

# SCIENCE AND TECHNOLOGY (Theory)

## CLASS X

Time: 2:45 Hours

Max. Marks: 75

*You will **NOT** be allowed to write during the first 10 minutes.*

*This time is to be spent in reading the question paper*

**The time given at the head of this paper is the time allowed for writing answers**

- Please check that this question paper contains 3 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 30 questions
- Please write down the serial number of the question before attempting it.

- (I) The question paper comprises of two sections. A & B . you are to c both the sections.
- (II) The candidates are advise to attempt all the questions of Section A separately & Section B separately.
- (III) All question are compulsory.
- (IV) There is no overall choice. However, internal choice has been provided in some question. You are to attempt only one option in such question
- (V) Marks allocated to every question indicated against it.
- (VI) Question number 1-5 in section A & 21- 23 in section B are very short answer questions. These are to be answered in one word or one sentence.
- (VII) Question number 6-10 in section A & 24- 25 in section B are very short answer questions. These are to be answered in 30-40 word each.
- (VIII) Question number 11-17 in section A & 26- 29 in section B are very short answer questions. These are to be answered in Question number 1-5 in section A & 21- 23 in section B are very short answer questions. These are to be answered in one word or one sentence.
- (IX) Question number 18-20 in section A & 30 in section B are very short answer questions. These are to be answered in 70 words each.

### SECTION – A

1. What do you mean by Instantaneous rate of reaction a reaction?  
1
2. Write IUPC of the foing:  
1  
(i)  $C_2H_5COOH$  (ii)  $C_2H_5COCH_3$
3. Name the main constituent of natural gas  
1
4. What is critical angle ?  
1

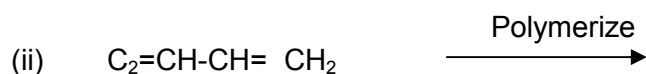
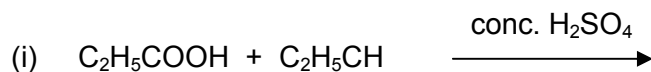
5. What will be the current drawn by an electric bulb of 40W when it is connected to a source of 200 V.

1

6. What is efflorescence? What happens when washing soda is heated in air?

2

7. Complete the following reactions:



**OR**

What happens when

(i) Ethanol reacts with sodium

(ii) Aldehyde is treated with Tollen's reagent.

2

8. What is presbyopia? How will you correct it?

2

9. What do you mean by electroplating? State one purpose for which electroplating is done.

2

10. What are the differences between bar magnet & electromagnet?

2

11. 0.0 mole of HCl is added to prepare 2.0L of solution. Calculate the pH of this HCl solution.

3

**OR**

What is common ion effect? What is effect of adding an acid & alkali to water?

12. How is cement manufactured? What is the purpose of adding gypsum to cement?

3

13. What do you mean by liquation method & oxidative refining method?

3

14. Draw with a neat labeled diagram the construction & working of a biogas plant.

3

15. What do you mean by geothermal energy? State the advantages & disadvantages of geothermal energy.

**OR**

How do we locate the position of the pole star in the sky? Why is the pole star so special?

3

16. Explain how a Uranium nucleus behaves like a drop of liquid.

3

17. How are protostars formed? What do you mean by supernova explosion?

3

18. Derive the mirror formula of a concave mirror

5

**OR**

With a neat diagram explain how a astronomical telescope works. Express the magnification produced by telescope.

19. a. How is sulphur extracted by French process?  
b. Why is sulphuric acid called the king of chemicals?

**5**

**OR**

How is Iron extracted from hematite ore? What is the function of adding limestone in the extraction of iron?

20. A bulb is rated at 200V-100W. What is its resistance? Five such bulbs burn for 5 hours. What is the electrical energy consumed? Calculate the cost if the rate is Rs. 2.50 per unit.

**5**

**SECTION –B**

21. Give the full form of IUCDs with one example.  
**1**
22. Name the vascular bundle, which transport plant hormones. Name the only H<sub>2</sub>O conducting element in non-flowering plant.  
**1**
23. Who proposed biogenetic law? What does it state?  
**1**
24. Write the 4 modes of solid disposal.  
**2**
25. What do you mean by Assimilation?  
**2**
26. a. How brain is protected?  
**2**  
b. Which lobe of cerebrum is responsible for :  
(i) Visual reception  
(ii) Smell & conscious association  
**3**
27. Why metaphase stages of cells division is considered best stage to study chromosome? Explain with example(s) that 'Karyotype' can be useful for the study of disorders in human.  
**3**
28. Write the major green house gas other than CO<sub>2</sub>. How do these gases effect the environment?  
**3**
29. What is excretion? Describe the process in Earthworms.  
**3**
30. Describe the primary & accessory organs associated with the production and transportation of human male gametes.  
**5**