

MULTIPLE CHOICE

1. This radial distance in a gear is measured between the addendum and dedendum circle, and is the sum of the addendum and the dedendum? How do you call this distance?

- a. Addendum

b. Whole depth
- c. Working depth

d. Space width

ANS: B PTS: 1

2. This minimum distance is measured between the non-driving side of a tooth and the adjacent side of the mating tooth. It is the amount by which the width of a tooth space exceeds the thickness of the engaging tooth measured on the pitch circle. What is this distance?

- a. Circular pitch

b. Whole depth
- c. Backlash

d. Space width

ANS: C PTS: 1

3. How do you call the diameter of the imaginary cylinder that bounds the crest of an external thread and the roots of an internal thread?

- a. Mean diameter

b. Stress diameter
- c. Minor diameter

d. Major diameter

ANS: D PTS: 1

4. How do you call the circle on a gear that corresponds to the contact surface of the friction wheel?

- a. Addendum circle

b. Root circle
- c. Pitch circle

d. Base circle

ANS: C PTS: 1

5. What is the largest roller chain size that can be used for power transmission at a sprocket speed of 1000 rpm?

- a. RC 35

b. RC 50
- c. RC 80

d. RC 60

ANS: D PTS: 1

6. These are gears with teeth formed on conical surfaces and are used mostly for transmitting motion between intersecting shafts. How do you call these gears?

- a. Spur gears

b. Bevel gears
- c. Helical gears

d. Worm gearings

ANS: B PTS: 1

7. For an American Standard Screw Threads, what does 6-32 UNC designate?

- a. Size 6, 32 threads per inch, coarse thread

b. Size 6, 32 threads per inch, fine thread
- c. 6 inches basic diameter, 32 threads per inch, coarse thread

d. 32 inches basic diameter, 6 threads per inch, coarse thread

ANS: A PTS: 1

8. In gearing, this is the ratio of the arc of action to the circular pitch.

- a. Speed ratio

b. Arc ratio
- c. Contact ratio

d. Gear ratio

ANS: C PTS: 1

9. This are gears used to connect shafts that are non-intersecting and non-parallel. They are a cross between spiral bevel gears and worm gears.

- a. Helical gears
- b. Hypoid gears
- c. Planetary gears
- d. Bevel gears

ANS: B PTS: 1

10. AFBMA is an acronym for an association involved in what machine elements?

- a. Ball and roller bearings
- b. Journal bearings
- c. Flat belts and other belt types
- d. Any type of gears

ANS: A PTS: 1

11. It is a machine member that supports another part that rotates, slides, or oscillates in or on it.

- a. Pulley
- b. Key
- c. Bearing
- d. Shaft

ANS: C PTS: 1

12. It is a bearing that permits constrained relative motion of rigid parts; lubricant is generally inserted or supplied between the mating surfaces to reduce friction and wear, and to carry away the heat generated.

- a. Sliding Contact Bearing
- b. Rolling Contact Bearing
- c. Thrust Bearing
- d. Journal Bearing

ANS: A PTS: 1

13. A bearing where surfaces are non-conformed and motion is primarily rolling; it composed of rolling elements interposed between an outer ring and inner ring.

- a. Conformal surfaces bearing
- b. Sliding-element bearing
- c. Rolling-element bearing
- d. Non-conformal surfaces bearing

ANS: C PTS: 1

14. In a straight bevel gear, how do you call the angle between an element on the pitch cone and an element on the face cone?

- a. Face angle
- b. Pitch angle
- c. Addendum angle
- d. Dedendum angle

ANS: C PTS: 1

15. It is a Grashof four-bar mechanism in which the shortest link is the frame or fixed link and the other two cranks completely rotate with their axes. How do you call this Grashof four-bar mechanism?

- a. Drag-link mechanism
- b. Double-rocker mechanism
- c. Triple-rocker mechanism
- d. Crank-rocker mechanism

ANS: A PTS: 1

16. "For a planar four-bar linkage, the sum of the shortest and longest lengths cannot be greater than the sum of the remaining two link lengths if there is to be a continuous relative rotation between two members." How do you call the preceding statement?

- a. Grubler's Law
- b. Corioli's Law
- c. Grashof's Law
- d. Freudentein's Law

ANS: C PTS: 1

17. Which of the following is not true for an instant center or centro of planar linkages?

- a. Centro is a point common to two bodies having the same velocity in each.
- b. Centro is a point in one body about which another body does not rotate.
- c. Centro is a point in one body about which another body actually turns.
- d. Centro is a point in one body about which another body tends to turn.

ANS: B PTS: 1

18. An element assembled into a tapped hole is

- a. key
- b. nut
- c. screw
- d. worm gear

ANS: C PTS: 1

19. In kinematics, the occurrence of linear and rotational motion simultaneously is known as

- a. mechanism
- b. rotakinetics
- c. corioli's
- d. Grashof's

ANS: C PTS: 1

20. The ratio of the number of teeth to the pitch diameter is

- a. circular pitch
- b. mechanical advantage
- c. diametral pitch
- d. Lewi's form factor

ANS: C PTS: 1

21. The radial distance between the bottomland and the pitch circle is

- a. clearance
- b. dedendum
- c. addendum
- d. working depth

ANS: B PTS: 1

22. Is largely used for low strength applications such as elevator ropes not used to hoisting and for stationary guy ropes

- a. steel rope
- b. cast steel rope
- c. nylon rope
- d. iron wire rope

ANS: D PTS: 1

23. In actual machines

- a. Mechanical advantage is unity
- b. Mechanical advantage is less than unity
- c. Mechanical advantage is less than velocity ratio
- d. Mechanical advantage is equal to velocity ratio

ANS: C PTS: 1

24. Used for permanent fits, are similar to involute splines except that the pressure angle is 14.50

- a. separation load
- b. stub serrations
- c. spline shaft
- d. involute serrations

ANS: D PTS: 1

25. A gear that has an advantage of smoother engagement, quietness of operation, greater strength and higher permission speeds

- a. zerol bevel gear
- b. straight bevel gear
- c. hypoid bevel gear
- d. spiral bevel gear

ANS: D PTS: 1

26. The amount of which the width of a tooth space exceeds the thickness of engaging tooth is known as

- a. tooth space
- b. circular pitch
- c. backlash
- d. flank

ANS: C PTS: 1

27. Tooth breakage on gear is usually _____.

- a. a tensile fatigue
- b. a contact stress
- c. a crack
- d. none of these

ANS: A PTS: 1

28. Is the angle through which the gear turns from the time given pair of teeth are in contact at the pitch point until they pass out the mesh

- a. angle of contact
- b. angle of approach
- c. position angle
- d. angle of recess

ANS: D PTS: 1

29. Which of the following quick return mechanism is most widely used in most of the slotters

- a. Whitworth mechanism
- b. Hydraulic mechanism
- c. Slotter disc mechanism
- d. Slotter link and gear mechanism

ANS: A PTS: 1

30. The axial distance between specified reference on the internal and external taper thread members

- a. pitch
- b. load
- c. standoff
- d. helix distance

ANS: C PTS: 1

31. The relation between two mating parts with reference to ease the assembly is called

- a. allowance
- b. clearance
- c. tolerance
- d. fits

ANS: D PTS: 1

32. In a duplex reciprocating pump:

- a. the slide valve for the one cylinder is controlled in the piston of the other cylinder
- b. both slide valves operate simultaneously
- c. each slide valve is controlled by its own piston rod
- d. one slide valve operates the other slide valve

ANS: A PTS: 1

33. Heating above the transformation range, usually 1300F to 1350F, and cooling slowly to soften the metal and increase in machining.

- a. Annealing
- b. Hardening
- c. Normalizing
- d. Tempering

ANS: A PTS: 1

34. Reheating to a temperature below the transformation range, followed by any desired rate of cooling to attain the desired properties of the metal.
- Annealing
 - Hardening
 - Normalizing
 - Tempering

ANS: D PTS: 1

35. Heating to some 100F above the transformation range with subsequent cooling to below that range in still air at room temperature to produce uniform structure of the metal.
- Annealing
 - Hardening
 - Normalizing
 - Tempering

ANS: D PTS: 1

36. Process of forming a metal parts by the use of a powerful pressure from a hammer or press to obtain the desired shape, after the metal has been heated to its plastic range.
- Rolling
 - Forging
 - Turning
 - Casting

ANS: B PTS: 1

37. Ability of metal to be deformed considering without rupture.
- Ductility
 - Plasticity
 - Malleability
 - Elasticity

ANS: D PTS: 1

38. The operation of cooling a heated piece of work rapidly by dipping it in water, brine or oil.
- Quenching
 - Tempering
 - Normalizing
 - Annealing

ANS: A PTS: 1

39. The process of heating a piece of steel to a temperature within or above critical range and cooling rapidly.
- Normalizing
 - Hardening
 - Annealing
 - Tempering

ANS: B PTS: 1

40. The moment of inertial of a rectangle whose base is b and height h about its base is:
- $(bh^3)/12$
 - $(bh^3)/3$
 - $bh/36$
 - $bh/24$

ANS: A PTS: 1

41. A stainless steel is obtained by the use of the following alloying element.
- Chromium
 - Tungsten
 - Carbon
 - Phenol

ANS: A PTS: 1

42. An alloy of copper and zinc
- Chromium
 - Brass
 - Cast Iron
 - Aluminum

ANS: B PTS: 1

43. It is a hardening treatment whereby a cast material is being heated to a very high temperature then suddenly subjected to rapid cooling to improve hardenability or wear resistance is called:
- a. normalizing
 - b. tempering
 - c. annealing
 - d. quenching

ANS: D PTS: 1

44. Unit deformation is also called
- a. Torsion
 - b. Strain
 - c. Stresss
 - d. Sprain

ANS: B PTS: 1

45. Machine used for testing of very thin steel or surface layers.
- a. Charpy
 - b. Izod
 - c. Description
 - d. Rockwell

ANS: D PTS: 1

46. Corrosion of iron or iron-based alloys:
- a. Rusting
 - b. Crazing
 - c. Chalking
 - d. Fritting

ANS: A PTS: 1

47. Change in length per unit length is:
- a. Strain
 - b. Stress
 - c. Deformation
 - d. Tensile Strength

ANS: A PTS: 1

48. The maximum stress which is reached during tensile testing.
- a. stress
 - b. elasticity
 - c. strain
 - d. tensile strength

ANS: D PTS: 1

49. Most abundant engineering material:
- a. Steel
 - b. Babbitts
 - c. Aluminum
 - d. Cast Iron

ANS: D PTS: 1

50. Machine used in testing steel generally strike the specimen from 220 to 265 ft – lb.
- a. Izod Test
 - b. Charpy Test
 - c. White Iron
 - d. Malleable Iron

ANS: C PTS: 1

51. Ability of a metal to resist being crushed.
- a. fatigue strength
 - b. Bending strength
 - c. Torsional strength
 - d. Compressive Strength

ANS: D PTS: 1

52. Ferrous metals contain a relatively large amount of:

- a. Manganese
- b. Carbon
- c. Sulfur
- d. Phosphorus

ANS: B PTS: 1

53. A flange coupling is:

- a. Used for collinear shaft
- b. Used for non-collinear shaft
- c. Rigid coupling
- d. Flexible flange

ANS: A PTS: 1

54. Ability of metal to stand loads without breaking down.

- a. Strain
- b. Stress
- c. Elasticity
- d. Strength

ANS: D PTS: 1

55. An alloy of tin, copper and a traced amount of phosphorous.

- a. Chromium
- b. Bronze
- c. Brass
- d. Aluminum

ANS: B PTS: 1

56. This material is the most popular alloy spring steel for conditions involving higher stresses than can be used with the high-carbon steels and for use where fatigue resistance and long endurance are needed; this is also good for shock and impact loads.

- a. Chrome silicon
- b. Chrome vanadium
- c. hard-drawn wire
- d. Oil-tempered wire

ANS: B PTS: 1