Source: WSC – Year 2 - NIMI Question Bank

(Adopted for educational social service purpose only).

1: Which is the law of friction?

A: Friction force is independent over the area and shape of contacting surfaces

B: Frictional force is inversely proportional to the normal reaction

C: Frictional force acts in the same direction of motion

D: Frictional force is not a dependent on nature of contacting surface

Ans:A

2: What is the direction of frictional force against a motional object?

A: Inclined to the object

B: Opposite to the object

C: Parallel to the object

D: Perpendicular to the object

Ans: B

3: Which force is directly proportional to the normal reaction between contacting surfaces?

A : Pulling force

B : Pushing force

C : Frictional force

D : Allied force

Ans: C

4: Which one of the following acts in between the wheels and roads, if vehicles are able to run on roads?

A: Friction B : Corrosion C : Erosion D : Motion

Ans: A

5: Which is useful friction, i.e., friction between...?

A : Rings in the cylinder

B : Crank shaft bearings

C : Wheel hub bearings

D : Brake shoe lining

Ans: D

5,1 Which are useful friction, i.e., friction between...?

A: Rear axle gear

B: Tyres on the floor/road surface

C: Brake shoe lining

D: Clutch lining

Ans: B, C and D

6: Which is wasteful friction?

A: Rear axle gear

B: Tyres on the floor

C: Brake shoe lining

D: Clutch lining

Ans: A

7: Which is depends on the frictional force?

A: Type of metals

B: Nature of Contact surfaces

C: Quantity of the contacting metals

D : Quality of metals

Ans: B (nature of surface roughness and material and its some properties)

8 : How co-efficient of friction is expressed?

A : It is expressed as the ratio of force and area

B : It is the ratio between frictional force and normal reaction

C : It is the ratio between normal reaction and the mass of the object

D : It is expressed as the ratio of weight and normal reaction

Ans: B

9 : What is the formula to find co-efficient of friction?

A.: $\mu = F \times W$ B .$\mu = \frac{W}{F}$ C :$\mu = \frac{R}{W}$ D .$\mu = \frac{F}{W}$

Ans: D

10 : Which symbol is used to denote co-efficient of friction?

A : α (Alpha) B : μ (Meu) C : β (Beta) D : γ (Gamma)

Ans: B

11 : What kind of friction is called if two objects are in contact at rest?

A : Sliding friction B : Rolling friction

C : Static friction D : Angular friction

Ans: C

12 : Which is the correct statement?

A : Limiting friction is equal to sliding friction

B : Rolling friction is more than the sliding friction

C : Sliding friction is always less than limiting friction

D : Limiting friction is always less than sliding friction

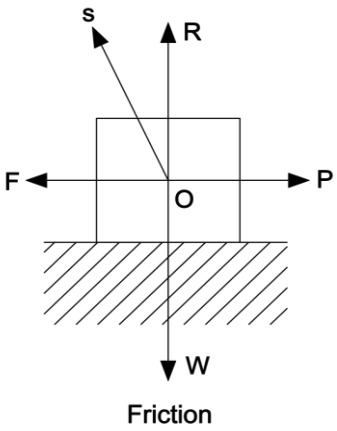
Ans: C

13 : What is the formula to find the force if the object is just move up the plane?

A :$\frac{W[\sin\theta - \varphi]}{\cos\varphi}$ B :$\frac{W[\sin\theta + \varphi]}{\cos\varphi}$ C :$\frac{W[\sin\theta + \varphi]}{\sin\varphi}$ D :$\frac{W[\cos\theta + \varphi]}{\cos\varphi}$

Ans: B

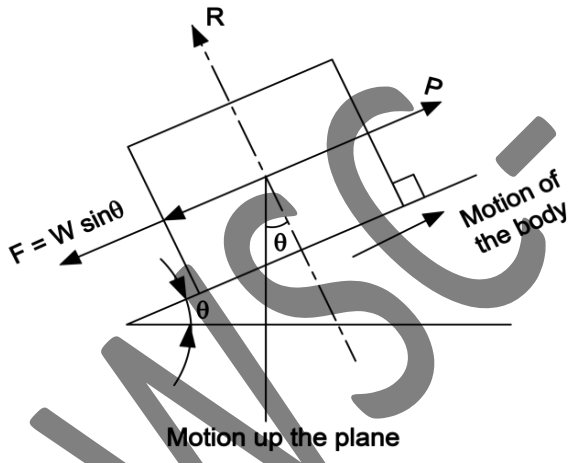
14 : Which of the angle is called angle of friction?



A : Angle - FOS B : Angle - ROS C : Angle - POS D : Angle - ROF

Ans: B

16 : What denotes the letter 'R' in the given figure?



A : Force B : Resistance C : Load D : Normal reaction

Ans:D

17 : What is the purpose of a lubricant?

A : To increase the pressure

B : To increase friction

C : To reduce friction

D : To reduce pressure

Ans: C

18 : What type of lubricant is used in wick feed lubrication system

A :Lub-oil

B : Grease

C : Coolant

D : Cutting oil

Ans: A

19 : Which lubrication system is provided with a ring oiler to splash lube-oil continuously around the parts?

A : Gravity feed system

B : Pressure feed system

C : Splash feed system

D : Force feed system

Ans: C

20 : Which one is the three types of lubrication system in general use?

A : Force feed system, speed feed system, frictional feed system

B : Velocity feed system, Speed feed system, Frictional feed system

C : Gravity feed system, force feed system, splash feed system

D : Splash feed system, Frictional force system, Speed feed system

Ans: C

21 : Which lubrication system employs oil holes in the machines?

A : Gravity feed system

B : Force feed system

C : Splash feed system

D : Velocity feed system

Ans: A

22. What kind of friction is called if two objects are in contact but there is a relative motion?

A : Sliding friction B : Kinetic friction

C : Static friction D : Angular friction

Ans: B

23 : Which is used to reduce the friction in machine parts?

A : Kerosene B : Petrol C : Water D : Lubricants

Ans: D

24 : Which is the main purpose of using the lubricant oil in engine moving parts?

A : To increase the efficiency B : To reduce friction

C : To improve carrying capacity D : To improve the durability

Ans: B

25 : Which is the correct statement?

A : Lubricants act to prevent corrosion B : Lubricants acts as a seal

C : Lubricants acts as a fuel D : Lubricants acts as a filter

Ans: A and B

26 : What causes the efficiency of a machine by maintaining the lubrication?

A : Increases B : Decreases C : Remains same D : Does not affected

Ans: A

27 : Which way the coolant acts as a lubricant?

A : To carry away dust B : To carry away the heat

C : To carry away moisture D : To carry away dryness

Ans: B

28 : What is the force required to move a body of mass 1000 kg if the co-efficient of friction, μ is 0.4 (assume 1kg = 10 N)?

A : 4000 N B : 400 N C : 40 N D : 4 N

Ans: A

29 : What is the co-efficient of friction if a force of 30 N is required to move a body of mass 35 kg (Assume 1kg=10N)?

A : 8.57 B : 0.082 C : 0.0857 D : 0.0085

Ans: C

30 : How much force is required to move an object of weight 20 kg, if the value of μ = 0.24?

A : 4.8 kg B : 83.33 kg C : 1.2 kg D : 0.48 kg

Ans: A

31 : What is weight of an object could be moved by a force of 30 kg if co-efficient of friction is 0.0125?

A : 80 kg B : 2430 kg C : 72000 kg D : 2400 kg

Ans: D

32 : What is the angle of inclination if a weight of 150 kg is in equilibrium and the value of m is 0.5773?

A : 30° B : 45° C : 60° D : 90°

Ans: A

33 : How much force is required to just slide a 20 kg object lying on a horizontal table if the μ is 0.2?

A : 2 kg B : 3 kg C : 4 kg D : 5 kg

Ans: C

34 : What is the force required to move a 20 kg object with a co-efficient of friction is 0.24?

A: 4.8 kg B : 0.48 kg C : 0.048 kg D : 0.0048 kg

Ans: A

35 : What is co-efficient of friction for pulling a load of 400 kg by a force of 40 kg?

A : 0.01 B : 0.2 C : 0.1 D : 0.02

Ans: C

36: How much will be the co-efficient of friction for moving a body of mass 80 kg by a force of 40 kg on a horizontal surface?

A : 0.05 B : 0.5 C : 0.65 D : 0.45

Ans: B

37 : How much will be the weight of a body which will be moved by a horizontal force of 50 kg against a frictional resistance of 0.25?

A : 150 kg B : 200 kg C : 250 kg D : 300 kg

Ans: B

38 : What will be the approximate angle of inclination of an object if the co-efficient of friction $\mu=0.84$?

A : 60° B : 45° C : 40° D : 30°

Ans: C

39 : What is the work done to move a body of mass 60 kg to a distance of 5 meter, if the coefficient if friction between body and the plane is 0.2?

A : 12 kg B : 60 kg C : 12 m-kg D : 60 m-kg

Ans: D

40 : How much will be the work done in moving a 10 kg object resting on a horizontal plane through a distance of 10 meter (assume m= 0.15)?

A : 1.5 m-kg B : 15 m-kg C : 0.15 m-kg D : 150 m-kg

Ans: B

41 : How much force is required to stop a vehicle of mass 1000 kg running on a road with coefficient of friction between the tyres and the road is 0.4?

A : 3000 kg B : 450 kg C : 350 kg D : 400 kg

Ans: D

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46 : Which is elastomeric material?

A : Rubber B : Polystyrenes C : Celluloid D : Polycarbonates

Ans: A

47 : Which is thermo plastic material?

A : Butyl rubber B : Nylon C : Neoprene D : Vinyl polymers

Ans: D

48 : What is the ratio between the change in dimension to its original dimension of the substance?

A : Stress B : Strain C : Poisson's ratio D : Factor of safety

Ans: B

49 : What is the unit of strain?

A : Kg/cm^2 B : $Newton/metre^2$ C : Metre D : No unit

Ans: D

42 : Which affects the centre of gravity of the object?

A : Weight B : Mass C : Density D : Shape

Ans: D

43 : What is the name of the point at which all the weight of the body concentrated?

A : Initial point B : Centre of gravity C : Centroid D : Central point

Ans: B

43.1 What is the name of the point at which all the weight of the plane surface of body is concentrated?

A : Initial point B : Centre of gravity C : Centroid D : Central point

Ans: B

44 : Where the centre of gravity of a circle lies?

A : At its centre B : Any where on its radius

C :Any where on its circumference D : Any where on its diameter

Ans: A

45 : What is the centre of gravity of a right circular solid cone from its base?

A : h/2 B : h/3 C : h/4 D : h/5

Ans: C

45.1 What is the centre of gravity of a right circular hollow cone from its base?

A : h/2 B : h/3 C : h/4 D : h/5

Ans: B

46 : What is the centre of gravity of a rectangular body?

A : Longer side of rectangle

B : Shorter side of rectangle

C : At the point of intersection of its diagonals

D : At the corners

Ans: C

47 : What is the centre of gravity of a solid hemisphere from its base?

A : 4r/5 B : 3r/8 C : 3r/4 D : r/2

Ans: B

48 : Where is the centre of gravity of a sphere?

A : At the centre B : On the circumference

C : At the diameter D : At the radius

Ans: A

49 : Which state of equilibrium if a cone resting on its tip?

A : Stable B : Neutral C : Unstable D : Horizontal

Ans: C

50 : Which one of the following geometrical shape′s centre of gravity lies from its base is 1/3 of its height?

A : Square B : Rhombus C : plane Triangle D : Hollow Cone

Ans: C and D