
**Al-Razi Guess Paper consist of 100 MCQs, 100 Short Questions and Long Questions to get 100% Success in Examination**

## OBJECTIVE TYPE
### Multiple Choice Questions

**1. To avoid confusion in a measurement we need:**
A observation B experiment
c standard unit D all

**2. The instrument that is most suitable for measuring the thickness of a few sheets of cardboard is a:**
A metre rule
B measuring tape
C Vernier Callipers
d micrometer screw gauge

**3. Least count of screw-gauge is:**
A 1 mm B 0.1 mm
c 0.01 mm D 0.01 cm

**4. One femtometre is equal to:**
A $10^{-9}$m b $10^{-15}$m
C $10^{9}$m D $10^{15}$m

**5. In printers type, one point is equal to:**
a 0.35 mm B 0.3 mm
C 3 mm D 1 mm

**6. A light year is a unit of:**
A light B time
c distance D speed

**7. The error that arises due to some definite rule is:**
A Human error
B Random error
c Systematic error
D All of these

**8. Which one is a non-physical quantity?**
A distance B density
c colour D temperature

**9. Accuracy in a measurement is:**
a Closeness to true value
B Deviation from true value
C Smaller value
D Larger value

**10. Volume of water consumed by you per day is estimated in:**
A millilitre b litre
C kilogram D cubic metre

**11. Two rods with lengths 12.321 cm and 10.3 cm are placed side by side, the difference in their lengths is:**
A 2.02 cm B 2.0 cm
C 2 cm d 2.021 cm

**12. Four students measure the diameter of a cylinder with Vernier Callipers. Which of the following readings is correct?**
A 3.4 cm B 3.475 cm
c 3.47 cm D 3.5 cm

**13. A body, changing its position is said to be:**
A At rest b In motion
C has constant speed
D has constant velocity

**14. If a body does not change its position with respect to some fixed point, then it will be in a state of:**
a rest B motion
C uniform motion
D variable motion

**15. To and fro motion about a fix point is called:**
A Circular motion
B Random motion
c Vibratory motion
D Rotatory motion

**16. A ball is dropped from the top of a tower, the distance covered by it in the first second is:**
a 5 m B 10 m
C 50 m D 100 m

**17. If rate of change of velocity is constant, then acceleration will be:**
A Variable b Uniform
C Positive D Negative

**18. The area under the speed-time graph is numerically equal to:**
A velocity
B uniform velocity
C acceleration
d distance covered

**19. The slope of distance-time graph is the measure of:**
A sinθ B cosθ
C secθ d tanθ

**20. Gradient of the speed-time graph is equal to:**
A speed B velocity
c acceleration
D distance covered

**21. Straight line rising upward in speed-time graph represents:**
A Uniform speed
B Uniform velocity
c Uniform acceleration
D Variable velocity

**22. Gradient of the distance-time graph is equal to the:**
a speed B velocity
C distance covered
D acceleration

**23. Line parallel to time axis in speed-time graph indicates that acceleration is:**
A Maximum B Minimum
c Zero D Uniform

**24. The range of strong nuclear force is:**
a $10^{-14}$ m B $10^{-16}$ m
C $10^{-6}$ m D $10^{-7}$ m

**25. When we kick a stone, we get hurt. This is due to:**
A inertia B velocity
C momentum d reaction

**26. Free body diagram is example of:**
A Simple diagram
b Vector diagram
C Scalar diagram
D Complex diagram

**27. Which of the following is a non-contact force?**
A Friction
B Air resistance
c Electrostatic force
D Tension in the string

**28. Inertia depends on:**
A Force B Weight
C Mass D Speed

**29. A ball with initial momentum p hits a solid wall and bounces back with the same velocity. Its momentum p after collision will be:**
A $p' = p$ b $p' = -p$
C $p' = 2p$ D $p' = -2p$

**30. Relativistic mechanics was developed by:**
A Newton B Fleming
C Einstein D Henry

**31. A particle of mass m moving with a velocity v collides with another particle of the same mass at rest. The velocity of the first particle after collision is:**
A v B -v C 0 D –1/2

**32. Standard weights are not required for:**
A Beam balance
B Lever balance
C Electronic balance
D Physical balance

**33. A large force acts on an object for a very short interval of time. In this case, it is easy to determine:**
A magnitude of force
B time interval
C product of force and time
D none of these

**34. Rate of change of momentum is equal to:**
A Inertia
B Acceleration
C Pressure d Force

**35. The steering wheel is an example of:**
A Force b Couple
C Momentum D Torque

**36. A force $\vec{F}$ is making an angle of 60° with x-axis. Its y-component is equal to:**
A F b F sin60°
C F cos60° D F tan60°

**37. The value of cos0° is:**
a 1 B 0.5
C 0.866 D 0

**38. Moment of force is called:**
A moment arm
B couple C couple arm
d torque

**39. Centre of gravity of a round plate is at:**
a Centre B Outer edge
C Left edge D Right edge

**40. If $\vec{F_1}$ and $\vec{F_2}$ are the forces acting on a body and τ is the torque produced in it, the body will be completely in equilibrium, when:**
a $\sum \mathbf{F} = 0$ and $\sum \tau = 0$
B $\sum \mathbf{F} = 0$ and $\sum \tau \neq 0$
C $\sum \mathbf{F} \neq 0$ and $\sum \tau = 0$
D $\sum \mathbf{F} \neq 0$ and $\sum \tau \neq 0$

**41. There are conditions of equilibrium:**
a 2 B 3 C 4 D 5

**42. In stable equilibrium the centre of gravity of the body lies:**
A at the highest position
b at the lowest position
C at any position
D outside the body

**43. If the heavy loads are placed on the floor of the bus, its centre of gravity will be:**
a low B high
C zero D constant

**44. Centripetal force is given by:**
A rF B $rF\cos\theta$
c $\frac{mv^2}{r}$ D $\frac{mv}{r^2}$

**45. In circular motion, the velocity at any point is directed:**
A along a line B along east
C along normal
d along tangent

**46. When force is perpendicular to the displacement, the amount of work will be:**
A maximum B 10J
C 100J d 0

**47. A joule can also be written as:**
A $kg\ m\ s^{-2}$ B $kg\ m\ s^{-1}$
C $kg\ m^2s^{-3}$ d $kg\ m^2s^{-2}$

**48. Water at the top of a fall has:**
A chemical energy
b potential energy
C kinetic energy
D chemical energy

**49. The power of a water pump is 2 kW. The amount of water it can raise in one minute to a height of 5 metres is:**
A 1000 litres B 1200 litres
C 2000 litres d 2400 liters

**50. When a ball hits the ground, its energy dissipates to:**
A heat energy
B sound energy
C potential energy
d Both A and B

**51. If a car doubles its speed, its kinetic energy will be:**
A the same B doubled
C increased to three times
d increased to four times

**52. When atomic nucleous breaks, it produces:**
a nuclear energy
B thermal energy
C solar energy D heat energy

**53. The magnitude of momentum of an object is doubled, the kinetic energy of the object will:**
A double
b increase to four times
C reduce to one-half
D remain the same

**54. Amount of carbondioxide released by fossil fuel every year is:**
A two tonnes
B three tonness
C five tonnes
d five billion tonnes

**55. Which of the following is not a renewable energy source?**
A Hydroelectric energy
b Fossil fuels
C Wind energy
D Solar energy

**56. Efficiency of electric motor is:**
A 35% B 15%
c 80% D 55%

**57. The force which changes size or shape of object is:**
A applied force
b deforming force
C magnetic force
D non-contact force

**58. A wire is stretched by a weight w. If the diameter of the wire is reduced to half of its previous value, the extension will become:**
A one half B double
C one fourth d four times

**59. The instrument used to measure spring constant:**
A spring scale
b helical spring
C manometer
D metre rule

**60. Two metal plates of area 2 and 3 square metres are placed in a liquid at the same depth. The ratio of pressures on the two plates is:**
a 1:1 B $\sqrt{2} : \sqrt{3}$
C 2:3 D 4:9

**61. Purity of substance can be measured by:**
A pressure b density
C volume D shape

**62. The principle of a hydraulic press is based on:**
A Hooke's law
b Pascal's law
C Principle of conservation of energy
D Principle of conservation of momentum

**63. Liquid exerts pressure:**
A upward B downward
c in all directions D forward

**64. When a spring is compressed, what form of energy does it possess?**
A Kinetic b Potential
C Internal D Heat

**65. At high altitude, the atmospheric pressure:**
A increases
B becomes double
c falls down D remains same

**66. What is the force exerted by the atmosphere on a rectangular block surface of length 50 cm and breadth 40 cm? The atmospheric pressure is 100 kPa.**
a 20 kN B 100 kN
C 200 kN D 500 kN

**67. Blood pressure in human is:**
a $1.6 \times 10^4$ Pa
B $2 \times 10^6$ Pa
C $7 \times 10^2$ Pa D 100 Pa

**68. Sun is made of:**
a plasma B solid
C gas D liquid

**69. What type of motion is of the molecules in a gas?**
A Linear motion
b Random motion
C Vibratory motion
D Rotatory motion

**70. The energy actually in transit from hot to cold body is called:**
A temperature
B pressure C atmosphere
d heat

**71. Temperature of a substance is:**
A the total amount of heat contained in it
B the total number of molecules in it
c degree of hotness or coldness
D dependent upon the intermolecular distance

**72. Thermometric material is a good:**
a conductor B insulator
C metal D metalloid

**73. Heat is the:**
A total kinetic energy of the molecules
B the internal energy
C work done by the molecules
d energy in transit

**74. Range of clinical thermometer is:**
A 35°C to 40°C
B 35°C to 38°C
c 35°C to 45°C
D 35°C to 50°C

**75. In Kelvin scale, the temperature corresponding to melting point of ice is:**
A zero B 32
C –273 d +273

**76. The temperature which has the same value on Celsius and Fahrenheit scale is:**
a –40 B +40
C +45 D –45

**77. Expansitivity of alcohol is more than mercury:**
A two times
b six times C three times
D five times

**78. Which thermometer is most suitable for recording rapidly varying temperature?**
a Thermocouple thermometer
B Mercury-in-glass laboratory thermometer
C Alcohol-in-glass thermometer
D Mercury-in-glass clinical thermometer

**79. Greeks discovered a rock called:**
a magnetite B thermite
C peat D anthracite

**80. Which one of the following is not a magnetic material?**
A Cobalt B Iron
c Aluminium D Nickel

**81. If magnet is divided into pieces, each piece will be a:**
a complete magnet
B partially magnet
C magnetism vanishes
D magnetism increases

**82. Permanent magnet cannot be made by.**
a soft iron B steel
C neodymium D a nico

**83. As true magnet is removed, the induced magnetism:**
A increases B decreases
c vanishes D no effect

**84. Permanent magnets are used in:**
A circuit breaker
b loudspeaker
C electric crane
D magnetic recording

**85. Magnetic field lines originate from:**
A south pole b north pole
C origin D centre

**86. The best material to protect a device from external magnetic field is:**
A Wood B plastic
C steel d soft iron

**87. Which one is not a part of A.C generator?**
A carbon brushes
B slip rings C coil
d split ring

**88. The speed of bullet train:**

A 100 km/h B 200 km/h
C 300 km/h d 400 km/h

**89. Permeability is the ability of a material to allow:**

A electric flux
B electric current
c magnetic flux
D electric field

**90. Time passes slowly for an observer moving at:**

A slow speed B high speed
C constant speed
d ultra high speed

**91. Physics is a branch of:**

A Social science
B Life science
c Physical science
D Biological science

**92. Pressure horn is an example of:**

a acoustics B optics
C atomic physics
D mechanics

**93. Automobile technology is based on:**

A Acoustics
B Electromagnetism
C Optics
d Thermodynamics

**94. MRI deals with the study of:**

A biophysics
b medical physics
C solid state physics
D astro physics

**95. The working of refrigeration and air conditioning involves**

A Electromagnetism
B Mechanics
C Climate science
d Thermodynamics

**96. Complex issues and challenges are addressed by:**

A physics B chemistry
C maths
d collaboration of science

**97. The statement "If I do not study for this test, then I will not get good grade" is an example of:**

A Theory B Observation
c Prediction D Law

**98. A hypothesis is a:**

A random idea
B proved fact
C only guess
d guess based on observation

**99. A graph of an organized data is an example of:**

A Collecting data
B Forming a hypothesis
C Asking question
d Analyzing data

**100. The colour of a door is brown, is an example of:**

a Observation
B Hypothesis
C Prediction D Law

## Short Questions

**1. Does a non-physical quantities have dimension?**
**Ans.** See on page No. 03

**2. Can a non-physical quantity be measured? If yes, then how?**
**Ans.** See on page No. 11

**3. What is meant by international system (SI) of units?**
**Ans.** See on page No. 04

**4. What is measurement? Name its two parts.**
**Ans.** See on page No. 11

**5. Define zero error of verneir callipers. Write its least count?**
**Ans.** See on page No. 05

**6. Why do we need a standard unit for measurements?**
**Ans.** See on page No. 11

**7. What is a stop-watch? Write its types and least count?**
**Ans.** See on page No. 05

**8. Write the name of 3 base quantities and 3 derived quantities.**
**Ans.** See on page No. 11

**9. How volume of a liquid can be measured using measuring cylinder?**
**Ans.** See on page No. 06

**10. Why prefix is used? Name three sub-multiples and three multiple prefixes with their symbols.**
**Ans.** See on page No. 12

**11. Why we need to measure error in a measurement?**
**Ans.** See on page No. 06

**12. Differentiate between precision and accuracy.**
**Ans.** See on page No. 08

**13. Define rest and motion with example.**
**Ans.** See on page No. 19

**14. Define scalar and vector quantities.**
**Ans.** See on page No. 28

**15. What is translatory motion?**
**Ans.** See on page No. 20

**16. Give 5 examples each for scalar and vector quantities.**
**Ans.** See on page No. 28

**17. What is the difference between uniform velocity and non-uniform velocity?**
**Ans.** See on page No. 21

**18. What are distance-time graph and speed-time graph?**
**Ans.** See on page No. 28

**19. Write types of acceleration.**
**Ans.** See on page No. 22

**20. The vector quantities are sometimes written in scalar notation (not bold face). How is the direction indicated?**
**Ans.** See on page No. 29

**21. Explain speed time-graph.**
**Ans.** See on page No. 23

**22. Is it possible for a body to have acceleration? When moving with: (i) constant velocity (ii) constant speed**
**Ans.** See on page No. 29

**23. What assumptions should be followed to apply equation of motion?**
**Ans.** See on page No. 25

**24. What do you mean by electrostatic force and strong and weak nuclear force.**
**Ans.** See on page No. 37

**25. What kind of changes may be produced by a force?**
**Ans.** See on page No. 45

**26. Explain the unification of weak nuclear and electromagnetic forces?**
**Ans.** See on page No. 38

**27. Give 5 examples of contact forces.**
**Ans.** See on page No. 45

**28. Define 1 Newton force.**
**Ans.** See on page No. 39

**29. Define impulse of force.**
**Ans.** See on page No. 45

**30. What is gravitational field strength? Write its value?**
**Ans.** See on page No. 39

**31. The force expressed in Newton's second law is a net force. Why is it so?**
**Ans.** See on page No. 46

**32. How weight of an object is measured with the help of force meter?**
**Ans.** See on page No. 40

**33. Define terminal velocity of an object.**
**Ans.** See on page No. 46

**34. Why crumple zones are made in front and behind the main body of the vehicles?**
**Ans.** See on page No. 41

**35. Define resultant force.**
**Ans.** See on page No. 55

**36. What are rectangular components of a vector and their values?**
**Ans.** See on page No. 63

**37. Why does window handles are always installed at a larger distances from hinges?**
**Ans.** See on page No. 56

**38. Define moment of a force. Prove that $\tau = rF\sin\theta$, where $\theta$ is angle between r and F.**
**Ans.** See on page No. 63

**39. Define trigonometry.**
**Ans.** See on page No. 56

**40. With the help of a diagram, show that the resultant forces is zero but the resultant torque is not zero.**
**Ans.** See on page No. 64

**41. How centre of gravity of an irregular shaped plane lamina can be found?**
**Ans.** See on page No. 57

**42. Define centre of mass and centre of gravity of a body.**
**Ans.** See on page No. 64

**43. What is second condition of equilibrium?**
**Ans.** See on page No. 58

**44. How can you prove that the centripetal force always acts perpendicular to velocity?**
**Ans.** See on page No. 64

**45. Define like and unlike parallel forces.**
**Ans.** See on page No. 63

**46. Define one joule, the unit of work.**
**Ans.** See on page No. 71

**47. What is the work done on an object that remains at rest when a force is applied on it?**
**Ans.** See on page No. 79

**48. Define potential energy.**
**Ans.** See on page No. 72

**49. A force $F_1$ does 5 J of work in 10 s. Another force $F_2$ does 3 J of work in 5 s. Which force delivers greater power?**
**Ans.** See on page No. 79

**50. Explain fossil-fuel energy.**
**Ans.** See on page No. 73

**51. Define work and its Sl unit.**
**Ans.** See on page No. 80

**52. What is biomass? How biofuel energy is used to generate electricity?**
**Ans.** See on page No. 73

**53. Find an expression for the kinetic energy of a moving body.**
**Ans.** See on page No. 80

**54. What are harmful effects of fossil fuels and nuclear fuels?**
**Ans.** See on page No. 74

**55. Differentiate between renewable and non-renewable energy sources.**
**Ans.** See on page No. 81

**56. Define power. Also write its formula and unit.**
**Ans.** See on page No. 75

**57. Define elastic limit?**
**Ans.** See on page No. 90

**58. Why heavy animals like an elephant have a large area of the foot?**
**Ans.** See on page No. 97

**59. Why density of iron is greater than the density of wood?**
**Ans.** See on page No. 91

**60. Why is it painful to walk bare footed on pebbles?**
**Ans.** See on page No. 97

**61. Why heavy animals have thick legs and large flat feet?**
**Ans.** See on page No. 91

**62. State what do you mean by elasticity of a solid.**
**Ans.** See on page No. 97

**63. Define 1 atmosphere pressure (1 atm)? Write value of standard atmospheric pressure (1 atm)?**
**Ans.** See on page No. 93

**64. Distinguish between force and pressure.**
**Ans.** See on page No. 98

**65. How meteorologist forecast weather condition?**
**Ans.** See on page No. 93

**66. State the basic principle used in the hydraulic braking system of the automobiles.**
**Ans.** See on page No. 98

**67. Write some applications of hydraulic systems?**
**Ans.** See on page No. 94

**68. Compare the spacing of molecules in the solid, liquid and gaseous state.**
**Ans.** See on page No. 115

**69. Why gas molecules have no specific shape and volume?**
**Ans.** See on page No. 109

**70. What is meant by temperature of a body?**
**Ans.** See on page No. 115

**71. Could we make mercury thermometer if expansion of glass would have been greater than mercury?**
**Ans.** See on page No. 110

**72. What is meant by thermometric property of a substance? Describe some properties of thermometric substance?**
**Ans.** See on page No. 115

**73. What is thermocouple thermometer?**
**Ans.** See on page No. 111

**74. What is meant by sensitivity of a thermometer?**
**Ans.** See on page No. 111

**75. What do you mean by range of a thermometer?**
**Ans.** See on page No. 111

**76. What makes the scale reading of a thermometer accurate?**
**Ans.** See on page No. 116

**77. Which liquid is preffered in liquid-in-glass thermometer? Why?**
**Ans.** See on page No. 112

**78. When you touch a cold surface, does cold travel from the surface to your hand or does energy travel from your hand to cold surface?**
**Ans.** See on page No. 116

**79. How magnetic compass is used in navigation.**
**Ans.** See on page No. 112

**80. What are temporary and permanent magnets?**
**Ans.** See on page No. 130

**81. How magnet and magnetic material can be differentiated?**
**Ans.** See on page No. 123

**82. Define magnetic field of a magnet.**
**Ans.** See on page No. 130

**83. What are magnetic lines of force?**
**Ans.** See on page No. 124

**84. Name some uses of permanent magnets and electromagnets.**
**Ans.** See on page No. 130

**85. How electromagnets raise and move the Magleve trains?**
**Ans.** See on page No. 125

**86. What are magnetic domains?**
**Ans.** See on page No. 131

**87. Why steel is preffered to make permanent magnet?**
**Ans.** See on page No. 126

**88. Differentiate between paramagnetic and diamagnetic materials.**
**Ans.** See on page No. 129

**89. Why soft iron is used in core of transformer?**
**Ans.** See on page No. 127

**90. Define time. What is time dilation?**
**Ans.** See on page No. 134

**91. State in your own words, what is science? Write its two main groups.**
**Ans.** See on page No. 141

**92. Explain medical physics.**
**Ans.** See on page No. 136

**93. What is meant by interdisciplinary fields? Give a few examples.**
**Ans.** See on page No. 142

**94. Write steps of scientific method.**
**Ans.** See on page No. 137

**95. What is a hypothesis? Give one example.**
**Ans.** See on page No. 142

**96. Define experiment using scientific method with one example.**
**Ans.** See on page No. 138

**97. What do you mean by predication?**
**Ans.** See on page No. 138

**98. Distinguish between a theory and a law of physics.**
**Ans.** See on page No. 142

**99. Define engineering. Write its applications.**
**Ans.** See on page No. 139

**100. What is falsifiability concept? How is it important?**
**Ans.** See on page No. 142