Date: 24.12.2020         Marks: 50         Time: 10.00 am to 1.00 pm

Instructions: 1. Use separate answer book for Section -1 and Section- 2
2. Attempt any Three questions out of which Q1 is Compulsory
3. Answer each next question on new page
4. Figures to the right indicate full marks
5. Illustrate your answers with sketches and flow chart wherever necessary
6. Use of nonprogrammable electronic pocket calculator permissible
7. Mobile and any other communication devices are not allowed in the exam hall
8. Assume suitable data wherever necessary

APPLIED PHYSICS

SECTION-1

1 Attempt any ten from the following: 20

a Define Viscosity. Write its dimensional formula. 2

b Mention the four types of lenses. 2

c What do you mean by the term's interference and diffraction of light? 2

d The angle of contact of mercury is --------- 2

e The unit of luminous intensity is
i) Candela ii) Watt iii) Lumen iv) Ampere 2

f Define stress and strain with units. 2

g Define angle of prism. 2

h Give the dimension of momentum. 2

i Define refraction of light 2

j What is photoelectric effect? 2

k Define Bulk's modulus. 2
I What is absolute humidity? 2

Q2 a Mention the dimensions of five physical quantities. 5
b Explain the principle of moisture meter. 5
c Mention the types of diffraction of light. What are X-rays? State their source and give their uses. 5

Q3 A Obtain an expression for the rise of liquid in a capillary tube. 5
B What is coefficient of viscosity? Describe an accurate method for the determination of coefficient of viscosity of a liquid. 5
C Explain with a neat figure, the working of a simple and compound microscope. 5

Q4 A Explain the phenomenon of photoelectric effect and state its characteristics. 5
B Define a lens. What are the two main types of lenses? Illustrate them with neat diagrams. 5
C Explain the terms mentioned below and write their formulae: - 5
i) Stress ii) Strain iii) Elasticity iv) Yield point

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THE TEXTILE ASSOCIATION (INDIA)
A.T.A (REVISED) PART-I EXAMINATION
PAPER – A1.1
BASIC ENGINEERING SCIENCE

Date: 24.12.2020
Marks: 100
Time: 10.00 am to 1.00 pm

Instructions:
1. Use separate answer book for Section -1 and Section -2
2. Attempt six questions out of which Q. 1 is compulsory.
3. Answer each next main question on new page.
4. Figure to the right indicate full marks.
5. Illustrate your answer with sketches and flow chart wherever necessary.
6. Use of non-programmable electronic pocket calculator permissible.
7. Mobile and any other communication devices are not allowed in exam hall.
8. Assume suitable data wherever necessary.

APPLIED CHEMISTRY
SECTION-2

Q5. Answer any five.

a. Define Isotopes and Isobars with an example.
b. Write two properties and two uses of benzoic acid.
c. Write electronic configuration of sodium and potassium.
d. Write the structure of (i) but-2-ene and (ii) 2-bromo-2-chloro-propane.
e. Write the properties and uses of (i) caustic soda (ii) baking soda.
f. Explain the concept of hard and soft water.

Q6. Write short note on Any three.

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a. Write the assumptions of Bohr’s atomic model.
b. Explain acids and bases on the basis of Arrhenius and Lewis theories.
c. Explain the classification of organic compounds.
d. Write the molecular formula and molecular weight of hydrogen peroxide. Give its two uses and properties.

Q7a. What are halogenated hydrocarbons? How is carbon tetrachloride is prepared?

b. What are aromatic compounds? Write the structural formula for (i) benzoic acid (ii) phenol and (iii) aniline.

Q8. a. Explain the disadvantages of hard water for domestic and industrial purposes.
b. Explain the concept of acidity and alkalinity.

c. Explain homologous series with an example.