

Syllabus for ESE July 2020

SCIENCE AND SOCIETY

Unit I: Introduction to Science:

(13 Hours)

A. What is Science & History of Science

(4 hrs.)

What is Science? The revolutions in Physics - Contributions of Copernicus and Galileo; A brief history of the Renaissance in Europe; Age of Enlightenment; Industrial Revolution; Science in the 20th century.

- **Modern Science and the Scientific Method**

(2 hrs.)

A discussion on hypothesis, experimentation, criteria for experimentation, theorizing, and the open-ended nature of the scientific quest

- **Science in other Cultures**

(2 hrs.)

A brief exploration of science and technology in pre-modern era with emphasis on India in areas of Mathematics, Metallurgical Sciences, Medicine and Health

B. The interdependence of Science and Technology

(3 hrs.)

- Molecular basis of disease and vaccination

(1hr.)

- Laser and photonics applications

(1 hr.)

- Microscopy and applications

(1 hr.)

C. Science and the Public

(2 hrs.) Discussion

on the need for an informed public in a democracy about S&T, Science policy and research funding, S&T and development

Unit II: Modern Science and its impact on Societies:

(13 Hours)

- **Theory of Evolution:**

(1 hr.)

A lecture summarizing the modern theory of evolution of species and its implications

- **Discovery of Antibiotics:**

(2 hrs.)

What is an antibiotic and how does it work? A brief history of the discovery of antibiotics and its impact on health. Adversities due to misuse of antibiotics

- **Soaps, Detergents, Polymers and Chemicals:**

(2 hrs.)

Their use and abuse

- **Genetics and human health:**

(2 hrs.)

Introduction to gene, DNA and basis of heredity; some issues of health linked to genetics

QUESTION PAPER PATTERN

Max marks: 70

1. 70 MCQs 1 mark each 1 x 70 =70marks

