

SSC

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Newton's Academy

Science Part 1

Time: 2 Hours
Max. Marks: 40

- Note:**
- i. All questions are compulsory.
 - ii. Use of a calculator is not allowed.
 - iii. The numbers to the right of the questions indicate full marks.
 - iv. In case of MCQs (Q. No. 1(A)) only the first attempt will be evaluated and will be given credit.
 - v. For every MCQ, the correct alternative (A), (B), (C) or (D) with subquestion number is to be written as an answer.
For Eg.: (i) (A), (ii) (B), (iii) (C)
 - vi. Scientifically correct, labelled diagrams should be drawn wherever necessary.

Q.1. (A) Choose the correct alternative: [5]

- i. The device used for producing current is called _____.
(A) A voltmeter (B) An ammeter
(C) A galvanometer (D) A generator
- ii. If a ray of light passes from a denser medium to a rarer medium in a straight line, the angle of incidence must be _____.
(A) 0° (B) 30° (C) 60° (D) 90°
- iii. The power of convex lens of focal length 20 cm is _____.
(A) +5.0 D (B) 0.20 D (C) -5.0 D (D) 0.5 D
- iv. Good conductor of electricity is _____.
(A) Bromine (B) Iodine (C) Graphite (D) Sulphur
- v. The height of medium earth orbit above the surface of the earth is:
(A) 1,500 km (B) 250 km (C) 45,000 km (D) 25,000 km

(B) Answer the following questions: [5]

- i. Find the odd man out:
Loudspeaker, Microphone, Electric motor, Magnet.
- ii. Complete the co-relation:
CuI₂ : Brown :: AgCl : _____
- iii. Match the pair:

Group 'A' Substance	Group 'B' Refractive index
Air	(a) 1.33
	(b) 1.46
	(c) 1.0003

- iv. State True or False:
"Wavelength of red light is close to 700 nm."
- v. Write the name of small satellite made by a group of students from COEP (College of Engineering, Pune) sent to the space through ISRO in 2016.

Q.2. (A) Give scientific reasons (any two): [4]

- i. For electric power transmission, copper or aluminium wire is used.
- ii. Lemon or tamarind is used for cleaning copper vessels turned greenish.
- iii. Elements belonging to the same group have the same valency.

(B) Answer the following questions (any three):

[6]

- i. How do we feel about air in each of the following conditions?
 - (a) Relative humidity is more than 60%.
 - (b) Relative humidity is less than 60%.
- ii. Complete the following reaction:

$$\text{C}_{12}\text{H}_{22}\text{O}_{11} \xrightarrow{\text{heat}} \text{_____} + \text{_____}$$
- iii. Distinguish between Mass and Weight.
- iv. Complete the following table:

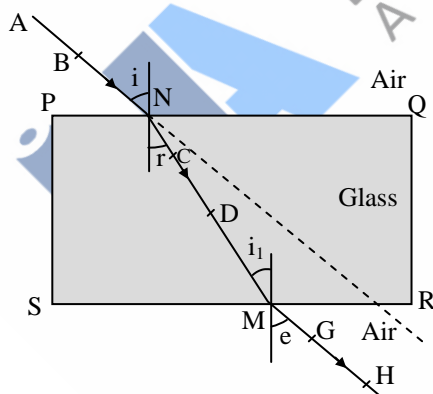
Type of Satellite		The names of Indian Satellite and launcher
1.	Navigational	Satellite : _____
	Satellite	Launcher : _____
2.	Earth observation	Satellite : _____
	Satellite	Launcher : _____

- v. Define periods and groups of modern periodic table.

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

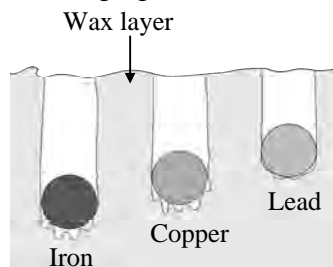
[15]

- i. Calculate the escape velocity on the surface of the moon given the mass and radius of the moon to be 7.34×10^{22} kg and 1.74×10^6 m respectively. (Given: $G = 6.67 \times 10^{-11}$ Nm²/kg²).
- ii. An element has its electron configuration as 2, 8, 1. 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 the element belong?
- iii. Observe the figure and name the ray AB, ray CD, ray GH:



- iv. Read the following sentence and answer the questions:
 "NaCl is an ionic compound."
 - (a) Why is NaCl an ionic compound?
 - (b) State any two properties of ionic compounds.
- v. Identify the physical and chemical changes from the following phenomena:
 - (a) Transformation of ice into water.
 - (b) Ripening of fruit.
 - (c) Milk turned into curd.
 - (d) Evaporation of water.
 - (e) Digestion of food in the stomach.
 - (f) Iron filings get attracted towards the magnet.

- vi. Observe the following figure and answer the questions:



Specific heat capacity of metals

- (a) Which element has maximum specific heat capacity? Justify.
 (b) Which element has minimum specific heat capacity? Justify.
 (c) Define specific heat of object.
- vii. Identify figures A, B, C and given their uses:

(A)



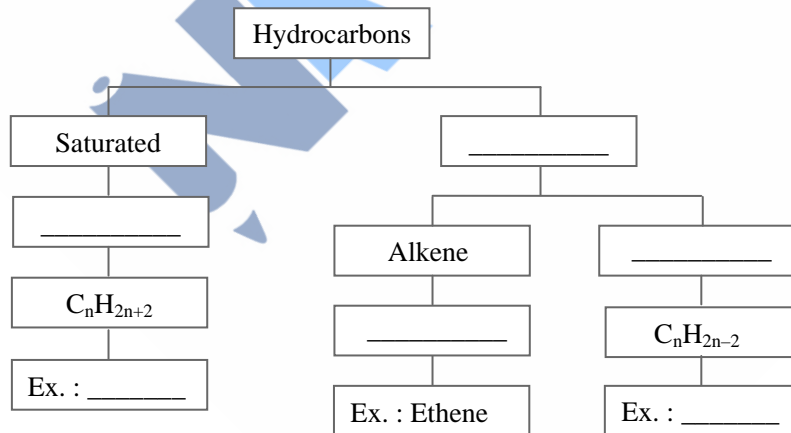
(B)



(C)



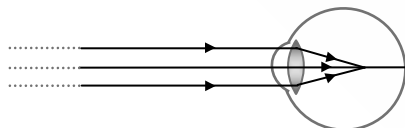
- viii. Complete the following flow chart:



Q.4. Answer any one of the following questions:

[5]

- i. Observe the figure and answer the following questions:



- (a) Name the defect of vision represented in above figure.
 (b) State the reasons for this defect.
 (c) How is it corrected?
 (d) Draw the diagram to show the correction of this defect.

ii. Complete the following table:

S.N.	Common Name	Structural Formula	IUPAC Name
1.	Ethylene	$\text{CH}_2 = \text{CH}_2$	_____
2.	Acetylene	_____	Ethyne
3.	Acetic acid	$\text{CH}_3 - \text{COOH}$	_____
4.	Methyl alcohol	_____	Methanol
5.	_____	$\text{CH}_3 - \text{CO} - \text{CH}_3$	Propane-2-one

