

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE

B.Sc.(Hons.) Agriculture Summer 2016 - 17 Examination

Semester: 1**Subject Code: 20106101****Subject Name: Fundamentals of Soil Water and Conservation Engineering****Date: 07/07/2017****Time: 10 am to 1 pm****Total Marks: 60****Instructions**

1. Attempt all questions from each section.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Write section – A, section – B on separate answer sheets.

SECTION A**Q.1 Fill in the blanks. (Each of 0.50 marks)****(10)**

1. Major Irrigation Projects: The area envisaged to be covered under irrigation is of the order overhectare.
2. Minor Irrigation Projects: Projects having CCA less than or equal to ha are termed as minor irrigation project
3. Medium Irrigation Projects: Projects having CCA less than 10,000 ha but more thanha
4. The water power (WP) of a pump can be calculated using the equation.
5. Specific weight of the water unit is.....
6. CCA full name
7. The discharge of the emitter varies fromlph
8. Drip Irrigation can save water to the extent of %
9. Surface water source is
10. constructed to create artificial storage of water
11. Sprinkle Head is a component ofIrrigation System.
12. Surveying is art of determiningpositions of different features of earth
13. The object of surveying is preparation of Of the area
14. surveying is the first.....for the execution of any engineering project
15. In the absence of accurateit is difficult to layout the alignment of roads, railways and canals.
16. Surveys in which curvature of the earth is ignored are known assurveys
17. Where surveys in which the curvature of earth is considered are known as.....surveys
18. The main principle of surveying is working from.....to
19. Ranging rods are used to denote..... point
20. Measuring tape is made up ofsteel.

Q.2 Match group A with group B. (Each of 0.50 marks)**(05)**

- | A | B |
|---------------------------------|--------------------------------|
| 1) Drip Irrigation | a) Denote station point |
| 2) Centrifugal Pump's Component | b) 20mts and 30 mts |
| 3) Koshi Project | c) Levelling |
| 4) Reciprocating Pump | d) Gravatt |
| 5) Dumpy level | e) Vane |
| 6) Ranging rod | f) Invar steel |
| 7) Tape | g) Water apply by drip by drip |
| 8) Cross staff | h) 1954 |
| 9) Chain | i) Water lifting device |
| 10) Theodolite | j) Height of instrument |

Q.3 Define the following. (Any ten)**(05)**

1. What is Unit of Velocity?
2. Drip Irrigation
3. Sprinkle Irrigation
4. Enlist any Four Water lifting devices.
5. Enlist any three Water Measurement Method
6. Enlist any Four component of Drip Irrigation System.
7. Define Levelling.
8. Define Contour.
9. What is Contour Map?
10. Define Equator.

11. What is smallest unit of measuring tap?
12. Define Surveying.

Q.4 Answer the following. (Any ten)

(10)

1. Definition of Irrigation.
2. What is Sources of Water?
3. Explain Water Power
4. Explain Shaft Power
5. Explain Input Power
6. Explain use of Chain Survey.
7. Explain use of Theodolite.
8. Explain use of Water lifting device.
9. Explain use of Contouring.
10. Write down any two Major Irrigation project in India.
11. What is Map?
12. What is Length of Engineering Chain?

SECTION B

Q.1 Multiple choice type questions. (Each of 0.50 mark)

(10)

1. For ranging a line the no of ranging rods required is
 - a) at least two
 - b) at least four
 - c) at least three
 - d) at least five
2. Compensating error is proportional to
 - a) L
 - b) 3L
 - c) \sqrt{L}
 - d) 2L
3. The working principle of optical square is based on ...
 - a) reflection
 - b) double reflection
 - c) refraction
 - d) double diffraction
4. The north line of the map is marked on ..
 - a) the right hand side of map
 - b) bottom left corner
 - c) right top corner
 - d) central area
5. At equator the dip of needle is.
 - a) 180 degrees
 - b) 90 degrees
 - c) 0 degrees
 - d) 270 degrees
6. When contour lines touch one another at a particular zone it indicates a.....
 - a) level surface
 - b) horizontal surface
 - c) vertical cliff
 - d) inclined surface
7. A Clinometer is used to measure....
 - a) distances approximately
 - b) reduced level of slope
 - c) the angle of slope
 - d) bearing of line
8. A 15cm theodolite means
 - a) length of telescope is 15cm
 - b) diameter of lower plate is 15cm
 - c) height of standards is 15cm
 - d) diameter of upper plate is 15cm
9. A Gunter's chain is
 - a) 100ft long
 - b) 30meters long
 - c) 22yards
 - d) 33ft long
10. A benchmark is
 - a) a reference point
 - b) the very first station
 - c) point of known elevation
 - d) last station where survey closes
11. A chain may get elongated due to
 - a) change to temperature
 - b) openings of rings
 - c) difference in pull
 - d) kinks in links
12. Mean sea level adopted by survey of India for reference is located at
 - a) Calcutta
 - b) Karachi
 - c) Bombay
 - d) Delhi
13. Water surface at rest is
 - a) level surface
 - b) tangential surface
 - c) horizontal surface
 - d) vertical surface
14. The area envisaged to be covered under irrigation project is of the order over 10000 hectare is known as

- a) Major Irrigation Projects
 - b) Minor Irrigation Projects
 - c) Medium Irrigation Projects
 - d) None
15. The parallax can be removed by
- a) focussing of the objective
 - b) focussing both
 - c) focussing the eyepiece
 - d) none of these
16. Chain survey is recommended when the area is
- a) crowded
 - b) simple
 - c) undulating
 - d) level
17. The length of gunters chain is
- a) 66ft
 - b) 50ft
 - c) 100ft
 - d) 33m
18. The curvature of earth is usually taken into account when the extent area is more than
- a) 50square km
 - b) 200 square km
 - c) 100 square km
 - d) 250 square km
19. The Well Conditioned triangle is angle should not be less than
- a) 45 degrees
 - b) 15 degrees
 - c) 30 degrees
 - d) 60 degrees
20. The horizontal angle between the longitudinal axis of the freely suspended magnetic needle and horizontal line is called
- a) dip
 - b) azimuth
 - c) declination
 - d) none of above

Q.2 Give the sentence true or false. (Each of 0.50 mark)

(05)

1. Water apply by drop by drop is called Sprinkle Irrigation System.
2. Drip irrigation method is time consuming method.
3. Dripper is a Component of Drip Irrigation System.
4. River is an artificial source of water.
5. Dam is an artificial source of water.
6. Measuring tape is made of invar.
7. Chain is of 20mts and 30mts.
8. Cross staff is not used in levelling.
9. Contour is the height of buildings in an area.
10. Dumpy means short and thick.

Q.3 Write short notes. (Anyfive)

(10)

1. Advantages of Irrigation
2. What is Purpose of Irrigation?
3. Short note on Reciprocating Pump.
11. Draw Layout of Drip Irrigation System
12. What is Disadvantage of Irrigation?
13. What is Sources of Water?

Q.4 Differentiate the following. (Any five)

(05)

1. Major and Minor Irrigation Project.
2. Drip and Sprinkle Irrigation Method.
3. Land and Chain Surveying.
4. Surface water and Ground water.
5. Back sight and Fore sight
6. Dumpy level and Wye level.
7. Peg and arrow.