

**JB Academy**  
**Annual Examination : 2019-20**  
**Class IX (Science)**

**Time: 3 hours**

**MM : 80**

**Instructions:**

1. All sections are compulsory.
  2. Question paper is divided into three sections-'A' , 'B' and 'C'.
  3. Section-A (1 mark each), Section-B (3 mark each), Section-C (5 mark each)
  3. Internal choice is given.
  4. Draw diagram wherever required.
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**SECTION : A**

1. The weight of an object at the centre of the earth of radius 'R' is :  
(a) Zero (c) R times the weight at the surface of the earth  
(b) Infinite (d)  $1/R^2$  times the weight at surface of the earth
2. Which one of the following is not unit of energy :  
(a) Joule (b) Newton Metre (c) Kilowatt (d) Kilowatt hour
3. Earth quake produces which kind of sound before the main shock wave begins :  
(a) Ultrasound (b) Infrasound (c) Audible sound (d) None of these

**OR**

- Infrasound can be heard by :
- (a) dog (b) bat (c) rhinoceros (d) human beings
4. Which can make you ill if you come in contact with an infected person?  
(a) high blood pressure (b) sneezing  
(c) blood cancer (d) genetic abnormalities
  5. Cell theory was given by  
(a) Virchow (b) Robert Hooke  
(c) Schleiden and Schwann (d) Haeckel

**OR**

- Soil erosion can be prevented by
- (a) raising forests (b) deforestation  
(c) excessive use of fertilizer (d) overgrazing by animals
6. Evaporation causes  
(a) Heating (b) Cooling  
(c) Neither heating nor cooling (d) Sometimes heating sometimes cooling.
  7. Valency of Helium atom is  
(a) 2 (b) 1 (c) 0 (d) 3
  8. Which of the following is a liquid metal  
(a) Mercury (b) Bromine (c) copper (d) Gallium

9. Identify a member of porifera  
(a) spongilla (b) euglena (c) penicillium (d) hydra
10. Answer the following questions in one word/one sentence :
- (a) Define one Newton.  
(b) Are rest and motion absolute or relative terms?  
(c) When body is thrown vertically upwards, what is its final velocity?

**OR**

- If the mass of a body is 9.8kg on the earth, what would be its mass on the moon?
- (d) Give one difference between kingdoms Monera and Protista.  
(e) Name a disease caused by a protozoa and also name the causal organism.  
(f) Name one indigenous and one exotic breed of cow.  
(g) What is the boiling point of liquid oxygen??  
(h) Which property of Naphthalene is mainly responsible to use it as moth ball ?  
(i) What is the name of  ${}^3_1H$  atom ?

For question no. 12 and 13, two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes(a), (b), (c) and (d) as given below :

- (a) Both A and R are true and R is correct explanation of A  
(b) Both A and R are true ,but R is not the correct explanation of A  
(c) A is true , but R is false.  
(d) A is false, but R is true.
11. Assertion (A) : The unit of density is kilogram per metre square.  
Reason (R) : The density of substance is the mass of a unit volume of the substance.
12. Assertion (A) : Nuetron is made up of proton and electron therefore it is nuetral.  
Reason (R) : Nuetron does not contain any charge ,therefore it is nuetral.

**SECTION : B**

13. (a) What is relative density? What is its unit?  
(b) The volume of 50 gm of a substance is 20 cm<sup>3</sup>. Calculate its density. Will the substance float or sink?
14. (a) Derive unit of force using second law of motion.  
(b) A force of 5N produces an acceleration of 8m/s<sup>2</sup> on a mass m<sub>1</sub> and an acceleration of 24m/s<sup>2</sup> on a mass m<sub>2</sub>.What acceleration would the same force provide ,if both the masses are tied together?

**OR**

- (a) Explain, why some of the leaves may get detached from a tree, if we vigorously shake its branch.  
(b) A stone is allowed to fall from the top of tower 200m high. At the same time, another stone is projected vertically upwards from the ground with a velocity of 40m/s. Calculate when and where the two stones will meet?

15. Derive third equation of motion graphically
16. Name the animal tissue that
  - a) act as protective layer of the body.
  - b) is responsible for movement of body parts and locomotion
  - c) is responsible for transmission of messages.
17. What are antibiotics ? Why are they not effective against viral diseases ?
18. What is biogeochemical cycle ? Draw carbon cycle and explain it.
19. What are cold blooded animals ? Write five adaptive features of aves.
20. Two elements X and Y combine in the ratio of 3 : 8 by mass to form a compound Z. Z is also one of the greenhouse gas. Identify X, Y and Z. Write electronic configuration of X and Y.

**OR**

Propose the formula and names of the following compounds.

- (a)  $K^+$  and  $I^-$  (b)  $Na^+$  and  $SO_4^{2-}$  ions (c)  $Fe^{3+}$  and  $O^{2-}$  ions.
21. What are polyatomic ions ? Give one example of a polyatomic cation and a polyatomic anion.  
What are Metalloids?
  22. (a) Differentiate between Isotopes and Isobars with 2 points and example.  
(b) Define 1 U.

**OR**

- (a) Naturally occurring Li is found in nature in the form of two Isotopes Li -6 (7.42%) and Li - 7(92.58%). Find the average atomic mass of Li.
- (b) Draw atomic structure of a chlorine atom.

### SECTION : C

22. (a) Define frequency and wavelength with reference to sound.  
(b) What is an echo?  
(c) Write full form of SONAR.  
(d) Calculate the wavelength of a sound wave whose frequency is 200Hz and speed is 440m/s in a given medium.
23. State and derive law of conservation of energy.

**OR**

- (i) Explain types of work-done with one example each.
- (ii) If an electric iron of 1200 W is used for 30 minutes everyday, find electric energy consumed in the month of April.

24. What is a disease ? How is a disease free person different from a healthy person? What are chronic diseases? How are they different from acute diseases? Give one example of chronic disease.
25. What are the different cropping patterns ? Explain one main difference between intercropping and crop rotation. Explain sustainable agriculture and its importance.

**OR**

What is a permanent tissue? Classify permanent tissues. Where are the following tissues found?

- a) Collenchyma                      b) Aerenchyma
26. (a) 7 g of Nitrogen react with 8g of oxygen to form a compound. What will be the formula of the compound?  
(b) What is Centrifugation ? On which principle it is based ? List two applications of this method.
27. In 196 g of  $H_2SO_4$   
(a) Calculate the no. of moles.                      (b) No. of molecules  
(c) Total no. of atoms (Atomicity)                      (d) no. of Hydrogen and Oxygen atoms.

**OR**

- (a) Enlist the features of Rutherford's Model of an Atom with diagram. Also point out its drawback.  
(b) On which factors solubility of a solid solute depends in a solid-liquid solution.

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