KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION – 32
SAMPLE PAPER 03 FOR SA – II (2016–17)

SUBJECT: SCIENCE

BLUE PRINT : SA–II CLASS IX

Unit/Topic	VSA/MCQ (1 mark)	Short answer (2 marks)	Short answer (3 marks)	Long answer (5 marks)	Total
Atoms and Molecules	1(1)	--	9(3)	--	**10(4)**
Structure of Atoms	1(1)	2(1)	--	5(1)	**08(3)**
Biological Diversity	2(2)	2(1)	--	10(2)	**14(5)**
Health and Diseases	1(1)	--	6(2)	5(1)	**12(4)**
Gravitation (Flotation)	3(3)	2(1)	6(2)	--	**11(6)**
Work and Energy	2(2)	4(2)	6(2)	--	**12(6)**
Sound	2(2)	--	6(2)	5(1)	**13(5)**
Natural Resources *	--	2(1)	3(1)	5(1)	**10(3)**
Total	**12(12)**	**12(6)**	**36(12)**	**30(6)**	**90(36)**

*Note: The material for Open Text Based Assessment (**OTBA**) for SA-II will be from Unit - IV: Our Environment (Natural Resources). This unit will be tested through **OTBA** only.

MARKING SCHEME FOR SA – II

SECTION	MARKS	NO. OF QUESTIONS	TOTAL
VSA	1	3	03
SA – I	2	3	06
SA – II	3	12	36
LA	5	6	30
Practical based MCQs	1	9	09
	2	3	06
GRAND TOTAL			**90**

SUBJECT: SCIENCE	**MAX. MARKS : 90**
CLASS : IX	**DURATION : 3 HRS**

General Instructions:
1. All questions are compulsory.
2. The question paper comprises of **two Sections, A** and **B.** You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. Question numbers **1 to 3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
5. Question numbers **4 & 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **6 to 16** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
7. Question numbers **17 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. **Section B** has **3 OTBA** questions, Question number **22** is **two marks**, Question number **23** is **three marks** and Question number **24** is **five marks** question.
9. Question numbers **25 to 33** in **Section-C** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
10. Question numbers **34 to 36** in **Section-C** are questions based on practical skills and are **two marks** questions.

SECTION – A

1. If a body works 120 joules in one minute, what is its power?

2. What is the form of energy possessed by a running car?

3. Write the name of the subatomic particle discovered by J. Chadwick. What type of charge occurs on this particle?

4. Define work. Write an expression for work in terms of force and displacement. State ST unit of work done.

5. If the number of molecules in a given sample of sulphur dioxide (SO_2) is 3.011×10^{23}, calculate the number of moles in the given sample.

6. (a) How many electrons are present in the valence shell of nitrogen, oxygen and argon ?
   (b) Nucleus of an atom has 5 protons and 6 neutrons. What is the atomic number, mass number and electronic configuration of the atom ?

7. In a submarine equipped with sonar, the time between transmission of ultrasonic signals and the reception of the echo after reflection is found to be 80 s. Find the distance of the obstacle (from submarine). Speed of sound in water is 1530 m/s.

8. Raju of Class IX was suffering from chickenpox. His friends Priya and Shaurya wanted to visit him. Shaurya's parents did not allow him to go. Priya already had suffered from it few months before. Priya's parents allowed her to visit him. What could be the reason behind their parents' decision ? What is the basis of principle of immunization ?

9. (a) Define the atomic mass unit.
   (b) Write the chemical formulae of : (i) Ammonium carbonate (ii) Sodium oxide
   (c) Write the name of the compound $Al_2(SO_4)_3$ and mention the ions present in it.

10. Differentiate between infectious and non-infectious diseases (any three differences).

11. A labourer whose own mass is 50 kg carries a load of an additional 60 kg on his head to the top of a building 15 m high. Find the total work done by him. Also find the work done by him if he carries another additional block of mass 10 kg to the same height. (Take g = 10 m/s^2)

12. State the law of conservation of mass. If 2 g of carbon is burnt in the presence of 32 g of oxygen, how much carbon dioxide will be formed?

13. Dev while watching a show named "Mega-structures" on television observed that metal blocks are used in the construction of big-structures. Workers for detecting flaws or defect inside the metal blocks were using ultrasound.
   (a) What is ultrasound ? Write its two other applications.
   (b) What value of Dev's nature depicts from this context ?

14. Find the ratio of the pressure exerted by a block of 400 N when placed on a table top along its two different sides with dimensions 20 cm x 10 cm and 10 cm x 15 cm.

15. What is the difference between density of a substance and its relative density? Write SI unit of both.

16. In a factory 10 bulbs of 50 W each and 5 fans of 70 W each operate for 12 hours daily. Calculate the units of electricity consumed. Also find the total expenditure if 1 unit costs Rs. 2.

17. Describe Rutherford's α-particle scattering experiment and mention the important observations and conclusions drawn from this experiment.

18. (a) Does the sound of an exploded cracker in air travel faster than the sound produced by a humming bee ? State reason.
   (b) List the three characteristics of a sound wave and state the factors on which these depend.
   (c) State the SI units of wavelength and frequency.

19. (a) State two characteristics features of Amphibians.
   (b) What are the differences between amphibians and reptiles?
   (c) Why bryophytes are called the amphibians of the plant kingdom?

20. Explain how animals in Vertebrata are classified into further subgroups.

21. Health is not merely absence of diseases. How can we define health ? Classify diseases on the basis of:
   (i) Duration of the diseases
   (ii) Cause of the diseases. Give one example of each type.

SECTION – B (OTBA)
(THEME –2 : HEALTHY ENVIRONMENT, HEALTHY PEOPLE)

22. List the impact of consuming fish with high mercury levels on human health.

23. List any three priority problem areas, based on the evidence of the linkages between poor environmental quality and health.
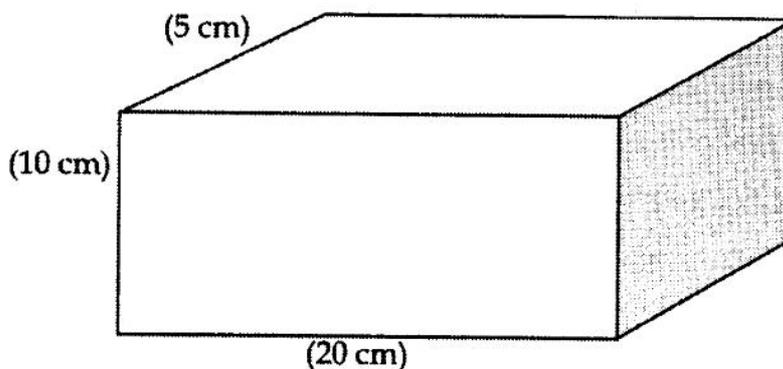
24. Discuss the impact of chemicals on human health through a case-study other than those mentioned in the text.

<div align="center"><u>SECTION – C</u></div>

25. When we add lead nitrate solution to sodium chloride solution, a precipitate of lead chloride and sodium nitrate solution are obtained. To prove the law of conservation of mass, which of the following statements is correct ?
(a) Mass of lead nitrate = Mass of sodium chloride
(b) Mass of lead nitrate + Mass of sodium chloride = Mass of lead chloride + Mass of sodium nitrate
(d) Mass of lead chloride + Mass of sodium chloride = Mass of lead nitrate + Mass of sodium nitrate
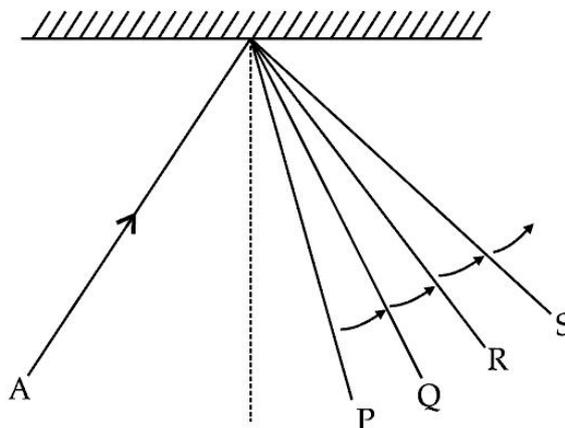(d) Mass of sodium chloride + Mass of sodium nitrate = Mass of lead chloride + Mass of lead nitrate

26. A student is doing an experiment to find the pressure exerted by an iron cuboid of mass 10 kg on ground as shown below (g = 10 m/s^2):

The pressure exerted by the shaded portion of the cuboid when placed on the ground is (g = 10m/s^2)
(a) 5 x 10^4 Pa   (b) 2 x 10^4 Pa
(c) 4.5 x 10^4 Pa   (d) 3 x 10^4 Pa

27. In which of the positions shown in the diagram, the sound source placed at A will be heard the loudest from the plane mirror?

(a) P   (b) Q
(c) R   (d) S

28. Plants which never bear flowers or seeds are grouped under:
(a) Phanerogams   (b) Cryptogams

(b) Spermatophyta   (d) Angiosperms

29. The feature that is not a characteristic of protochordata?
    (a) Presence of notochord
    (b) Bilateral symmetry and coelom
    (c) Jointed legs
    (d) Presence of circulatory system

30. Larva of a mosquito develops :
    (a) on decaying material
    (b) under the surface of water
    (c) on the surface of water
    (d) at the base of the water body

31. A person is carrying a bucket of water in one hand and a wooden block in the other hand. After transferring the wooden block to the bucket the person will carry:
    (a) more load than before
    (b) less load than before
    (c) same load as before
    (d) none of these

32. Four students immersed an object both in salty water and tap water separately and measured their weight using spring balance, and concluded the following. Which is the right conclusion?
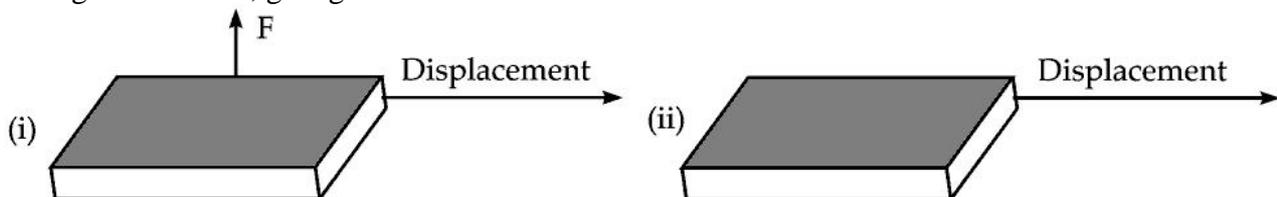   (a) The loss of weight of the object is less in salty water than in tap water.
    (b) There is no loss of weight in salty water and in tap water.
    (c) The loss of weight is equal in salty water and in tap water.
    (d) The loss of weight of the object is more in salty water than in tap water.

33. We choose a slinky of larger length to perform experiment on speed of pulse because :
    (a) pulse cannot be formed on a short slinky.
    (b) pulse can move easily in it.
    (c) time taken to move from one end to another can accurately be determined.
    (d) it is easier to perform.

34. (a) Define one joule of work.
    (b) What will be the work done in the following situations? State whether it will be positive, negative or zero, giving reason in each case

35. A force of 75 N acts on area of cross section 25×10^{-4} m². What is the magnitude of pressure?

36. Give one importance of feathers for birds. To which phylum do they belong?

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