N9GHSC3

SUMMATIVE EXAMINATION II – 2016-17
SCIENCE
Class IX - C

Time: 3½ Hrs   **Marks 90**

General Instructions:

(i) **The question paper comprises of three sections A, B and C and 36 questions**. You are to attempt all the sections.

(ii) All questions are compulsory.

(iii) There is no choice in any of the questions.

(iv) All questions of Section A, Section B and Section C are to be attempted separately.

(v) Question numbers 1 to 3 in Sections-A are one mark questions. These are to be answered in one word or in one sentence.

(vi) Question numbers 4 to 5 in Section-A are two marks questions. These are to be answered in about 30 words each.

(vii) Question numbers 6 to 16 in Sections-A are three marks questions. These are to be answered in about 50 words each.

(viii) Question numbers 17to 21 in Section-A are five marks question. These are to be answered in about 70 words each.

(ix) 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.

(x) 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.

(xi) Question numbers 34 to 36 in Section-C are two marks questions based on practical skills. These are to be answered in about 30 words each.

SECTION A

1. What is the difference between 2N and N_2?   1

2. Atom of an element has **THREE** shells and the last shell has **FOUR** electrons. What is its atomic number   1

3. How are members of protochordata different from those of vertebrata?   1

4. Radius of an iron sphere is 0.21 cm. If the density of iron is 7.8 g/cm³, calculate it's mass.   2

5. A person hears an echo from the top of a tower, 2.2 seconds after the   2

sound is produced. How far away is the tower from the person? Speed of sound in air is 332m/s

6   (a) Calculate molecular mass of nitric acid - HNO_3 3
(Atomic mass of H= 1u, N=14u, O=16u)

(b) Write the chemical formula of the following compounds

    (i)   Potassium Carbonate   (ii) Aluminium Nitrate

(c) Write the correct name of the following compounds
    (i) $Mg(OH)_2$ (ii) $KHCO_3$

7   (a) What was the drawback in the Rutherford's model of an atom? How   3
did Neil Bohr's model overcome this drawback?
(b) An element 'X' having 3 valence electrons combines with element 'Y' with 6 valence electrons. Write the chemical formula of the compound formed by X and Y.

8   The atomic number and mass number of an element are 16 and 32   3
respectively. **Find the number of protons, electrons and neutrons in it. State its valency. Is this element a metal or a non – metal**. Give reason for your answer.

9   Write one feature of similarity and one dissimilarity between each of the   3
following pairs:
(a)   Bryophyta and Pteridophyta
(b)   Protista and Monera
(c)   Pteridophyta and Angiosperms

10   Explain with three suitable examples how different microbes enter the   3
human body in different ways and home in on specific organs.

11   A man has power of 90W and mass 60Kg runs up a staircase in 40   3
seconds. If each step of staircase is 20 cm high, calculate the number of steps

12   Mention three salient features each for phylum Echinodermata and   3
phylum Coelenterata

13   The pressure exerted by a cube of side 3 cm on a surface is 10 Pa.   3
Calculate the thrust exerted by the cube.

14   (a) A household has a 100 W lamp lighted for 2 hours, two 60 W lamps   3

2 | P a g e

lighted for 4 hours and an electric fan of 50 W working for 8 hours a day. Calculate the electric energy consumed each day and express it in commercial unit.

(b) What energy transformation takes place in the following?

(i) Dry cell   (ii) Electric fan

15   Define echo. Can we hear echo in a small room. State reason. Differentiate between echo and reverberation.

16   During the vacations, Nitin visited his native village. He observed that for washing clothes, villagers used water from the well. Out of curiosity he drew water from the well and observed that the bucket full of water appeared to be heavier as it came out of water. Answer the following questions based on the above information: 3

(a) Name the principle that made the bucket lighter in water.

(b) Explain why the bucket appears to be heavier in air.

(c) Which values are reflected in Nitin's behaviour?

17
a) The number of atoms in one mole of hydrogen gas is double the number of atoms in one mole of helium gas. Give reason   5

b) Give one example of an **element which is**
   (i) diatomic   **(ii) tetra atomic**

c) Define mole.

d) What mass of ammonia (NH_3) gas will have the same number of molecules as 11g of carbon dioxide gas (N= 14 u, H=1 u, C= 12 u, O=16 u)

18
a) How does the body fight infection or resist attacks by pathogens?   5

b) How is the immune system fooled into creating immunity in infancy or early childhood?

19
a) Using a flow chart, explain the criteria used by Robert Whitaker in classifying living organisms.   5

b) What are the rules of binomial nomenclature? Who proposed this system?

20   The sound of an explosion on the surface of a lake is heard by a man 150m away and by a diver 150 m below the point of explosion. Answer the following: 5

(a) Explain who will hear the sound of explosion first.

(b) If sound takes t seconds to reach the man, how much time will it take to reach diver? (speed of sound in air is 344m/s and in water 1533 m/s)

3 | P a g e

(c) Give the audible range of the man. Give one example each of organisms which use waves of

   (i) lower than   (ii) higher than this audible range

21 Ritwick's family received a heavy electricity bill and decided not to pay it. His friend Sujoy explained to them the importance of paying all bills on time and suggested some methods to reduce the units consumed in future.   5

   (i)   Write the commercial unit of electrical energy.
   (ii)   What is its relation with the SI unit of energy?
   (iii) What quality of Sujoy do you observe from his suggestion?
   (iv)   List any two ways you practice at home to save electricity

SECTION – B (OTBA)

Theme-1(Solid Waste Management- How to bring best out of waste?) It is supplied with this question paper.

22 What are biomedical wastes? Write down its impact in our society.   2

23 Write a short note on bioreactor technology. Write two benefits of this technology.   3

24 Describe different types of solid wastes.   5

SECTION C

25 A student is doing an experiment to find the pressure exerted by an iron cuboid of mass 10 kg on the ground as shown below (g= 10 m/s2):   1
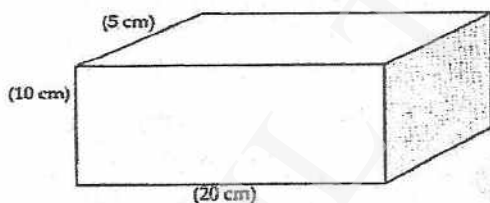

The pressure exerted by the shaded portion of the cuboid when placed on the ground is:

   a) 5×10^4 Pa
   b) 2×10^4 Pa
   c) 4.5×10^4 Pa
   d) 3×10^4 Pa

26 For effective reflection of sound, the tubes used in the experiment should have: 1

   a) Equal lengths around 25 to 30 cm
   b) Any length and may be unequal

c) Equal lengths but not short

d) No conditions on the length of the tube

27 While measuring time taken by the pulse to move in the slinky, Gauri 1
forgot to set the time to zero in the stop watch in which its hand was at 15
sec. At the end of the experiment the needle stops at 40 sec. The time
taken by the pulse to travel in the slinky was:

a) 70 sec

b) 25 sec

c) 115 sec

d) 45 sec

28 A student mixed 52.8 g of barium chloride solution with an unknown mass 1
of a solution of sodium sulphate. The total mass of the solutions after the
reaction between the two chemicals was found to be 120.5 g. Assuming
that the experiment was conducted without any error, the initial mass of
sodium sulphate should be

(a) 60.7g

(b) 67.7g

(c) 52.8g

(d) 173.3g

(e)

29 2gm of hydrogen reacts with 16grams of Oxygen to form 18g of water. If 1
5 g of hydrogen is allowed to react with oxygen, the mass of oxygen
required for the complete reaction with hydrogen will be:

(a) 32g

(b) 80g

(c) 40g

(d) 16g

30 Which among the following is not an aerial adaptation? 1

a) light hollow bones

b) streamlined body

c) waterproof skin covered with scales

d) forelimbs modified into wings

31 If you have a plant specimen with seeds but no fruit, you would be 1
identifying:

a) Marchantia

b) Moss

c) Mustard

d) Pinus

32 Identify the features which belong to monocots 1
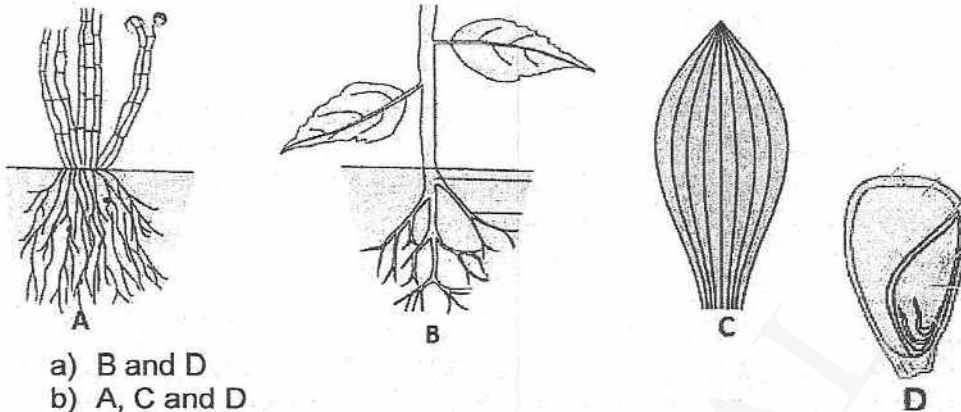
a) B and D
b) A, C and D
c) B, C and D
d) B and C

33 The floral parts of dicots are in multiples of   1

(a) 3 only
(b) 4 only
(c) 4 and 5
(d) 3 and 4

34 Look at the figure of a graduated cylinder given below and answer the   2
question that follows:
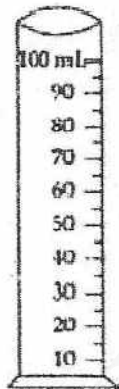
a)   What is the range of the device?

b)   Calculate the least count of the device.

35 An object of volume 200 cm³ is floating on water with half of its portion   2
inside the water as shown below. Find the volume and weight of the
water displaced by the object. (density of water = 1g/cc)
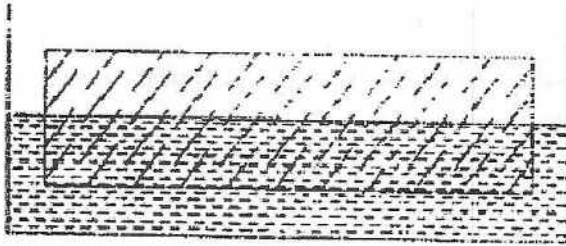
36   Name the various stages in the life cycle of a mosquito. Which of these   2
stages require water? How is the feeding habit of the male and female
mosquito different?