Dynamics – MCQ's

1. Laws of motion was presented by:
(a) Einstein
(b) Newton ✓
(c) Galileo
(d) Archimedes

2. Isaac Newton described the laws of motion in his famous book:
(a) Qanoon-ul-Masoodi
(b) Principia Mathematica ✓
(c) Kitab-ul-Astralab
(d) Al-Manazir

3. The laws of motion established the relationship between motion and ——:
(a) Force ✓
(b) Torque
(c) Acceleration
(d) Momentum

4. First law of motion is also known as law of ————:
(a) Torque
(b) Acceleration
(c) Inertia ✓
(d) None of these

5. ———— of a body is the direct measure of inertia:
(a) Mass ✓
(b) Energy
(c) Momentum
(d) All of above

6. The characteristic of a body due to which it tends to retain its state of rest or of uniform motion is known as:
(a) Weight
(b) Force
(c) Inertia ✓
(d) Momentum

7. ———— is the agency which changes or tends to change the state of rest or of uniform motion of a body:
(a) Weight
(b) Force ✓
(c) Inertia
(d) Momentum

8. Law of inertia is actually the ——— law of motion:
(a) First ✓
(b) Second
(c) Third
(d) Fourth

9. When a force is applied on the body, ———— is produced in the body:
(a) Weight
(b) Acceleration ✓
(c) Energy
(d) None of the above

10. The acceleration produced in a moving body is always in the direction of applied ————:
(a) Velocity
(b) Force ✓
(c) Speed

(d) Momentum

11. If mass of the body is doubled while keeping the force constant, then acceleration will be:
(a) One half ✓
(b) doubled
(c) One fourth
(d) Four times

12. If force applied on the body is doubled while keeping the mass constant, then acceleration will be:
(a) One half
(b) doubled ✓
(c) One fourth
(d) Four times

13. SI unit of force is:
(a) Kilogram
(b) Dynes
(c) newton ✓
(d) Pound

14. When a force of 8 newton is applied on a body of mass 2 kg, then the acceleration produced will be:
(a) 16 ms-2
(b) 4 ms-2 ✓
(c) 0.4 ms-2
(d) 160 ms-2

15. 1 N = ———— (GRW 2014)
(a) kgms-2 ✓
(b) kgms-1
(c) kgm2s-1
(d) kg2ms-2

16. Action and reaction are equal in magnitude but opposite in direction is known as ———— law of motion:
(a) First
(b) Second
(c) Third ✓
(d) Fourth

17. Walking on road is an example of ———— law of motion:
(a) First
(b) Second
(c) Third ✓
(d) Fourth

18. When a block is lying on a smooth surface, its weight is balanced by:
(a) Mass
(b) Momentum
(c) Inertia
(d) Normal Reaction ✓

19. The weight of a body of mass 10 kg on earth will be ————:
(a) 10 N
(b) 1 N
(c) 100 N ✓
(d) 1000 N

20. The ————- of a body always acting towards the center of the earth:
(a) Mass
(b) Force

(c) Velocity
(d) Weight ✓

21. Quantity of matter in a body:
(a) Mass ✓
(b) Force
(c) Velocity
(d) Weight

22. The Force with which earth attracts a body towards its centre is known as:
(a) Mass
(b) Force
(c) Weight ✓
(d) Inertia

23. The characteristic of a body which determines the magnitude of acceleration produced when a certain force acts upon it:
(a) Mass ✓
(b) Force
(c) Inertia
(d) Weight

24. Mass of the body is measured by:
(a) Free Fall Apparatus
(b) Physical balance ✓
(c) Spring balance
(d) All of above

25. Weight of the body is measured by:
(a) Free Fall Apparatus
(b) Physical balance
(c) Spring balance ✓
(d) All of above

26. Unit of weight is:
(a) kg
(b) ms-1
(c) Nm
(d) N ✓

27. ———— of a body remains same every where:
(a) Weight
(b) Acceleration
(c) Velocity
(d) Mass ✓

28. ———— of a body does not remain same every where:
(a) Weight ✓
(b) Inertia
(c) Mass
(d) All of above

29. The value of weight of a body of constant mass depends on:
(a) Inertia
(b) Momentum
(c) Force
(d) 'g' ✓

30. Mass is a ———— quantity:

(a) Scalar ✓
(b) Vector
(c) Derived
(d) Negative

31. Weight is a ———— quantity:
(a) Scalar
(b) Vector ✓
(c) Unitless
(d) Negative

32. When a block is hanging with the help of a rope then weight of the body is balanced by:
(a) Acceleration
(b) Inertia
(c) Displacement
(d) Tension ✓

33. There are —— cases of motion of the body hanging with the help of rope:
(a) 1
(b) 2 ✓
(c) 3
(d) 4

34. The tension produced when one body moves vertically and the other moves horizontally is ———— as compared to the tension produced when both bodies move vertically:
(a) Half ✓
(b) One fourth
(c) Double
(d) Four times

35. Quantity of motion in a body is known as:
(a) Mass
(b) Momentum ✓
(c) Velocity
(d) Acceleration

36. Product of mass and velocity is known as:
(a) Force
(b) Speed
(c) Momentum ✓
(d) Acceleration

37. SI unit of Momentum is: (GRW 2013, LHR 2015)
(a) Kgms-2
(b) Ns
(c) Kgms-1
(d) Both b & c ✓

38. Kgms-1 = ————
(a) N
(b) J
(c) Ns ✓
(d) W

39. Rate of change of momentum is equal to:
(a) Force ✓
(b) Velocity
(c) Acceleration
(d) Impulse

40. Direction of the rate of change of momentum is in the direction of:
(a) Acceleration
(b) Momentum
(c) Velocity
(d) Force ✓

41. The force which resists the motion of one surface on another surface is known as:
(a) Gravity
(b) Friction ✓
(c) Weight
(d) Repulsion

42. When object is at rest, the force of friction is known as ————- friction:
(a) Static ✓
(b) Limiting
(c) Kinetic
(d) Dynamics

43. The maximum value of static friction is known as ————- friction:
(a) Static
(b) Limiting ✓
(c) Kinetic
(d) Dynamics

44. When an object is in motion then the force of friction is known as —friction:
(a) Static
(b) Limiting
(c) Kinetic ✓
(d) Dynamics

45. Static friction is ————— than kinetic friction:
(a) Less
(b) Quartered
(c) Greater ✓
(d) Equal

46. Rolling friction is ————— than Sliding friction:
(a) Less ✓
(b) Quartered
(c) Greater
(d) Equal

47. The coefficient of friction has ———— unit:
(a) Newton
(b) Dynes
(c) No ✓
(d) Kilogram

48. Friction of liquids is ———— than friction of solids:
(a) Less ✓
(b) Quartered
(c) Greater
(d) Equal

49. Coefficient of friction does not depend upon the ——— between two surfaces:
(a) Area of contact ✓
(b) Normal Reaction
(c) Weight

(d) Roughness

50. The rolling friction is about ———— times smaller than sliding friction:
(a) 10
(b) 50
(c) 100 ✓
(d) 1000

51. Friction in the human joints is much reduced due to the presence of:
(a) Bones
(b) Muscles
(c) Fluid ✓
(d) Gas

52. Value of coefficient of friction (μk) depends upon:
(a) Nature of the surfaces ✓
(b) Area of contact
(c) Force
(d) All of above

53. The Rotation of water sprinkler is an example of ——— law of motion:
(a) First
(b) Second
(c) Third ✓
(d) Fourth

54. A spider web remains intact due to:
(a) Weight
(b) Momentum
(c) Tension ✓
(d) None of these

55. Momentum of a moving body depends upon its:
(a) Mass
(b) Velocity
c) Weight
(d) Both a & b ✓

56. Motion of the rocket is an example of:
(a) First law of motion
(b) Law of conservation of Momentum ✓
(c) Law of conservation of Energy
(d) Weight

57. Value of coefficient of static friction (μs) is usually ————- than coefficient of kinetic friction (μk):
(a) Less
(b) Quartered
(c) Greater ✓
(d) Equal

58. When air is released from an inflated balloon, it shoots off is an example of:
(a) First law of motion
(b) Law of conservation of Energy
(c) Weight
(d) Law of conservation of Momentum ✓

59. Sliding friction is commonly converted into Rolling friction by the use of:
(a) Ball bearing ✓
(b) Oil

(c) Grease
(d) Polish

60. The front sides of high speed vehicles, aeroplanes and ships are shaped wedge like to reduce:
(a) Weight
(b) Pressure
(c) Speed
(d) Friction ✓