

Nepal Engineering Council Registration Examination
Model Question for Geomatics Engineering (AGeE)

(100*1 = 100)

1. “Principle of Measurement” is the process of
 - a) Measuring and mapping the Earth's surface
 - b) Analyzing and interpreting geographic data
 - c) Designing and building structures
 - d) Accurately measuring quantities
2. In chain surveying, field work is limited to
 - a) Linear measurements only
 - b) Angular measurements only
 - c) Both linear and angular measurements
 - d) Neither linear nor angular measurements
3. The term used for a fixed point on the Earth's surface as a reference in a survey is
 - a) Control point
 - b) Benchmark
 - c) Trigonometric point
 - d) Azimuth point
4. Type of instrument that is commonly used for levelling in surveying is
 - a) Theodolite
 - b) Total station
 - c) Levelling instrument
 - d) GPS receiver
5. When contours of different elevation cross each other, it indicates a/an.....
 - a) Vertical cliff
 - b) Saddle
 - c) Overhanging cliff
 - d) Valley
6. Square of the standard deviation gives
 - a) Variance
 - b) Covariance
 - c) Correlation
 - d) Regression
7. The main “principle of photogrammetry” is the measurement of the
 - a) Properties of light
 - b) Object and terrain using photographs
 - c) Properties of camera lenses
 - d) Properties of image sensors

8. The main purpose of interior orientation in aerial photogrammetry is to determine the position and orientation of the.....
 - a) Camera at the time of exposure
 - b) Aircraft at the time of exposure
 - c) Ground control points at the time of exposure
 - d) Images at the time of exposure
9. The binocular vision in photogrammetry is the process of using two
 - a) Cameras to capture images simultaneously
 - b) Eyes to perceive depth and distance
 - c) Lenses to capture images with different focal lengths
 - d) Wavelengths of light to capture images
10. The term used to describe the smallest feature that can be distinguished in a remote sensing image is
 - a) Pixel
 - b) Spectral resolution
 - c) Spatial resolution
 - d) Temporal resolution
11. The purpose of image interpretation in remote sensing is to
 - a) Extract information from the image
 - b) Remove noise from the image
 - c) Increase the spatial resolution of the image
 - d) Change the color of the image
12. Which type of sensor is commonly used to acquire data for lidar-based terrain modelling?
 - a) Optical sensor
 - b) Radar sensor
 - c) Laser sensor
 - d) Infrared sensor
13. Which coordinate system is commonly used in geodesy?
 - a) Cartesian
 - b) Polar
 - c) Geographic
 - d) Spherical
14. An Ellipsoid is
 - a) Physical Surface
 - b) Equipotential
 - c) Mathematical surface
 - d) Mean sea level

15. The distance along meridian between the points which lies in same meridian is
 - a) Latitude
 - b) Departure
 - c) Northing
 - d) Easting

16. According to Newton's law of gravitation "Every particle in the universe attracts every other particle with a force, whose magnitude is
 - a) Directly proportional to the product of their masses
 - b) Inversely proportional to the product of their masses
 - c) Directly proportional to the square of the distances between their centre
 - d) Inversely proportional to the product of masses and distances.

17. In gravimetry, the spherical coordinate are used to
 - a) Calculate the density of a substance
 - b) Calculate the weight of an object
 - c) Represent a point in 3-dimensional space
 - d) Calculate the temperature of a substance

18. The celestial sphere is a sphere that represents the
 - a) Earth's atmosphere
 - b) Stars and planets in the sky
 - c) Earth's rotation
 - d) Moon's orbit

19. Systematic cadastral survey was started after the land reform program in
 - a) 2019 BS
 - b) 2032 BS
 - c) 2021 BS
 - d) 2052 BS

20. Land reform is the process of
 - a) Redistributing land to citizens
 - b) Increasing land taxes
 - c) Improving land use practices
 - d) Mapping and surveying land

21. What type of tenure system is common in traditional societies?
 - a) Freehold
 - b) Leasehold
 - c) Communal
 - d) State-owned

22. The main purpose of a land information system is to
 - a) provide information about land ownership to the public
 - b) manage land use and zoning regulations
 - c) provide a comprehensive database of land-related information for decision- making
 - d) track land development projects

23. Which of the following characteristic is not about Land pooling concept.
- a) Participatory approach
 - b) Self-financing mode
 - c) Displacement of land owners
 - d) Fair and transparent procedure
24. How many land use classes are there in land use act 2076?
- a) Seven
 - b) Eight
 - c) Nine
 - d) Twelve
25. Ionosphere modelled in a GNSS receiver to mitigate its effects on the code pseudo-range measurements by using
- a) Klobuchar model
 - b) NeQuick model
 - c) Hopfield model
 - d) Markov model
26. Which one of the following is the mathematical property of noise in GNSS signal?
- a) Euclidean
 - b) Elastic
 - c) Gaussian
 - d) Thermal
27. The purpose of the ephemeris data in a GNSS signal is to provide the receiver with information on the
- a) Satellite's location
 - b) Receiver's location
 - c) Current time
 - d) Satellite's health
28. The main factor affecting the accuracy of a GPS receiver is the
- a) Number of visible satellites
 - b) Altitude of the satellites
 - c) Satellite geometry
 - d) Weather conditions
29. Which type of positioning is typically used for navigation and tracking applications?
- a) Kinematic positioning
 - b) Static positioning
 - c) Angle-based positioning
 - d) Distance-based positioning
30. The aim of Kalman Gain is to
- a) Maximize the gain

- b) Minimize the difference between observed and modelled values
 - c) Minimize the observation
 - d) Minimize the noise
31. Pantograph is used for
- a) Area measurement
 - b) Length measurement
 - c) Enlargement and Reduction of map
 - d) Perimeter measurement
32. The projection which preserves the area of projected surface of the earth is called....
- a) Conformal Projection
 - b) Equivalent Projection
 - c) Equidistant Projection
 - d) Compromise Projection
33. The subject for study of signs and symbol is called.....
- a) Semiology
 - b) Symbology
 - c) Symbolic
 - d) Symbol selection
34. The output of missing primary colors RED, GREEN and BLUE is
- a) Black
 - b) White
 - c) Grey
 - d) depends on condition
35. Which of the following web map category best fits the shortest route-finding option?
- a) Personalized web maps
 - b) Analytic web maps
 - c) Interactive web maps
 - d) Real time web maps
36. The positive image making process includes....
- a) Drawing
 - b) Scribing
 - c) Masking
 - d) Plate making
37. What is a primary key in a relational database?
- a) A unique identifier for each record in a table
 - b) A field that stores the most important information in a record
 - c) A field that contains a summary of the data in a record
 - d) A field that stores the date of a record
38. In which format the ISO 19115 metadata standard is written?
- a) Hyper Text Markup Language (HTML)

- b) Extensible Markup Language (XML)
 - c) Unified Modelling Language (UML)
 - d) Text document
39. The number of attributes in relation is called as its
- a) Cardinality
 - b) Degree
 - c) Tuples
 - d) Entity
40. What is the purpose of SQL?
- a) To manage and manipulate databases
 - b) To create and design websites
 - c) To write computer programs
 - d) To analyze data
41. What type of database management system is designed to handle large amounts of unstructured data?
- a) Object-oriented database management system (OODBMS)
 - b) Relational database management system (RDBMS)
 - c) Object-relational database management system (ORDBMS)
 - d) Hierarchical database management system (HDBMS)
42. In NSDI, organizational structure the role of lead agency is
- a) To draft standards for implementation of geoportal
 - b) To prepare data access, data sharing policies
 - c) Undertake the networking management functions and linkage with the other SDI initiatives
 - d) Analyze outcome of activities undertaken by lower level organs
43. The following is not a component of Geographic Information System (GIS)
- a) Hardware
 - b) Software
 - c) Topology
 - d) Data
44. What is 'Metadata'?
- a) It is 'data about data'
 - b) It is 'meteorological data'
 - c) It is 'oceanic data'
 - d) It is 'contour data'
45. The following is not topological relation between two polygon features:
- a) Disjoint
 - b) Combine
 - c) Intersection
 - d) Contains

46. The surface model used to create a continuous surface from a set of scattered points is known as
- a) TIN model
 - b) Grid model
 - c) Triangulated incorrect network model
 - d) Triangulated planar network model
47. Interpolation is made possible by a principle called
- a) Spatial Autocorrelation
 - b) Spatial auto-correction
 - c) Thematic Autocorrelation
 - d) Thematic auto-correction
48. The OGC standard web service used to disseminate grid data through web is
- a) Web Coverage Service
 - b) Web Feature Service
 - c) Web Map Service
 - d) Web Catalog Service
49. The process of determining the exact location of points on the surface of the earth is known as ...
- a) Topography
 - b) Geology
 - c) Hydrology
 - d) Surveying
50. Most common equipment used for measuring water depth in hydrographic survey is
- a) Tidal gauge
 - b) Echo sounder
 - c) Laser rangefinder
 - d) Seismic equipment
51. The underground horizontal passage open to atmosphere at both ends is known as ...
- a) Tunnel
 - b) Adit
 - c) Gangway
 - d) Cross cut
52. The main instruments used to conduct transmission line surveying is
- a) Total station and GPS
 - b) Inclinator
 - c) Load cells
 - d) Drilling equipment
53. Portion of dam in contact with ground at downstream side is known as
- a) Crest
 - b) Toe

- c) Foot
 - d) Heel
54. The temporary framework which is useful in construction, demolition, maintenance or repair works is known as
- a) Grouting
 - b) Scaffolding
 - c) Shoring
 - d) Underpinning
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 bein the Council.

- a) affiliated
- b) united
- c) recognized
- d) associated

61. The principle of missing line measurement used in canal survey is

- a) Cosine law
- b) Pythagoras theorem
- c) Sine law
- d) Napier's law

62. A canal that runs along the slope of hilly terrain and can irrigate only one side is

- a. Ridged canal
- b. *Contour canal*
- c. Asymmetric canal
- d. Slope canal

63. Stadia wires are used for

- a) Measuring H- angle
- b) Measuring distance
- c) Measuring V-angle
- d) Providing line of sight

64. Graphic generalization is most referred to

- a) Reclassification
- b) Omission
- c) Selection
- d) Addition

65. What is the primary goal of histogram equalization?

- a) To blur an image
- b) To enhance image contrast
- c) To change the color of an image
- d) To reduce noise

66. Which type of filter is highly effective at removing "salt-and-pepper" or impulse noise?

- a) Mean filter
- b) Gaussian filter
- c) Median filter
- d) Laplacian filter

67. Geometric correction is the process of assigning which properties to an image?
- Spectral properties
 - Radiance values
 - Map projection properties
 - Contrast and brightness
68. A passive remote sensing system is one that:
- Emits its own energy to illuminate the target.
 - Uses an external source, such as the sun, to illuminate the target.
 - Is not used for Earth observation.
 - Cannot operate at night.
69. The gravity vector at any points is to the plumb line
- Orthogonal
 - Parallel
 - Coincides
 - Tangential
70. Curve formed by the intersection of plane containing normal at a given point to the surface of ellipsoid is
- Normal Section
 - Prime vertical
 - Alignment Curve
 - Geodesic curve
71. is a measure of change in shape over time due geological forces like earthquakes, landslides, volcanic eruptions etc.
- Distortion
 - Displacement
 - Deflection
 - Strain
72. Which of the following techniques is not used in ITRS
- Very long Baseline Interferometry(VLBI)
 - Satellite Laser Ranging(SLR)
 - DORIS
 - Satellite- Based Augmentation System (SBAS)
73. The systematic registration is done according to
- Area-by-Area basis
 - Case-by-Area basis
 - Area-by-Case basis
 - Case-by-Case basis

74. While doing land recordation of informal area, which type of cadastre should be considered?
- a. Point cadastre
 - b. Multipurpose cadastre
 - c. Legal cadastre
 - d. Fiscal cadastre
75. The land management technique for guiding the conversion of privately owned land in the urban periphery from rural to urban uses through the infrastructure mechanism is known as
- a. Land Readjustment
 - b. Site and Service
 - c. Guided Land Development
 - d. Land Sharing
76. Which segment of GNSS includes satellites?
- a. User segment
 - b. Control Segment
 - c. Space Segment
 - d. Ground Segment
77. What is the minimum number of satellites required for GNSS receiver to calculate latitude and longitude?
- a. 2
 - b. 3
 - c. 4
 - d. 6
78. The unit vector along line of sight of GNSS signal is directed from:
- a) Reference to rover receiver
 - b) Satellite to receiver
 - c) Receiver to satellite
 - d) Rover to reference receiver
79. The carrier phase receiver bias can be eliminated upon
- a) single differencing
 - b) double differencing only
 - c) triple differencing only
 - d) cannot be eliminated.
80. Land use belongs to the measurement scale of
- a. Nominal
 - b. Ordinal
 - c. Interval
 - d. Ratio

81. Which type of map plate is dimensionally stable?
- Bimetal
 - Trimetal
 - Aluminium
 - Plastic
82. The nominal area features can be better represented by...
- Choropleth map
 - Chorochromatic map
 - Isopleth map
 - Prism map
83. Which of the following is not a type of database language?
- DDL
 - DML
 - DQL
 - DCL
84. Which of the following is not a feature of a spatial database management system (SDBMS)?
- Spatial indexing
 - Spatial querying
 - Spatial analysis
 - Spatial visualization
85. If every non-key attribute is functional dependent on primary key, then the relation will be in:
- First Normal Form
 - Second Normal Form
 - Third Normal Form
 - BCNF
86. The number of attributes in relation is called as it's
- Cardinality
 - Degree
 - Tuples
 - Entity
87. Which of the following is not topological relation between two polygon features?
- Disjoint
 - Combine
 - Intersection

- d. Contains
88. Which of the following is continuous field?
- a. Temperature
 - b. land use
 - c. Building
 - d. River
89. Which of the following is the secondary data collection method in GIS?
- a. GPS
 - b. Scanning and digitization of existing maps
 - c. Remote Sensing
 - d. Field Survey
90. Which of the following analyses is more effective in raster than in vector data model?
- a. Overlay
 - b. Network
 - c. Measurement
 - d. Neighborhood
91. Which of the following is considered as most accurate method for determining area of the curved boundary?
- a) Simpson's rule
 - b) Mid-ordinate method
 - c) Average ordinate method
 - d) Trapezoidal method
92. The process of measuring depth below the water surface is called.....
- a. Sounding
 - b. Chaining
 - c. Traversing
 - d. Levelling
93. Which of the following instrument can be used to compute area in plotted plan?
- a) Area meter
 - b) Passometer
 - c) Pantograph
 - d) Planimeter
94. The exact station is established during mining operation by setting a marker called
- a) Plug
 - b) Spad
 - c) Out crop
 - d) Plumb bob

95. In an engineering drawing, what does a scale of 1:2 represent?
- a) The drawing is twice the actual size of the object.
 - b) The drawing is half the actual size of the object.
 - c) The drawing is the same size as the object.
 - d) The drawing is in inches and the object is in millimeters.
96. Under which act was the Nepal Engineering Council (NEC) established?
- a) NEC Act, 2057
 - b) NEC Act, 2055
 - c) NEC Act, 2056
 - d) NEC Act, 2054
97. Engineering ethics are needed for engineering practice:
- a. To prevent lawsuits
 - b. To win contracts
 - c. To increase popularity
 - d. To guide the professional practice
98. Which of the following is NOT protected by copyright?
- a. Computer software
 - b. Engineering Drawings
 - c. Industrial processes
 - d. Songs
99. Pantograph is used for
- a. Area measurement
 - b. Length measurement
 - c. Enlargement and Reduction of map
 - d. Perimeter measurement
100. The Nepal system of land registration is based on
- a) Deed based System
 - b) Title based System
 - c) Improved Deed
 - d) Negative Title