

## Questions

(Note: - No negative marks

- Starred (\*) questions will have more weightage & will be considered as a tie-breaker)

- 1) Standard unit normally used for turbidity measurement in a water testing lab is
  - a) NTU
  - b)JTU
  - c) cobalt scale
  - d) None of the above
- 2) Hardness is caused by
  - a) Multivalent metallic cations
  - b) calcium
  - C) magnesium
  - d) calcium and magnesium
- 3) pH of a water sample is 7.8 What is pOH?
  - a) 6.7
  - b) 6.2
  - c)7.6
  - d)10.5
- 4) Who discovered virus ?
  - a) Louis paster
  - b) Robert Koch
  - c) Ronald Ross
  - d) Ivanosky
- 5) Conductivity of water depends on the
  - a) dissolved ions
  - b) suspended and dissolved ions
  - c) suspended ions in water
  - d)none of the above
- 6) Use of blank titration is essential in the analysis of
  - a) chloride
  - b)iron
  - c) hardness
  - d)sulphate
- 7) Turbidimetry is used in the analysis of
  - a) Iron
  - b) sulphate
  - c)chloride
  - d)ph
- 8) Decrease in ph Value can be accomplished by adding
  - a) nitric acid
  - b) naoh
  - c) lime
  - d) KOH
- 9) IS 1622 is for
  - a) Analysis of chloride
  - b) Analysis of MPN
  - c) chlorination of water
  - d) none of the mentioned
- 10) Acceptable quality standard for chloride in mg/litre is
  - a) 250
  - b) 300
  - c) 200)
  - d) none of the mentioned
- 11)Treatment for algae growth in wells is
  - a) Copper
  - b) prevention of sunlight
  - c) both of the mentioned
  - d) None of the mentioned
- 12) Chlorine demand can be reduced by treatment of water
  - a) Yes
  - b) No
- 13) Colorimetric measurement is used for
  - a) Chloride
  - b) Fluoride
  - c) calcium
  - d) magnesium
- 14) Isotherm is a term associated
  - a) Activated carbon
  - b) pH of water
  - c) conductivity of water
  - d) sand filter for water

- 15) Theory of ionization was invented by  
a) Arrhenius b) Henry Cavendish c) Ronald Ross d) Antony Leevanhock
- 16) Eutrophication is caused by discharge of  
a) discharge of sediment into the river b) excessive discharge of nutrients c) discharge of chlorides e) discharge of toxic substances
- 17) Blue baby syndrome is caused by  
a) chloride b) sulphate c) Nitrate d) hardness
- 18) Alum as a coagulant is found to be most effective when pH range of water is  
a) 2 to 4 b) 4 to 6 c) 6 to 8 d) 8 to 10
- 19) Beers and Lamberts law is associated with  
a) colorimetry b) turbidimetry c) volumetric analysis d) distillation
- 20) Which is the latest Indian standard that gives water quality  
a) IS10500-2016 b) IS10500-2012 c) IS10500-2014 d) IS10500-2015
- 21) The maximum presence of chloride in drinking water in the absence of other sources  
a) 1500mg/litre b) 2000mg/litre c) 1000mg/litre d) 2500mg/litre
- 22) Which of the following salts is the main cause of permanent hardness of water?  
(a) Magnesium sulphate (b) Magnesium bicarbonate (c) Magnesium carbonate (d) None of the above
- 23) What are the health effects of excess fluoride in drinking water?  
(a) Fluorosis (b) Toothaches (c) lung disease (d) Intestinal infection
- 24) Which of the following salts are the main causes of temporary hardness?  
(a) Calcium sulphate (b) Magnesium sulphate (c) Magnesium chloride  
(d) Magnesium carbonate
- 25) Which of the following is not a waterborne disease?  
(a) Measles (b) Typhoid (c) Cholera (d) Hepatitis
- 26) The Total dissolved solids (TDS) can be reduced by the following method  
(a) Distillation b) Reverse osmosis c) Ion exchange d) All of the above
- 27) Which of the following can be considered to be the primary source of pathogens in the water bodies?  
a) Domestic Sewage b) Industrial wastage c) Petroleum d) All of the above
- 28) Organic matter in water cannot be estimated by  
a) COD test b) BOD Test c) TOC Test d) conductivity test

29) Which of the following limits the algal activity in freshwater lakes?

a) Phosphorous b) Carbon c) Oxygen d) Nitrogen

30) what is the minimum quantity of residual chlorine present in water supply

a) 0.3mg/litre      b) 0.2mg/litre      c) 1 mg/litre      d) 0.8mg/litre

31) Orthotoduline is used for estimation of

a) Chloride b) sulphate c) nitrate d) chlorine

32) Smell of rotten egg is due to

a) Hydrogen chloride b) hydrogen sulphate c) hydrogen sulphide d) hydrogen

33) Jar test is used for what purpose

a) to find the treatment efficiency of alum b) to determine the dosage of alum and lime  
c) To find the treatment efficiency of lime d) none of the above

34) In a conventional water treatment plant slow mix is performed in which part

a) Clarifier      b) Flocculator      c) aerator      d) none of the mentioned

\*35) Estimate the alum required in a 6mld water treatment plant if alum: lime ratio is 1:2 and lime dose is 9mg/litre

a) 54kg      b) 27kg      c) 72kg      d) 45kg

\*36) In a 5 mld WTP 100kg of Alum and 50 kg of lime are required. What is the dosage of Alum and lime mg/litre

a) 25,15      b) 20,10      c) 20,13      d) 40,20

37) When chlorine gas is added to water pH will

a) increase b) decrease c) No effect d) none

38) Suitable pH for coagulation to occur is

A) 6-8      b) 4-5      c) 9-10      d) 4.5 - 5.5

39) What is the normal contact period given for chlorination of water ?

a) 120 minutes b) 20minutes c) 30 minutes d) 60 minutes

40) Chlorine demand for distilled water is 1mg/l

The above statement is a) true b) false

41) Which is not an organoleptic parameter means

a) odour) taste c) chloride) d) turbidity

42) Head loss in a pipe line not depends on

a) diameter b) friction factor c) level difference d) quantity of flow

43) What is the acceptable limit for iron in mg/litre

a) 0.5 b) 0.5 c) 1 d) 0.3

\*44) In a water sample chlorine demand is 0.8mg/litre and residual of 0.2 is to be maintained. What is the requirement of bleaching powder 10000litres of water that contains 30% chlorine

a) 0.33 kg b) 0.8kg c) 0.2 kg d) 1.0 kg

45) What is the acceptable limit for chloride in drinking water in mg/litre

a) 1000 b) 1500 c) 2000 d) None mentioned

46) Which is not an Alkalinity form

a) carbonate b) bicarbonate c) hydroxide d) chloride

47) Anton leevanhock is popular for

a) invention of antibiotics b) invention of microscope c) invention of hydrogen) invention of domestic pollution control

48) Volatile solids represent

a) inorganic solids b) organic fraction c) both d) none

49) Permissible water quality standard for nitrate in mg/litre

a) 45 b) 100 c) 125 d) 55

50) Algae growth in water can be controlled by

a) prevention of sunlight b) application of chlorine c) application of copper sulphate  
d) all mentioned

\*51) estimate the quantity of this bleaching powder required to chlorinate 1.4 mld water @2mg /litre of chlorine if the chlorine content in bleaching powder is 23 %

a) 11 kg b) 12.17kg c) 10.80kg d) none of the mentioned

52) What is the source of DO in water

a) from ground b) atmosphere c) from living organisms d) none

53) DO of water depends on

a) temperature and chloride b) nitrate and chloride c) phosphate and nitrate d) none

54) What is the permissible limit for fluoride in drinking water in mg/litre

a)1 b)1.5 c)2 d) 1.8

55) Colour change in bathroom floors is due to

a) chloride b) iron c) nitrate d) phosphate

56) What is the significance of ensuring Alum; lime ratio in jar test

a) to reduce ph b) increase ph c) maintain ph d) None

57) What is the oxidation agent used in COD analysis

a) sodium dichromate b) Potassium dichromate c) zinc dichromate d) None

58) Break point chlorination indicates

a) Minimum chlorine used by a water sample b) Maximum chlorine that can be used by a water sample c) chlorine residual d) none

59)What is meant by buffer solution

A) liquid to increase pH b) resisting change in pH c) both d)none of the above

\*60) What is the hydrogen ion concentration in moles /litre if pH is 5.6

A) $10^{-3}$  b)  $10^{-5.6}$  c)  $10^{-4.4}$  d)  $10^{-9.4}$

61) What is the effect of temperature on conductivity of water

A) increase b) decrease c) remains same d) none

62) Smell in water sample is generally associated with

A) Chloride b)nitrate c) sulphate d) hardness

63) White deposit on boiling in water indicates presence

A) Iron b) hardness c) chloride d) nitrate

64)What is the major form of alkalinity

a) Bicarbonate alkalinity b) carbonate alkalinity c) hydroxide alkalinity d) none of the above

65) What is the important health significance of hardness

A) on boiling white deposit is deposited b) hard water is good for heart diseases  
c) lather is formed with soap d) scaling in boilers

66) Approximate quantity of dissolved oxygen in mg /litre in drinking water is around

A) 5 b) 7 c) 9 d) 8

67) When iron containing water is used for preparation of tea black colour is formed due to

a) tannin in tea b) oxidation of ferric to ferrous c) due to mud in iron  
d) oxidation of ferrous to ferric

68) Iron is having similarity with the following in character

A) magnesium b) nitrate c) manganese d) chloride

69) Nitrate is analysed by

A) spectrophotometry b) volumetric analysis c) UV spectrophotometer d) visible spectrophotometer

70) Main source of phosphorous in water

A) Rocks and minerals b) rain c) soil d) none of the above

71) For estimation of iron in drinking water spectrophotometer is set at a wavelength of

A) 220nm b) 310nm c) 510nm d) 225nm

72) In a water treatment system fluoride removal is normally ascertained by

a) Sand filter b) activated carbon filter c) Reverse osmosis d) none

73) Treatment for removal of chloride from water can be accomplished by

A) Sand filtration b) conventional WTP c) distillation d) activated carbon

74) pH values of shallow well water is normally ----- compared to deep well

A) Low b) high c) equal d) no relation

75) Organic pollution in water can be reduced by treating with

A) Filters b) activated carbon c) bacterial treatment d) none

76) Acceptable standard for sulphate in mg/litre

A) 400 b) 200 c) 250 d) 450

77) Permissible limit for hardness in mg/litre

- A) 500      b) 600      c) 700      d) 650

78) Keratosis in human beings is caused by

- A) chloride      b) iron      c) Arsenic      d) fluoride

79) Permissible limit for pH is

- A) 7-8.5      b) 6.5-8      c) 6.5-8.6      d) none

80) Permissible limit for total dissolved solids in mg/litre is

- A) 1500      b) 1800      c) 2500      d) 2000

81) Limit for alkalinity in the absence of other sources in mg/litre

- A) 700      b) 400      c) 600      d) 800

82) Limit for iron in the absence of other sources in mg/litre

- A) 0.3      b) 0.2      c) 0.6      d) 1.00

83) Drinking water quality standard in India is proclaimed by

- A) Central Pollution control board      b) BIS      c) Neeri Nagpur      d) CWPR

84) pH meter is associated with

- A) Hendry cavendish      b) sante Arrhenius      c) SPL Sorenson      d) Robert coch

85) Which of the following is not a water borne disease?

- a) Dysentery      b) Cholera      c) Typhoid      d) Malaria

86) The permissible limit for fluoride content in drinking water is

- a) 0.1 ppm      b) 1.5 ppm      c) 5 ppm      d) 10 ppm

87) Permanent hardness can be removed by

- a) Boiling      b) Softner      c) Alum      d) Lime

88) Choose the correct relation among the following:

- a)  $TOD > BOD > COD$       b)  $TOD > COD > BOD$       c)  $BOD > COD > TOD$       d)  $COD > BOD > TOD$

89) The characteristics of fresh and septic sewage respectively are

- a) Acidic & Alkaline      b) Alkaline & Acidic      c) Both acidic      d) Both Alkaline

90) The Alum when added as a coagulant in water

- a) Does not affect pH of water      b) Increases the pH of water      c) Decreases the pH of water  
d) does not require alkanity in water for flocculation

## Plumbing

1) Head loss in a pipe can be estimated by

- A) Darcy – weisbach equation      b) Hazen Williams equation      c) Colebrook - white equation  
d) all of the above

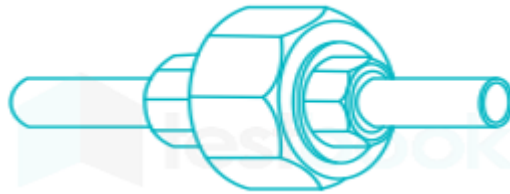
2) Best quality pipe presently used in water supply system

- A) PVC      b) Cast-iron      c) Ductile iron      d) HDPE

3) For deep water pumping what type of pump is used

- A) centrifugal      b) submersible      c) rotary      d) turbine

4) Name the pipe fitting given below



- a) Elbow      b) union      c) coupling      d) valve

5) H<sub>Q</sub> curve of a pump is important for

- a) assess the capacity of pump      b) selection of pump      c) assess the discharge  
d) assess the head to be lifted

6) What is the best material for manufacturing of non-return valve

- A) mild steel      b) aluminium      c) bronze      d) lead

7) What is the common type of pipe used in household plumbing

- A) Ductile Iron      b) HDPE      c) PVC      d) None of the above

8) A water tank is having a size of 10.5m x 4.8m x 3m with a freeboard of 0.5m. Find the capacity in litres

- A) 126000      b) 151200      c) 150000      d) none of the above

9) Pressure pump in household work is required

- A) Decrease pressure      b) Increase pressure      c) control pressure alteration  
d) measure the pressure

10) Non return valve is used mainly in

- A) Distribution system      b) Pumping system      c) household plumbing      d) None