

Nepal Engineering Council Registration Examination
Model Question for Automobile Engineering (AAmE)

(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. Energy released in actual cycle is about _____ of the fuel input.
- a. 90%
 - b. 70%
 - c. 50%
 - d. 25%
26. Which is the third port, apart from exhaust and suction ports used in two-stroke engine?
- a. Transfer port
 - b. Transport valve
 - c. Top dead centre
 - d. Bottom dead center
27. What is the firing order of four-cylinder engines?
- a. 1-4-3-2
 - b. 1-3-4-2
 - c. 1-2-3-4
 - d. 4-3-2-1
28. The size of the engine intake valve is
- a. Larger than that of exhaust valve
 - b. Same as that of exhaust valve
 - c. Smaller than that of exhaust valve
 - d. Does not depend upon the size of exhaust valve
29. Which Battery are preferred for EV?
- a. Lead-acid
 - b. Lithium-ion
 - c. Sodium-sulphur
 - d. Nickel-cadmium
30. Which of the following has the same combustion as HCCI (Homogeneous Charge Compression Ignition) engine?
- a. SI engine
 - b. CI engine

- c. Hybrid of both SI and CI engine
 - d. Wankel engine
31. What is the correct stoichiometric ratio for an air-fuel mixture?
 - a. 14.7:1
 - b. 14:1
 - c. 15:1
 - d. 9:1
 32. What are the types of Multi-Point Fuel Injection System?
 - a. port injection
 - b. throttle body injection
 - c. port & throttle body injection
 - d. Valve injection
 33. In magnetic ignition system, the primary current is produced by _____
 - a. battery
 - b. magnet
 - c. electrical current
 - d. ice
 34. Which is not the phase of CI engine combustion?
 - a. ignition delay period
 - b. period of rapid combustion
 - c. period of controlled combustion
 - d. exhaust gas
 35. In most automobiles, which lubrication system is commonly used?
 - a. Splash system
 - b. Pressure system
 - c. Petrol system
 - d. Gravity system
 36. Which of the following is not the effect of supercharging?
 - a. Improved cold starting
 - b. Increased gas loading
 - c. Reduced exhaust smoke
 - d. Increased thermal loads
 37. The power developed by an engine at the output shaft is called _____
 - a. brake power
 - b. indicated power
 - c. mean effective pressure
 - d. Friction power
 38. The volumetric efficiency is defined as the ratio of
 - a. total volume / piston displacement volume
 - b. total volume / gas volume taken during suction
 - c. gas volume taken during suction / swept volume
 - d. swept volume / gas volume taken during suction
 39. Which are two Hydrocarbons present in LPG?

- a) Butane and Pentane
 - b) Methane and ethane
 - c) Butane and propane
 - d) Pentane and Hexane
40. Which electronic device controls the engine system?
- a. Regulator
 - b. ECM
 - c. Fuse
 - d. Switch
41. _____ Sensor senses the amount of oxygen in the engine exhaust and calculates air-fuel ratio.
- a) Engine temperature
 - b) Exhaust gas
 - c) Air flow
 - d) Air inlet temperature
42. Sulphation in a lead acid battery occurs due to
- a. Heavy charging
 - b. Fast charging
 - c. Trickle charging
 - d. Incomplete charging
43. Which of the following parts does not include an automobile chassis?
- a) Differential
 - b) Brakes
 - c) Steering system
 - d) Shock absorbers
44. Where is the clutch located?
- a) Between transmission and engine
 - b) Between transmission and rear axle
 - c) Between transmission and propeller shaft
 - d) Between transmission and differential
45. If the front of the front wheels is inside and rear of front wheels are apart when the vehicle is at rest, then the configuration is called
- a) Toe out
 - b) Toe-in
 - c) Positive camber
 - d) Positive castor
46. The skidding of vehicles, while sudden brakes are applied, is avoided through _____
- a) Antilock braking system
 - b) Engine management system
 - c) Automatic car parking system
 - d) Driving system
47. The function of an alternator in an automobile is to

- a. Supply electric power
 - b. Converts mechanical energy into electrical energy
 - c. Continually recharges the battery
 - d. Partly converts engine power into electric power
48. Resistance generated by air to the movement of the vehicle with N speed is proportional to?
- a. N^3
 - b. $1/N$
 - c. N
 - d. N^2
49. Which of the following error is caused by poor calibration of the instrument?
- a) Random error
 - b) Gross error
 - c) Systematic error
 - d) Precision error
50. Which one of the following is not a technique of inventory control?
- a. ABC analysis
 - b. FSN analysis
 - c. GOLF analysis
 - d. FTMN analysis
51. Low power generation in engine is due to
- a. Weak compression
 - b. High oil level
 - c. Oil viscosity too low
 - d. Leakage of oil
52. For what purpose is the Rhodium used?
- a) To reduce CO and HC
 - b) To reduce NO_x
 - c) To reduce CO
 - d) To reduce HC
53. When out at night, what should you wear to be seen easily by traffic?
- a. Dark colored clothed
 - b. Bright fluorescent clothes
 - c. Pale colored clothes
 - d. Trendy clothes
54. How should one behave to the traffic police when she or he stops the vehicle showing your fault?
- (a) To insist that you haven't done anything wrong

- (b) To run away from the traffic police.
 - (c) To realize your mistake politely.
 - (d) To make other drivers your witness insisting that you haven't done anything wrong
55. Standard dimensions (mm x mm) of A3 drawing sheet is
- a) 11.69×16.54
 - b) 29.7×42
 - c) 297×420
 - d) 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
- a) Sum-of-year digit
 - b) Sinking fund
 - c) Diminishing balance
 - d) Straight line
57. The process of optimizing the project's limited resources without extending the project duration is known as
- a) Project crashing
 - b) Resource levelling
 - c) Resource smoothing
 - d) 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. In welding, porosity in the weld is usually caused by
- Excessive heat input
 - Entrapment of gases
 - High welding speed
 - Low current
62. In a stress-strain curve, the slope in the elastic region represents
- Toughness
 - Yield strength
 - Elastic modulus
 - Poisson's ratio
63. The first step in solidification of a pure metal is
- Nucleation
 - Grain growth
 - Dendritic growth
 - Recrystallization
64. In a shaping machine, the cutting stroke is
- Forward stroke
 - Return stroke
 - Both strokes
 - Idle stroke
65. The quality of saturated vapor is always
- Zero
 - One
 - Hundred
 - Thousand
66. In the Carnot cycle, heat addition occurs at
- Constant Entropy
 - Constant Volume
 - Constant Pressure
 - Constant Temperature
67. A heat pump working between 280 K and 300 K will have a COP of
- 14
 - 15
 - 16
 - 20
68. In a four-stroke engine, one power stroke is obtained in
- One revolution of crankshaft
 - Two revolutions of crankshaft
 - Four revolutions of crankshaft
 - Eight revolutions of crankshaft

69. Which law defines the behavior of Newtonian fluids?
- a) Fourier's law
 - b) Fick's law
 - c) Pascal's law
 - d) Newton's law of viscosity
70. For flow in a circular pipe, laminar flow generally occurs when Reynolds number (Re) is
- a) $Re < 2000$
 - b) $Re > 4000$
 - c) $2000 < Re < 4000$
 - d) $4000 < Re < 10000$
71. The continuity equation is based on the principle of
- a) Conservation of volume
 - b) Conservation of momentum
 - c) Conservation of energy
 - d) Conservation of mass
72. The draft tube is fitted at the _____ of a reaction turbine.
- a) Inlet
 - b) Outlet
 - c) Both inlet and outlet
 - d) Guide vane
73. If temperature rise is doubled, the thermal stress in a completely restrained bar will
- a) Halve
 - b) Remain same
 - c) Double
 - d) Reduce to zero
74. Torsion of a shaft occurs when it is subjected to
- a) Axial load
 - b) Bending moment
 - c) Shear force
 - d) Twisting moment
75. Which of the following is not a method of velocity analysis in mechanisms?
- a) Graphical differentiation method
 - b) Relative velocity method
 - c) Instantaneous center method
 - d) Analytical method
76. The main function of gears is to
- a) Transmit motion and power between shafts
 - b) Reduce friction in bearings
 - c) Store kinetic energy
 - d) Store potential energy

77. The cylinder of an I.C. engine is usually made of
- Cast iron
 - Aluminium alloy
 - Brass
 - Wood
78. In multi-cylinder engines, the primary advantage is
- Higher fuel consumption
 - Greater torque uniformity and smoother operation
 - Lower cost of manufacturing
 - Less complexity
79. In a valve timing diagram, the period when both inlet and exhaust valves remain open is called
- Ignition period
 - Overlap period
 - Scavenging period
 - Compression period
80. CCS (Combined Charging System) for electric vehicle is
- A battery management protocol
 - An electric motor control system
 - A charging standard supporting both AC and DC charging
 - A type of lithium battery
81. In a carburetor, the device used to enrich the mixture during cold starting is called
- Throttle valve
 - Choke
 - Float chamber
 - Venturi
82. The anti-knock quality of a diesel fuel is measured by
- Octane number
 - Cetane number
 - Flash point
 - Fire point
83. The main purpose of a cooling system in an automobile is to
- Increase engine noise
 - Maintain optimum operating temperature
 - Increase fuel consumption
 - Reduce engine power
84. The main disadvantage of a turbocharger is
- Reduced efficiency
 - Turbo lag during acceleration
 - Increased engine size
 - Reduced power-to-weight ratio

85. Knocking tendency in SI engines increases with
- a) Lean mixture
 - b) Thin mixture
 - c) High compression ratio
 - d) Less compression ratio
86. The main disadvantage of using hydrogen as a fuel in automobiles is
- a) High energy content per unit mass
 - b) Storage and handling difficulties
 - c) Produces only water as exhaust
 - d) High flame speed
87. The main purpose of Electronic Spark Control (ESC) in automobiles is to
- a) Control fuel injection
 - b) Prevent engine knocking by adjusting ignition timing
 - c) Reduce exhaust gas temperature
 - d) Control engine lubrication
88. A typical 12 V car battery consists of how many cells connected in series?
- a) 6
 - b) 12
 - c) 24
 - d) 48
89. The turning radius of a vehicle depends mainly on
- a) Steering geometry and wheelbase
 - b) Engine displacement
 - c) Fuel tank capacity
 - d) Suspension stiffness
90. A universal joint (U-joint) is used in propeller shafts to
- a) Reduce torque
 - b) Allow angular misalignment between shafts
 - c) Increase engine power
 - d) Decrease vehicle speed
91. Power steering in modern vehicles is used to
- a) Increase engine power
 - b) Reduce driver effort in turning the steering wheel
 - c) Increase fuel efficiency
 - d) Reduce tire wear
92. The component of the vehicle weight acting along the slope during climbing a hill is
- a) Tractive effort
 - b) Grade resistance
 - c) Rolling resistance
 - d) Air resistance

93. The primary function of an automobile garage/workshop is to
- Manufacture vehicles
 - Repair vehicles
 - Sale vehicles
 - Purchase vehicles
94. Exhaust Gas Recirculation (EGR) contributes to
- Higher cylinder temperatures
 - Reduced engine knock
 - Reduced CO emissions only
 - Higher compression ratio
95. EURO standards mainly regulate
- Vehicle speed limits
 - Exhaust emissions from vehicles
 - Vehicle weight
 - Vehicle design
96. The color of number plate in Nepal indicates
- Vehicle owner
 - Vehicle purpose
 - Vehicle fuel
 - Vehicle emission standards
97. In third-angle projection, the top view is placed
- Above the front view
 - Below the front view
 - To the right of the front view
 - To the left of the front view
98. If the interest rate increases, the present value of a future sum
- Increases
 - Decreases
 - Remains the same
 - Becomes zero
99. Resource leveling in project management is used to
- Reduce project quality
 - Increase project cost
 - Optimize allocation of resources to avoid overloading
 - Increase project duration arbitrarily
100. NEC can take disciplinary action against engineers for
- Professional misconduct
 - Obtaining Master degree without having NEC registration
 - Publishing research papers without having NEC registration
 - Excessive overtime