P P SAVANI UNIVERSITY

Fifth Semester of B.Sc. Examination

Dec.-Jan.-2020-21

SSCH3150–Physical Chemistry-VIII

05.01.2021, Tuesday | Time: 10:00 a.m. to 12:30 p.m. | Maximum Marks: 60

Section-A (Total Marks - 20)

Q.1 Objectives (20 MCQ Compulsory-1 mark each) **(20)**

1 Indeterminate errors are also called
- **A** random errors
- **B** personal errors
- **C** methodic errors
- **D** psychological errors

2 The number of significant figures in 12.650 is
- **A** 2
- **B** 5
- **C** 4
- **D** 3

3 If Qcalc. < Qtab, then the suspected value is
- **A** accepted
- **B** rejected
- **C** Both accepted and rejected
- **D** None

4 Error is mathematically defined as the difference between the observed value and the true value. The statement is
- **A** True
- **B** False
- **C** Can't say
- **D** Unpredictable

5 Measurement which is close to the true value
- **A** accurate
- **B** average
- **C** precise
- **D** error

6 Poor precision in in scientific instrument may arise from
- **A** The standard being too strict
- **B** Human error
- **C** Limitations of measuring instrument
- **D** Both human error and limitations of measuring instrument

7 The number of significant figures in 11.2280 is
- **A** 2
- **B** 4
- **C** 5
- **D** 6

8 _____is defined as the reproducibility of measurements
- **A** Precision
- **B** Accuracy
- **C** Both precision and accuracy
- **D** None

9 Systematic errors occur due to
- **A** Overuse of instruments
- **B** Careless usage of instruments

C Both
D None

10 Measurements which are close to each other
A average
B precise
C error
D accurate

11 The degree of hydrolysis of ammonium acetate
A depends upon its concentration
B does not depend upon its concentration
C directly proportional to the square of its concentration
D does not depend upon temperature

12 An aqueous solution of $CuSO_4.5H_2O$ turns blue litmus red. It is due to the
A presence of Cu2+ ions
B presence of SO_4^{2-} ions
C hydrolysis of Cu^{2+} ions
D hydrolysis of SO_4^{2-} ions

13 One or both the ions of a salt react with water to produce acidic, basic or neutral solution. This process is called
A neutralisation
B ionisation
C saponification
D hydrolysis

14 When a pinch of NaCN is added to pure water, the pH
A increases
B decreases
C remains the same
D none of these

15 Which statement is correct?
A NH_4Cl gives alkaline solution
B sodium acetate given acidic solution in water
C $ZnCl_2$ gives basic solution in water
D KNO_3 gives neutral solution in water

16 Insulating materials are also termed as
A dimagnetics
B dielectrics
C Both
D None

17 The force per unit test charge dq is known as
A electric field strength
B electric field intensity
C Both
D None

18 What is correct for a capacitor?
A It has alternating layers of dielectric and conductor

B It is capable of storing charge
C It can be a single layer or multi-layer device
D All of the above

19 Which one of the following will not be hydrolysed?
A KNO_3
B K_2CO_3
C KCN
D CH_3COOK

20 The hydrolysis constant K_h of a weak base and a strong acid is _____ to the dissociation constant K_b, of the base
A directly proportional
B inversely proportional
C equal
D not equal

Section-B (Total Marks - 40)

Q.1 Short Notes (attempt all four- 3 marks each) (12)

A Explain the difference between Accuracy and Precision.
B Write a note on Student's test.
C Give a comparison chart of Dielectric and Magnetic Parameters.
D Write a short note on Magnetic Materials.

Q.2 Explain in detail (attempt any four-7 marks each) (28)

A Define error. Discuss the different types of errors.
B Write a detailed note on criteria for rejection of a data.
C What is hydrolysis? Derive an expression for the hydrolysis constant of a salt of a weak acid and a strong base in terms of dissociation constant of a weak acid and ionic product of water.
D Give a detailed comparison on Dielectric, Paramagnetic and Ferromagnetic materials.
E Discuss the Bronsted-Lowry concept of hydrolysis.