PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch - **CHEMISTRY**

BASIC ELECTRONICS FOR CHEMISTS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

1 Tell pentavalent impurity has ..... Valence electrons.
a) 3 b) 5 c) 4 d) 6

2 Tell n-type semiconductor is .....
a) Positively charged b) Negatively charged
c) Electrically neutral d) None of the above

3 Tell monostable multivibrator has R = 120kΩ and the time delay T = 1000ms, calculate the value of C?
a) 0.9μF b) 1.32μF c) 7.5μF d) 2.49μF

4 Which among the following can be used to detect the missing heart beat?
a) Monostable multivibrator b) Astable multivibrator
c) Schmitt trigger d) None of the mentioned

5 Which of the following options comes under the non – saturated logic family in Digital Electronics?
a) Emitter – coupled Logic b) High-Threshold Logic
c) Integrated – injection Logic d) Diode – Transistor Logic

6 What is a switching function that has more than one output called in Digital Electronics?
a) Multi-gate function b) Multi-output function
c) Multiple-gate function d) Multiple-output function

7 What is the advantage of using flash type A/D converter?
a) High speed conversion b) Low speed conversion
c) Nominal speed conversion d) None of the mentioned

8 Drawback of counter type A/D converter.
a) Counter clears automatically b) More complex
c) High conversion time d) Low speed

9 Which technique separates charged particles using electric field?
a) Hydrolysis b) Electrophoresis
c) Protein synthesis d) Protein denaturing

10 Electrophoresis was developed by
a) Tswett b) Tsvedberg c) Tiselius d) Sanger

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

11.a. Explain about Zener voltage regulator.

(OR)

11.b. Describe short note on Semiconductor devices.

12.a. Show the function Inverting amplifier.

(OR)

12.b. Explain about monostable multivibrator.

13.a. Describe the JK Master and Slave Filpflop.

(OR)

13.b. Sketch the NAND and NOR gates with Truth table.

14.a. Sketch The Binary up/down counter.

(OR)

14.b. Show the Ring Counter.

15.a. Explain about Conductivity bridge.

(OR)

15.b. Bring out on Spectrophotometer.

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

16 Enumerate the feature of intrinsic and Extrinsic semiconductor .

17 Identify Point out the integrator and differentiator with neat diagram.

18 Compare with JK Flipflop and master slave Flipflop.

19 Justify the D/A and A/D Converter.

20 Classify about pH Meter.

Z-Z-Z END