work done ?

(a) A man pushing against the wall
(b) Trolley moves when the boy pushes the trolley
(c) Applied force on an object in that direction the object is moving
(d) Raise the book to some height and walking

RRB Group –D, 26-10-2018 (Shift-III)

Ans : (a) Work is said to be done when the body displaces form its initial position when the force is applied because.
Work done (W) = Force × Displacement
Here, in this case the wall does not displace from its initial position even though the force is applied and since here displacement is zero, so the work done is said to be zero.

66. When the direction of the force applied and the direction of movement of the object is perpendicular to each other.

(a) Power exercised
(b) No work done
(c) Power not exercised
(d) Work done

RRB Group –D, 24-10-2018 (Shift-I)

Ans : (b) If the direction of the force is perpendicular to the displacement in the direction of motion of the object then,
$\theta = 90^0$
Work done = F.d cos 90^0
W = 0

67. If the work done is negative, then what will be the angle between the force and displacement?

(a) 45^0 (b) 0^0
(c) 90^0 (d) 180^0

RRB Group –D, 09-10-2018 (Shift-I)