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- Board Papers / Activity Sheets from March 2020 to July 2024 with detailed solutions
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SSC

2020 to 2024

BOARD SOLVED PAPERS

SCIENCE AND TECHNOLOGY PART - 1 & 2

(English Medium)

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 - Includes Board Activity Sheets from March 2020 to July 2024
 - Provides detailed solutions to all Board Activity Sheets
- Time Management Strategies

Offers effective strategy for managing time

• Chapter-wise Marks Analysis

Provides a breakdown of marks for each chapter in Board Activity Sheets

• Smart Exam Preparation Tips

Includes smart tips for effective exam preparation

Topper's Answer Sheets

Offering insights into effective writing style, structure

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PREFACE

SSC 10th Board Examination is the first big milestone in a student's academic journey and it is common for students to experience a range of emotions including stress, anxiety, challenge of maintaining motivation. Effective time management and balancing revision are key to navigating this period successfully.

One proven strategy to ease these challenges is to study previous years' Board Papers. By reviewing these Board papers, students gain valuable insights into the actual examination, understand the pattern in which a questions are designed and can better strategise how to tackle the paper. This approach not only boosts confidence but also helps in alleviating some of the stress associated with the unknowns of the exam.

Target's 'SSC Board Solved Papers: Science and Technology Part – 1 & 2' includes the most recent format of the Board's Activity Sheets and an Effective Time Management tool for the Board Exam Paper. This will help students understand the kinds of questions they might see in the exams and optimize exam performance.

Includes chapter-wise marks analysis of Board Activity Sheets, which can significantly enhance exam readiness and contribute to better performance.

Board Activity Sheets from March 2020 to July 2024 are provided making it easier for students to spot the latest trends in the questions. Detailed solutions are provided which will help students prepare thoroughly for their board exams.

We have incorporated *Smart Tips* throughout the book. These tips serve multiple purposes, including guiding students on effective question-solving approaches, highlighting common pitfalls to avoid, fostering lateral thinking for problem-solving and demonstrating simple yet effective methods for verifying answers

Topper's Answer Sheets is special inclusion in this book which provides valuable understanding of writing style, structure and content that helped them excel in the examination.

We are sure our **Target's SSC Board Solved Papers: Science and Technology Part – 1 & 2** will prove to be extremely instrumental in achieving exemplary scores in the Board Examinations

Publisher

Edition: First

The journey to create a complete book is strewn with triumphs, failures and near misses. If you think we've nearly missed something or want to applaud us for our triumphs, we'd love to hear from you.

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A book affects eternity; one can never tell where its influence stops.

Best of luck to all the aspirants!

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Exam Strategy: Paper Pattern and Time Management

- There will be separate question papers for Part 1 and Part 2 of 40 marks each.
- Duration of each paper will be 2 hours.

Question No.	Type of Questions	Total Marks	Time Management
Q.1 (A)	5 Questions of 1 mark each (MCQs)	05	10 mins
Q.1 (B)	5 Questions of 1 mark each	05	10 mins
Q.2 (A)	3 Questions of 2 marks each (Scientific Reasoning) (Solve any 2)	04	10 mins
Q.2 (B)	5 Questions of 2 marks each (Solve any 3)	06	15 mins
Q.3	8 Questions of 3 marks each (Solve any 5)	15	45 mins
Q.4	2 Questions of 5 marks each (Solve any 1)	05	20 mins
	To Review and Re-checking	-	10 mins
Total		40 Marks	120 mins

Distribution of marks according to question type and aims

Sr. No.	Question type	Marks	Marks with option	% Marks
1.	Objective	10	10	25
2.	Very short answer	10	16	25
3.	Short answer	15	24	37.5
4.	Long answer	5	10	12.5
	Total	40	60	100

Sr. No.	Aims	Marks	Marks with option	% Marks
1.	Knowledge	10	15	25
2.	Understanding	10	15	25
3.	Application	16	24	40
4.	Skill	4	6	10
	Total	40	60	100

[Maharashtra State Board of Secondary and Higher Secondary Education, Pune - 04]



Chapterwise Weightage of Board Activity Sheets (2020-2024)

Month & Year Chapter No.	March 2020	December 2020	March 2022	July 2022	March 2023	July 2023	March 2024	July 2024
1	5	6	5	6	5	5	5	5
2	6	7	6	9	7	6	6	6
3	7	8	5	4	6	6	6	6
4	7	7	8	7	7	7	7	7
5	5	5	5	5	5	5	5	5
6	6	7	7	6	6	7	7	7
7	6	6	6	7	6	6	6	6
8	6	3	6	8	6	6	6	6
9	7	7	7	5	8	7	7	7
10	5	4	5	3	4	5	5	5
Total	60	60	60	60	60	60	60	60

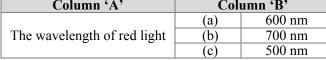


N 000

Seat No.

2020 III 16 1100 – N 000 – SCIENCE AND TECHNOLOGY (72) – PART I (E)

	BOARD ACTIVITY SHEET: MARCH 2020					
Tim	ne: 2	Hours (Pages	4)	Max. Marks: 40		
(1) (2) (3) (4) (5) (6) Note:	All questions All questions of the results of the r	instructions: nuestions are compulsory. of the calculator is not allowed. numbers to the right of the questions indicate full n use of MCQs (Q. No. 1(A)) only the first attempt win each MCQ the correct alternative (A), (B), (C), ever. Eg. (i) (A) (ii) (B) (iii) (C) ntifically and technically correct labelled diagrams ust carefully read all instructions before starting th	ll be evaluated and will be giv (D) with subquestion number C) s should be drawn wherever no	r is to be written as an ecessary.		
Q.1.	(A) i.	Write the <i>correct</i> alternative: According to Mendeleev's periodic law, propert	ies of elements are periodic f	[05 Marks] unction of their		
		(A) Atomic numbers (E) (C) Densities (E)	,			
	ii.	The vapour content in the air is measured using a (A) Absolute humidity (E) (C) Dew point (D)	B) Relative humidity D) Humidity			
	iii.	For the normal human eye, the near point is at(A) 10 (B) 20 (C)	$\frac{\text{cm.}}{\text{C)}}$ 25 (D)	30		
	iv.	The astronomical object closest to us is(A) Mars (B) Venus (C	is our galaxy. C) Jupiter (D)	Moon		
	v.	In the Wilfley table method, the particles of g method.				
		(A) Magnetic (B) Froth floatation (C	C) Hydraulic (D)	Gravitational		
Q.1.	(B) i.	Answer the following: Find the odd one out: Voltmeter, Ammeter, Thermometer, Galvanomet	er.	[05 Marks]		
	ii.	Complete the correlation: Alkene: C = C:: Alkyne:				
	iii.	State true or false: The frequency of AC is 50 Hz.				
	iv.	Match the Columns:				
		Column 'A' Column '				
		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	00 nm			



Name the first artificial satellite sent by Russia in space.



Q.2. (A) Give scientific reasons (any two):

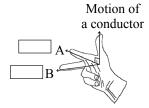
[04 Marks]

- i. The weight of an object changes from place to place though its mass is constant.
- ii. Stars twinkle but we do not see the twinkling of planets.
- iii. Elements belonging to the same group have the same valency.

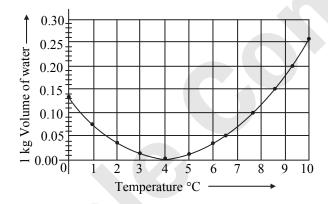
Q.2. (B) Answer the following (any three):

[06 Marks]

- i. How much heat energy is necessary to raise the temperature of 5 kg of water from 20°C to 100°C?
- ii. Observe the given figure of Fleming's Right Hand Rule and write the labels of A and B correctly.



iii. Observe the given graph and answer the following questions:



- a. Name the process represented in the figure.
- b. At what temperature does this process take place?
- iv. Complete the given chemical reaction:

$$CuSO_{4(aq)} + Fe_{(s)} \rightarrow \underline{\hspace{1cm}} + \underline{\hspace{1cm}}.$$

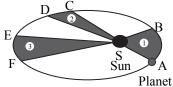
Name the type of the reaction.

w. Write a short note on alloying.

Q.3. Answer the following (any five):

[15 Marks]

- i. An element has its electronic configuration as 2, 8, 2. Now answer the following questions:
 - a. What is the atomic number of this element?
 - b. What is the group of this element?
 - c. To which period does this element belong?
- ii. Observe the given figure showing the orbit of a planet moving around the Sun and write the *three* laws related to it:



The orbit of a planet moving around the Sun



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SCIENCE AND TECHNOLOGY PART - I

BOARD ACTIVITY SHEET SOLUTION: MARCH 2020

Q.1 (A) i. (B)

- ii. (A)
- iii. (C)
- iv. (D)
- v. (D)

Q.1 (B)

- i. Thermometer
- ii. Alkene: $C = C :: Alkyne: C \equiv C$
- iii. True

i٧.

i.

Column 'A'	Column 'B'
The wavelength of red light	(b) 700 nm

v. Stupnik

Q.2 (A)

- a. Mass is a fundamental quantity whose value remains same everywhere. Hence, the mass of an object on earth will not change from place to place.
 - b. Weight of an object is product of mass and gravitational acceleration,
 i.e., W= F = mg
 - c. As the weight depends on the value of acceleration due to gravity (g) which changes from place-to-place, the weight of an object changes from place to place though its mass is constant.
- ii. a. Due to the motion of atmospheric air and change in density and temperature, the atmosphere is not steady. As a result, refractive index of air in given region changes continuously and randomly.
 - b. Due to this, the position and brightness of the star keep changing continuously and the star appears to be twinkling
 - c. The rays of light from a planet pass through the atmosphere of the earth. As compared to stars, planets are nearer to earth. So a planet can be considered as a collection of large number of point sources of light.
 - d. If the intensity of light from one point source decreases, it increases from the other source. Thus, the average intensity remains the same.

Hence, stars twinkle but we do not see the twinkling of planets.

iii.

- The electronic configuration of the outermost shell is same for all the elements belonging to the same group.
- b. So, the number of valence electrons for all the elements in a group is the same.
- The valency of an element is determined by the valence electrons.
 Hence, elements belonging to the same group have the same valency.

Q.2 (B)

i. Solution:

Given: Mass (m) = 5 kg, specific heat of water (c) = 1 kcal/kg $^{\circ}$ C

Change in temperature ($\Delta T)$ = 100 - 20 = 80 $^{\circ}\text{C}$



To find: Heat energy (Q)

Formula: $Q = m c \Delta T$

Calculation: According to principle of heat exchange,

Energy supplied to water = Energy gained by water

From formula,

 $Q = 5 \times 1 \times 80 = 400 \text{ kcal}$

Ans: Heat energy necessary to raise temperature of water is 400 kcal.

ii. Label A: Direction of magnetic field

Label B: Direction of induced current

iii. a. Anomalous behaviour of water

b. This process takes place between the temperature interval of 0 $^{\circ}$ C to 4 $^{\circ}$ C.

iv. a. $CuSO_{4(aq)} + Fe_{(s)} \longrightarrow FeSO_{4(aq)} + Cu_{(s)}$

b. This reaction is displacement reaction.

v. a. The homogenous mixture formed by mixing a metal with other metals or nonmetals in certain proportion is called an alloy.

b. Majority of the metallic substances used presently are in the form of alloys. The main intention behind this is to decrease the intensity of corrosion of metals.

c. For example, bronze is an alloy formed from 90% copper and 10 % tin. Bronze statues do not get affected by sun and rain. Stainless steel does not get stains with air or water and also does not rust. It is an alloy made from 74% iron, 18% chromium and 8% carbon.

d. In recent times various types of alloys are used for minting coins.

Q.3

- i. a. The atomic number of the element is 12.
 - b. The group number of the element is 2.
 - c. The element belongs to period 3.

ii. a. Kepler's first law: The orbit of a planet is an ellipse with the sun at one of the foci.

b. Kepler's second law: The line joining the planet and the sun sweeps equal areas in equal intervals of time.

c. **Kepler's third law:** The square of orbital period of revolution of a planet around the Sun is directly proportional to the cube of the mean distance of the planet from the Sun.

iii. a. The 'live' and the 'neutral' wires have potential difference of 220 V.

b. Due to a fault in the equipment or if the plastic coating on the 'live' and the 'neutral' wires gives away the two wires come in contact with each other and a large current flows through it producing heat. This is known as short circuiting.

c. Fuse wire protects circuits and appliances by stopping the flow of any excess electric current.



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Exam Strategy: Paper Pattern and Time Management

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Q.1 (B)	5 Questions of 1 mark each [Objectives]	05	10 mins
Q.2. (A)	3 Questions of 2 marks each [Scientific Reasoning] (Solve any 2)	04	10 mins
Q.2 (B)	5 Questions of 2 marks each (Solve any 3)	06	15 mins
Q.3.	8 Questions of 3 marks each (Solve any 5)	15	45 mins
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[Maharashtra State Board of Secondary and Higher Secondary Education, Pune - 04]



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2	3	6	6	7	5	6	6	6
3	7	7	7	7	8	7	7	7
4	7	7	7	7	7	7	7	7
5	6	6	8	7	6	6	6	6
6	9	6	6	6	7	6	6	7
7	9	6	6	4	5	6	6	6
8	6	6	4	6	6	6	6	6
9	6	6	6	6	6	6	6	6
10	2	5	5	4	5	5	5	5
Total	60	60	60	60	60	60	60	60



N 000

Seat No.							
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2020 III 18 1100 - N 000 - SCIENCE AND TECHNOLOGY (72) - PART II (E)

BOARD ACTIVITY SHEET: MARCH 2020

Tim	ne: 2 Hours	(Pages 3)	Max. Marks: 40
Impo	rtant instructions:		
(1)	All questions are compulsory.		
(2)	Use of calculator is not allowed.		
(3)	The numbers to the right of the que	estions indicate full marks.	
(4)	In case of MCQs [Q. No. 1 (A)] on	ly the first attempt will be evaluated a	and will be given credit.
(5)	For every MCQ, the correct alternanswer.	native (A), (B), (C) or (D) with subqu	uestion number is to be written as an
	For e.g. i. (A) ii. (B) iii. (C)		
(6)	Scientifically correct, labelled diag	grams should be drawn wherever nece	essary.
Note.	•		
Stude	ents must carefully read all instruction	ons before starting the exam, as they i	may change from year to year.

Choose the correct option: [05 Marks] Q.1. (A) Transfer of information from molecule of DNA to mRNA is called _____ Transcription Translation (B) (C) Translocation (D) Mutation ii. Body breaks up into several fragments and each fragment starts to live as a new individual. type of reproduction. (A) Budding (B) Fragmentation (C) Regeneration Binary fission Incomplete combustion of fuels leads to formation of iii. Carbon monoxide Carbon dioxide (A) (B) (C) Chlorofluorocarbon (D) Hydrogen sulphide The spindle fibres start appearing from ____ stage of karyokinesis. iv. Prophase (B) Metaphase (A) Anaphase Telophase (C) (D) Salts which can be used as supplement of calcium and iron are obtained from (A) Carbonic acid (B) Acetic acid (C) Citric acid Gluconic acid (D) Solve the following questions: Q.1. (B) [05 Marks] i. Find odd one out: Drying, Salting, Cooking, Soaking with sugar. ii. Write the correct co-relation: Annelida: Earthworm :: Platyhelminthes: iii. State whether True/False: Tobacco containing substances cannot cause cancer of mouth and lungs. iv. Write function of testes.



v.

I am connecting link between Reptilia and mammals. What is my name?

Page no. **72** to **63** are purposely left blank. To see complete chapter buy **Target Notes**

SCIENCE AND TECHNOLOGY PART - II

BOARD ACTIVITY SHEET SOLUTION: MARCH 2020

Q.1	i.	(A)						
(A)	ii.	(B)						
	iii.	(A)						
	iv.	(B)						
	٧.	(D)						
Q.1	i.	Cooking						
(B)	ii.	Annelida: Earthworm :: Platyhelminthes: <u>Planaria /Liver fluke /Tape worm</u>						
	iii.	False						
	iv.	Testes produce sperms and secrete the hormone testosterone.						
	V.	Duck-billed platypus						
Q.2 (A)	i.	a. Family planning is the practice of controlling the number of children one has and the intervals between their births.						
		 b. India is currently facing the problem of population explosion. c. The population explosion may lead to overconsumption of natural resources and may affect the environment indiscriminately. This may lead to increase in poverty, illiteracy, etc. Hence, Indians should follow family planning for controlling the population. 						
	ii.	 a. While exercising the muscle cells perform anaerobic respiration. b. During anaerobic respiration in muscle cells, lactic acid accumulates in the body. c. Lactic acid accumulation is a result of the process of fermentation during which glucose is broken down by anaerobic respiration, forming organic acids. d. Also, the production of ATP is comparatively less during anaerobic respiration. Hence, we feel exhausted after exercising. 						
	iii.	 The sources of energy which are being produced continuously in nature and are inexhaustible, i.e., they are always available for use are called renewable sources of energy. 						
		 b. Hydroelectric energy, solar energy, wind energy are produced from energy sources like water, sunlight and wind respectively that are produced continuously in nature and will not get depleted. Thus, hydroelectric energy, solar energy and wind energy are called renewable energies. 						
Q.2 (B)	i.	Cancerous ulceration due to exposure to high radiations of X-rays						
		Changes in genetic constitution Effect of Radioactive Pollution Destruction of tissues of the body						
		Adverse effects on vision						



ii.

	Aves	Mammalia
a.	Mammary glands are absent.	Mammary glands are present.
b.	They are completely adapted for aerial life.	They are mostly terrestrial animals with some exceptions like dolphin, bat, etc.
c.	Body is divided into head, neck and trunk.	Body is divided into head, neck, trunk and tail.
d.	Exoskeleton is present in the form of feathers.	Exoskeleton is present in the form of hairs or fur.
e.	Digits are covered with scales and bear claws.	Digits are provided with nails, claws or hooves.
	e.g. Peacock, penguin, parrot, pigeon, duck. etc.	e.g. Elephant, human, kangaroo, dolphin, bat, etc.

[Any four points]

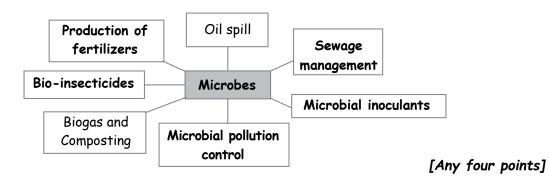
- iii. The given picture depicts a railway accident. Following are the effects of railway accident:
 - a. Injury to people
- b. Loss of life
- c. Damage of railways
- d. Economic loss

[Any two effects]

- iv. Some of the ways to reduce stress are as follows:
 - a. Maintaining good communication and expressing our feelings to friends, peers, cousins, teachers and parents or noting them down in a diary.
 - Utilizing the free hours in fostering hobbies like material collection, photography, reading, cooking, sculpting, drawing, making rangoli, dancing, singing, listening to music, etc.
 - c. Diverting energy and mind towards positive thinking, so as to neutralize the negative thoughts. Regular exercising, getting a massage, practicing yoga and meditation.
 - d. Laughing loudly so as to relieve stress.
 - e. Playing sports and outdoor games so as to involve physical exercise, inculcate discipline, increase interaction with others, drive away loneliness, etc.
 - f. Inculcating traits like time management, planning of our own duties and taking own decisions.
 - g. If any of the above methods fail to reduce stress and leads to more serious problems like depression and frustration, then medical help, counselling and/or psychotherapy should be taken.

 [Any four points]

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