

Nepal Engineering Council Registration Examination
Model Question for Industrial Engineering (AInE)

(100*1 = 100)

1. Which is not the common type of fit in hole and shaft?
 - a) Clearance fit
 - b) Transference fit
 - c) Transition fit
 - d) Interference fit
2. Steel containing 0.15% - 0.45% carbon is called
 - a) Mild steel
 - b) Dead mild steel
 - c) Medium carbon steel
 - d) High carbon steel
3. Wrought iron contains of iron
 - a) 0.0999%
 - b) 0.999%
 - c) 9.99%
 - d) 99.9%
4. The C.G.S. unit of charge is
 - a) Coulomb
 - b) Erg
 - c) Franklin
 - d) Biot
5. The temperature of heat produced by the electric arc is of the order of
 - a) 6 °C – 7 °C
 - b) 60 °C – 70 °C
 - c) 600 °C – 700 °C
 - d) 6000 °C – 7000 °C
6. The type of organization preferred for a steel industry is
 - a) Line and staff
 - b) Functional
 - c) Line, staff and functional
 - d) Line
7. The measurement of a thermodynamic property ‘temperature’ is based on thermodynamic law
 - a) Zeroth law
 - b) First law
 - c) Second law

- d) Kelvin-plank law
8. Steady state flow application device is
- a) Filling-in of gas cylinder
 - b) Throttling valve
 - c) Filling-out of gas cylinder
 - d) Compressor
9. Entropy of water at 0° C is assumed to be
- a) 1
 - b) 0
 - c) -1
 - d) 10
10. Otto cycle is also known as
- a) Constant pressure cycle
 - b) Constant temperature cycle
 - c) Constant volume cycle
 - d) Constant enthalpy cycle
11. The inlet valve of a four-stroke cycle petrol engine remains open for
- a) 30°
 - b) 130°
 - c) 230°
 - d) 300
12. A refrigerant with the highest critical pressure is
- a) R-11
 - b) R-12
 - c) R-22
 - d) Ammonia
13. Water pressure at any point is measured with the unit
- a) Bar
 - b) Newton
 - c) Cusecs
 - d) kg
14. The upper surface of weir over which water flows is known as
- a) Crest
 - b) Nappe
 - c) Sill
 - d) Weir-top
15. Bernoulli's theorem deals with the conservation of
- a) Mass

- b) Force
 - c) Momentum
 - d) Energy
16. Which of the following pipe bends will introduce maximum head loss
- a) 30° bend
 - b) U bend
 - c) 45° bend
 - d) 90° bend
17. Most commonly used hydro turbine in Nepal is
- a) Pelton
 - b) Francis
 - c) Kaplan
 - d) Turgo-impulse
18. One horse power of pump is equal to
- a) 75 watt
 - b) 102 watt
 - c) 550 watt
 - d) 746 watt
19. The total momentum of a system of masses (*i.e.* moving bodies) in any direction remains constant, unless acted upon by an external force in that direction. This statement is called
- a) Newton's first law of motion
 - b) Newton's second law of motion
 - c) Principle of conservation of energy
 - d) Principle of conservation of momentum
20. Hook's law holds good up to
- a) Elastic limit
 - b) Yield point
 - c) Plastic limit
 - d) Breaking point
21. The unit of moment of inertia of an area is
- a) kg m^2
 - b) m^4
 - c) kg/m^2
 - d) kg/m^4
22. In a reciprocating steam engine, which of the following forms a kinematic link?
- a) Cylinder and piston
 - b) Piston rod and connecting rod
 - c) Crankshaft and flywheel

- d) Flywheel and engine frame
23. In simple harmonic motion (S.H.M.), the ratio of acceleration and displacement is proportional to
- a) ω
 - b) ω^2
 - c) $1/\omega^2$
 - d) $\sqrt{\omega}$
24. The distribution of torsion shear stress is uniform in section.
- a) Parallel
 - b) Rectangular
 - c) Trapezoidal
 - d) Circular
25. Which type of tolerance does a slip gauge have?
- a. Unilateral tolerance
 - b. Bilateral tolerance
 - c. Unidirectional tolerance
 - d. Trilateral tolerance
26. What is the color of acetylene gas cylinder for gas welding?
- a. Red
 - b. Black
 - c. Maroon
 - d. Blue
27. All the principal stresses are at an angle of
- a. 45°
 - b. 90°
 - c. 135°
 - d. 180°
28. In Electric Discharge Machining, Process tool is made up of
- a. Brass
 - b. Tungsten Carbide
 - c. Diamond
 - d. Heat treated alloy steel
29. Which of the following cutting conditions greatly affects the tool wear?
- a. Feed
 - b. Depth of cut
 - c. Cutting speed
 - d. Cutting distance

30. A good cutting fluid should have
- High viscosity
 - High density
 - High specific heat
 - Low thermal conductivity
31. Scientist of organizational behavior recognize that organizations are not static but dynamic and
- Processing
 - Systematic
 - Ever changing
 - Researching
32. Which of the following is the least likely to influence the timing of new business births?
- Government policies
 - Consumer expenditure
 - Profitability
 - Weather conditions
33. If a company develops a new technology that improves its main product, what type of Intellectual Property can be used for its protection?
- Patent
 - Copyright
 - Trademark
 - Bookmark
34. The purpose of supply chain management is to
- Improve quality of a product
 - Provide customer satisfaction
 - Integrate supply and demand management
 - Increase production
35. Inventory control and quality is involved in.....phase of production planning and control.
- Pre-planning
 - Monitoring
 - Planning
 - Action
36. Which of this is not a part of Statistical Process Control's 7 tools?
- Pareto chart
 - Histogram
 - Design of experiments
 - Check sheet

37. Bilateral monopoly means
- a. Single seller and single buyer
 - b. Single seller and two buyers
 - c. Two sellers and single buyer
 - d. Two sellers and two buyers
38. Concurrent engineering is implemented by involving a cross-functional team for design, production, testing and operational work
- a. During the project execution
 - b. Long before the project execution
 - c. Towards the end of the project execution
 - d. After completion of the project execution
39. The term 'value' in value engineering refers to
- a. Depreciation
 - b. Selling price
 - c. Cost
 - d. Utility
40. If X and Y are independent of each other, the coefficient of correlation is
- a. -1.0
 - b. 0.0
 - c. +1.0
 - d. 0.5
41. Work study is concerned with
- a. Improving present method and finding standard time
 - b. Improving production capability
 - c. Motivation of workers
 - d. Improving control
42. The quantitative information is the one which concerns the
- a. value of some variable
 - b. Rate of change
 - c. Condition or status of a system
 - d. Presence or absence of some specific object
43. Which law states that the pressure exerted on a liquid is transmitted equally in all the directions?
- a. Pascal's law
 - b. Boyle's law
 - c. Archimedes principle
 - d. Charles' law

44. The efficiency of a three-phase induction motor can be expected to be nearly
- 60 to 90 %
 - 80 to 90%
 - 95 to 98 %
 - 99 %
45. The economizer is used in boilers to
- Increase thermal efficiency of boiler
 - Economize on flue
 - Extract heat from the exhaust the gases
 - Increase flue gas temperature
46. Principle of 'Unit load' states that
- Materials should be moved in lots
 - One unit should be moved at a time
 - Materials should be moved in unit time
 - Material should be moved at unit distance
47. The energy that cannot be used to run vehicles is
- Solar energy
 - Chemical energy
 - Electrical energy
 - Sound energy
48. In closed loop control system, with positive value of feedback gain, the overall gain of the system will
- Decrease
 - Increase
 - Be unaffected
 - Depends upon other factors
49. For good natural ventilation, the type of building preferred
- Flat roof
 - Saw tooth
 - Highbay
 - Monitor
50. Any substance which is inflammable or explosive or toxic or corrosive or radioactive, comes under
- Physical hazard
 - Chemical hazard
 - Biological hazard
 - Mechanical hazard

51. The following is not scheduled maintenance
- Overhauling of machine
 - Cleaning of tank
 - Whitewashing of building
 - Run-to-failure maintenance
52. How many parameters are there in Weibull distribution?
- 1
 - 2
 - 3
 - 4
53. In a vapour compression system, the highest temperature during the cycle occurs after
- Compression
 - Evaporation
 - Expansion
 - Condensation
54. Relative humidity on saturation curve has value of% at various dry bulb temperature.
- 0
 - 50
 - 10
 - 100
55. Standard dimensions (mm x mm) of A3 drawing sheet is
- 11.69×16.54
 - 29.7×42
 - 297×420
 - 420×280
56. Which of the following methods of charging depreciation of an asset has increased amount of depreciation as the age of asset increases
- Sum-of-year digit
 - Sinking fund
 - Diminishing balance
 - Straight line
57. The process of optimizing the project's limited resources without extending the project duration is known as
- Project crashing
 - Resource levelling
 - Resource smoothing
 - Networking
58. The process of composing/raising the required fund from different sources such as equity, preferred stock, bond and debenture is known as

- a) Capital structure planning
 - b) Project financing
 - c) Capital budgeting decision
 - d) Deducing earning per share
59. In which of the following society, people used to seek their existence on growing plants for their cattle and domestic animals
- a) Pastoral society
 - b) Tribal society
 - c) Horticultural society
 - d) Agricultural society
60. According to Nepal Engineering Council Act, 2055 (Revised, 2079), all engineering academic institutions shall be..... in the Council.
- a) Affiliated
 - b) United
 - c) Recognized
 - d) Associated
61. The main function of a rivet in a joint is to
- a) Resist compressive forces
 - b) Transmit torque
 - c) Hold plates together by shear and bearing
 - d) Provide a flexible connection
62. Which method is widely used for protecting iron from corrosion in everyday applications?
- a) Galvanization
 - b) Quenching
 - c) Case hardening
 - d) Annealing
63. Which type of fire extinguisher is suitable for electrical fires?
- a) Water type
 - b) Foam type
 - c) Carbon dioxide type
 - d) Sand bucket
64. A Management Information System (MIS) is primarily designed to
- a) Automate manufacturing processes
 - b) Provide relevant information for decision-making
 - c) Replace managers
 - d) Perform financial audits
65. Internal energy of an ideal gas depends on
- a) Pressure only
 - b) Temperature only
 - c) Volume only
 - d) Both pressure and volume

66. The Kelvin–Planck and Clausius statements are
- a) Independent
 - b) Contradictory
 - c) Equivalent
 - d) Mutually exclusive
67. The Brayton cycle is commonly used in
- a) Steam turbines
 - b) Gas turbines
 - c) Petrol engines
 - d) Diesel engines
68. The efficiency of a boiler is the ratio of
- a) Heat supplied to the fuel to heat supplied to the steam
 - b) Heat absorbed by the water/steam to the heat supplied by the fuel
 - c) Work done by turbine to heat supplied by boiler
 - d) Heat supplied by economizer to the heat absorbed in furnace
69. The phenomenon of surface tension arises due to
- a) Gravity
 - b) Viscosity
 - c) Cohesive forces between molecules
 - d) Adhesive forces only
70. The momentum equation relates
- a) Force and energy
 - b) Energy and pressure
 - c) Pressure and density
 - d) Force and rate of change of momentum
71. The major loss of head in pipe flow is due to
- a) Sudden enlargement
 - b) Sudden contraction
 - c) Friction in the pipe
 - d) Pipe fittings
72. The curve which shows the variation of pump head with discharge is called
- a) System curve
 - b) Operating curve
 - c) Head–capacity curve
 - d) Efficiency curve
73. The resultant of two equal and opposite forces acting at different points is
- a) Zero

- b) One
 - c) A couple
 - d) A single force
74. Strain energy is the
- a) Energy stored due to motion of a body
 - b) Energy stored in a body due to deformation
 - c) Kinetic energy of rotating parts
 - d) Energy required to break a material
75. In a beam, the bending moment is maximum where
- a) Shear force is maximum
 - b) Shear force is zero
 - c) Load is maximum
 - d) Slope is maximum
76. The primary advantage of chain drives over belt drives is
- a) Quieter operation
 - b) Slippage-free power transmission
 - c) Low maintenance
 - d) Lighter in weight
77. Repeatability of measurement is an indicator of
- a) Accuracy
 - b) Error
 - c) Mistake
 - d) Precision
78. Casting is a manufacturing process in which
- a) Metal is joined by welding
 - b) Molten metal is poured into a mold and solidified
 - c) Metal is deformed plastically
 - d) Metal is machined to shape
79. One advantage of hot working over cold working is
- a) Higher strength
 - b) Increased hardness
 - c) Reduced residual stresses
 - d) Reduced ductility
80. A cutting tool is used to
- a) Join two metal parts
 - b) Remove material from a workpiece
 - c) Heat metal
 - d) Reduce friction
81. Which management theory emphasizes “time and motion study”?
- a) Bureaucratic Theory

- b) Scientific Management
 - c) Systems Theory
 - d) Behavioral Theory
82. Public hearing and stakeholder consultation are mandatory in
- a) Only initial environment examination (IEE)
 - b) Only environment impact assessment (EIA)
 - c) Both IEE and EIA
 - d) Neither IEE nor EIA
83. The primary objective of Just-In-Time (JIT) inventory management is to
- a) Maintain high inventory levels
 - b) Reduce waste and inventory holding costs
 - c) Increase warehouse space utilization
 - d) Delay production schedules
84. ISO 14001 helps organizations to
- a) Reduce defects in production
 - b) Minimize adverse environmental impacts
 - c) Improve product design only
 - d) Focus only on profit maximization
85. When demand increases and supply remains constant, equilibrium price will
- a) Increase
 - b) Decrease
 - c) Remain unchanged
 - d) Fluctuate randomly
86. Concurrent Engineering is primarily aimed at
- a) Reducing labor cost only
 - b) Sequential development of products
 - c) Parallel and integrated product development
 - d) Maximizing inventory
87. In industrial engineering, sensitivity analysis is useful for
- a) Evaluating robustness of optimal solutions
 - b) Eliminating the need for simulation
 - c) Ignoring uncertainty in models
 - d) Replacing cost analysis
88. Ergonomics is also referred to as
- a) Human factors engineering
 - b) Industrial automation
 - c) Lean manufacturing
 - d) Time study
89. Pneumatic systems primarily use
- a) Hydraulic oil

- b) Hydraulic fluid
 - c) Compressed air
 - d) Steam
90. The main function of a transformer is to
- a) Convert AC to DC
 - b) Convert DC to AC
 - c) Step up or step down AC voltage
 - d) Generate electrical power
91. The main objective of Nepal's National Energy Policy is to
- a) Promote fossil fuel import only
 - b) Ensure energy security, efficiency, and development of renewable energy
 - c) Privatize all energy generation
 - d) Focus only on urban energy needs
92. A major advantage of industrial automation is
- a) Increased human labor requirement
 - b) Higher production consistency and quality
 - c) Longer production lead time
 - d) Lower system reliability
93. Which of the following is not a type of plant layout?
- a) Process layout
 - b) Product layout
 - c) Fixed-position layout
 - d) Circular layout
94. Safety audits in industries are conducted to
- a) Evaluate the effectiveness of safety policies and practices
 - b) Increase production targets
 - c) Monitor machine speed
 - d) Replace personal protective equipment
95. Breakdown maintenance is also known as
- a) Predictive maintenance
 - b) Preventive maintenance
 - c) Corrective maintenance
 - d) Total productive maintenance
96. In industrial HVAC, "cooling load" refers to
- a) The total heat that must be removed from a space to maintain desired temperature and humidity
 - b) The electrical load of the system
 - c) The weight of refrigerant
 - d) The number of HVAC units

97. Which type of pictorial view shows one face in true shape and the third axis receding at an angle
- a) Isometric
 - b) Oblique
 - c) Perspective
 - d) Orthographic
98. A project with negative net present value (NPV) should be
- a) Accepted
 - b) Rejected
 - c) Cannot take any decision based on NPV
 - d) Accepted if internal rate of return (IRR) is high
99. Which of the following tools is commonly used in risk analysis
- a) Payback period
 - b) Monte Carlo simulation
 - c) Energy audits
 - d) Safety audits
100. How many board members are there in the Nepal Engineering Council (NEC)?
- a) 11
 - b) 15
 - c) 21
 - d) 25