# BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**
**Programme – Diploma in Civil Engineering**
**Course Name – Advanced Surveying**
**Course Code - DCE401**
**( Semester IV )**

**Time allotted : 1 Hrs.15 Min.**                                        **Full Marks : 60**

[The figure in the margin indicates full marks.]

**Group-A**

(Multiple Choice Type Question)                                        1 x 60=60

*Choose the correct alternative from the following :*

(1) _____ is the most precise instrument designed for the measurement of horizontal and ver tical angles.

a) Survey chain                                        b) Dumpy level

c) Theodolite                                        d) Telescope

(2) The transit is the term simply used for _____.

a) Telescope                                        b) Theodolite

c) Autolevel                                        d) Dumpy level

(3) Which of the following is an integral part of the theodolite and is mounted on a spindle kn own as a horizontal axis?

a) Telescope                                        b) Index frame

c) Horizontal plane Vernier                                        d) Horizontal circle

(4) The vertical circle is a circular graduated arc attached to the _____ axis of the telescope.

a) inner axis                                        b) outer axis

c) trunnion axis                                        d) line of sight

(5) The index frame is _____ shaped frame.

a) U                                        b) V

c) T                                        d) A

(6) The value of multiplying constant is generally taken as _____

a) 60                                        b) 80

c) 90                                                    d) 100

(7) Which among the following represents stadia interval factor?

a) f + d                                                 b) f − d

c) f / i                                                 d) i/ f

(8) The value of additive constant lies in the range of_____

a) 0.2 to 0.3m                                           b) 0.3 to 0.45m

c) 0.5 to 0.6m                                           d) 0.6 to 0.7m

(9) What is the value of additive constant in anallactic lens?

a) 100                                                   b) 0.3

c) 0                                                     d) 0.4

(10) The following are the staff readings given when the staff is held normal. The line of sight of instrument is placed at an angle +3024'. It being an anallactic lens, find the horizontal distance between staff and instrument station. Staff readings – 2.145 m, 1.925 m, 1.464 m.

a) 62.082 m                                              b) 58.082 m

c) 60.082 m                                              d) 68.082 m

(11) In order to measure the magnetic bearing of a line, the theodolite should be provided with _____

a) Extra Telescope                                       b) Spirit level

c) Compass                                               d) Tabular or Trough Compass

(12) To run a straight line between two points, when both ends are inter visible. We establish intermediate points through _____

a) line of sight                                         b) balancing

c) using random line                                     d) back sight

(13) Fine adjustment in a Theodolite is Done by the

a) Focusing Screw                                        b) Foot Screw

c) Tangent Screw                                         d) Clamp Screw

(14) A curve of varying radius introduced between two branches of a compound curve is known as.

a) Mean Curve                                            b) Common Curve

c) Base Curve                                            d) Transition Curve

(15) Error due to in accurate centering comes under _____ error.

a) personal                                              b) natural

c) instrumental                                          d) personal and natural

(16) What is the least count of a transit theodolite?

a) 15 seconds                                            b) 20 minute

c) 20 seconds                                            d) 30 minute

(17) Parallax comes under _____ error.

a) personal                                              b) natural

c) instrumental                                          d) personal and natural

(18) Un equal atmospheric refraction due to high temperature comes under which sources of errors?

a) personal          b) natural

c) instrumental          d) personal and natural

(19) Unequal expansion of parts of telescope comes under _____ source of error.

a) personal          b) natural

c) instrumental          d) personal and natural

(20) Which among the following EDM instruments is having more range?

a) Infra-red instruments          b) Visible light instruments

c) Microwave instruments          d) Gamma ray instruments

(21) The frequency range used in visible light instruments is_____

a) 5*1011 Hz          b) 5*108 Hz

c) 5*1010 Hz          d) 5*1014 Hz

(22) In GPS receivers used are

a) Mechanical Clocks          b) Atomic Clocks

c) Electronic Clocks          d) Quartz Clocks

(23) The wavelength of I.R in infra-red instruments is about_____

a) 0.6 * 10-6 m          b) 1.0 * 10-6 m

c) 0.7 * 10-6 m          d) 0.9 * 10-6 m

(24) In total station, data is stored in _____

a) Pen drive          b) Data card

c) Micro processor          d) External hardware

(25) EDM stands for

a) Electronic Device Measurements          b) Electromagnetic Distance Measurements

c) Electromagnetic Device Measurements          d) Electronic Distance Measurements

(26) When total station is sighted to the target, which of the operation acts first?

a) Rotation of optical axis          b) Rotation of vertical axis

c) Rotation of horizontal axis          d) Rotation of line of collimation

(27) Which among the following doesn't indicate the basic calculation of the total station?

a) Horizontal distance          b) Slope distance

c) Vertical distance          d) Co-ordinate calculations

(28) In which direction it is best to place the total station for obtaining the best output?

a) East          b) West

c) South          d) North

(29) Calculation the elevation difference if the vertical distance is 14.89m, instrument height is 9.2m, ground is at 2.8m.

a) 21.29 m          b) 12.29 m

c) 21.92 m          d) 41.29 m

(30) Find the elevation of ground beneath the reflector, if the known elevation of instrument is 12.76m, slope distance = 3.76m, angle is about 3°43', instrument height = 2.93m, ground is at 0.987 m.

a) 18.54m          b) 81.54m

c) 18.45m

d) 18.97m

(31) Which of the following describes the right usage of tangent method for offsets?

a) Smaller radius

b) Larger radius

c) Large deflection angle

d) More tangent length

(32) If the tangent distance increases, the offsets distance also increases.

a) True

b) False

(33) Which of the following represents the correct set of classification in the method of setting offset by tangent method?

a) Radial, perpendicular

b) Radial, parallel

c) Parallel, perpendicular

d) Parallel, horizontal

(34) Set a radial offset by using the approximate method with radius of the curve given as 25.76m and the offset distance as 5m.

a) 0.584m

b) 0.845m

c) 0.485m

d) 0.854m

(35) Set a perpendicular offset using the approximate method, having radius of curvature as 47.43m and the offset distance being 8m.

a) 0.67m

b) 0.76m

c) 7.06m

d) 6.07m

(36) In linear method of setting out curve, which of the following is not used?

a) Tape

b) Chain

c) Theodolite

d) Compass

(37) In angular method of setting a curve, which of the following is used?

a) Compass

b) Tape

c) Chain

d) Theodolite

(38) An Ideal Vertical curve to join two gradients is

a) Cubic

b) Parabolic

c) Elliptical

d) Hyperbolic

(39) Find the value of radius if the value of D is given as 23.76m.

a) 214.98m

b) 241.61m

c) 214.16m

d) 241.16m

(40) The length of the chord must not be greater than one tenth of radius.

a) True

b) False

(41) The lens used in aerial photogrammetry is having a maximum coverage capacity of _____ (in angles)

a) 930

b) 630

c) 530

d) 980

(42) For placing focal plane, which is used as a reference?

a) Focal length

b) Horizon

c) Azimuth

d) Collimation marks

(43) Which among the following surveying methods is meant to be having high precision?

a) Aerial photogrammetry

b) Terrestrial photogrammetry

c) Theodolite surveying

d) Traverse surveying

(44) How much inclination must be provided in a tilted photograph?

a) 13°

b) 20°

c) 3°

d) 34°

(45) Perspective projection is produced from_____

a) Straight lines radiating a common point

b) Straight lines radiating different points

c) Parallel lines radiating a common point

d) Perpendicular lines radiating a common point

(46) The relation between velocity, wavelength and frequency can be given as _____

a) $\lambda = c / r$

b) $\lambda = c / f$

c) $\lambda = c / h$

d) $\lambda = h*c / f$

(47) Which of the following is not a principle of remote sensing?

a) Interaction of energy with satellite

b) Electromagnetic energy

c) Electro-magnetic spectrum

d) Interaction of energy with atmosphere

(48) In visible region, the blue light is having a wave length range of _____

a) 0.42-0.52 micrometer

b) 0.24-0.52 micrometer

c) 0.42-0.92 micrometer

d) 0.22-0.32 micrometer

(49) Among the following, which describes Stefan- Boltzmann formula?

a) $M = \sigma/T4$

b) $M = \sigma-T4$

c) $M = \sigma+T4$

d) $M = \sigma*T4$

(50) Which of the following can act as an example for air-borne platform?

a) LISS-III

b) Dakota

c) MOS

d) LISS-II

(51) To measure the horizontal angle which of the following is the first step?

a) Releasing all clamps

b) Levelling instrument

c) Turning plates

d) Clamping the plates

(52) Tangent line drawn on a curve at its end is known as

a) Tangent Distance

b) Forward Tangent

c) Back Tangent

d) Long Chord

(53) If one of the vernier is at 0° then another vernier reading shows / also shows _____

a) 90°

b) 0°

c) 180°

d) 45°

(54) Adjustment of focusing screw of a theodolite enables getting

a) Clear Image of object

b) Clear Image of Cross-Hairs

c) Clear Image of Diaphragm

d) Clear Image of stadia Line

(55) While measuring the set of observations, the transit should be levelled each time for high degree of precision.

a) True

b) False

(56) Which of the below is used up to a range of 100km?

a) Infrared                                        b) Microwave
c) Visible range                                   d) Ultra-violet

(57) Which unit in total station processes data collected?
    a) Data collector                                 b) EDM
    c) Storage system                                 d) Microprocessor

(58) Which is the latest development in a total station?
    a) High resolution                                b) High accuracy
    c) Robotic                                        d) Automatic

(59) How many types of EDM are there based on the reflector type?
    a) 3                                              b) 5
    c) 4                                              d) 2

(60) What is the range of medium range EDM?
    a) <5kms                                          b) 15-25kms
    c) 5-25kms                                        d) >25kms