

Roll No.: 

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Date: 

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## NORTHWEST ACCREDITATION COMMISSION, USA GRADE 10<sup>TH</sup> 2017-2018

Subject- SCIENCE

Question Paper No. : 

S	C	3	4
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Subject Code : SC1005

Question Paper Code: 

S	T	7	2
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Total Time: 03.00 Hours.

Total Marks: 70

### GENERAL INSTRUCTIONS

#### 1. OPENING AND CHECKING OF THE QUESTION-BOOKLET

Break open the seal of the Question-Booklet only when the announcement is made by the Invigilator. After breaking the seal and before attempting the questions, student should immediately check for:

- a) The number of the printed page in the Question-Booklet is the same as mentioned on the cover page of the Booklet and
- b) Any printing error in the Booklet pages, if any.  
Any discrepancy or error should be brought to the notice of the Invigilator who will then replace the Booklet. No additional time will be given for this.

2. No student, without the permission of the Superintendent or the Invigilator concerned, is to leave his/ her seat or the Examination Room.

#### 3. FILLING UP THE REQUIRED INFORMATION ON QUESTION-BOOKLET AND ANSWER SHEET

After breaking open the seal and checking the Booklet, student should:

- a) Fill up the **Question Paper No.** and **Question Paper Code** (mentioned on the cover of Question-Booklet) in the space provided on the First Answer Sheet.
- b) Fill up his/her Roll Number on the First Answer Sheet and on each Supplementary Answer Sheet, if taken.
- c) Student should mention the total number of **Supplementary Answer Sheet**, if taken, in the space provided on the First Answer Sheet and also fill up the Serial Number mentioned on each **Supplementary Answer Sheet** along with his/her Roll Number in the register maintained by the Invigilator. Student must tie all the Answer Sheets with the thread provided by the Invigilator.

#### 4. INSTRUCTIONS ABOUT QUESTION PAPER

This Question Paper is divided into three Sections – A, B and C. All Sections are compulsory. Attempt all Sections as per instructions.

- a) Section A question No. 1 to 4 are very short questions carrying 3 marks each in approximately 20-30 words.
- b) Section B question No. 5 to 11 are short questions carrying 4 marks each in approximately 30-50 words.
- c) Section C question No. 12 to 16 are long questions carrying 6 marks each in approximately 80-100 words.

5. Student found in possession of Cellular Phone / Mobile Phone / Pager or any other Communication Device and/or any Book/Note whether using or not, will be liable to be debarred for taking examination(s) either permanently or for specified period or/and dealt with as per law or/and ordinance of the School/SERI according to the nature of offence, or/and he/she may be proceeded against and shall be liable for prosecution under the relevant provision of the Statutory Law.

**THE ANSWER SHEET IS TO BE RETURNED ON COMPLETION OF THE TEST**

This Question Paper MUST be attached with Answer Sheet

## SECTION A

Total number of questions: 4	Marks allocated to each question: 3	Total marks: 12
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- Question 1.** Write the name and structure of an aldehyde with four carbon atoms in its molecule.
- Question 2.** List two functions ovary of human female reproductive system.
- Question 3.** In a food chain of frog, grass, insect and snake, assign trophic level to frog.
- Question 4.** The construction of large dams leads to social and environmental problems. List two problems of each category.

## SECTION B

Total number of questions: 7	Marks allocated to each question: 4	Total marks: 28
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- Question 5.** Write three different chemical reactions showing the conversion of ethanoic acid to sodium ethanoate. Write balanced chemical equation in each case. Write the name of the reactants and the products other ethanoic acid and sodium ethanoate in each case.
- Question 6.** An element 'X' has mass number 35 and number of neutrons 18. Write atomic number and electronic configuration of 'X'. Also write group number, period number and valency of 'X'.

**OR**

Define addition reaction. Write its one industrial application. Which of the following hydrocarbons undergo addition reaction?



- Question 7.** Define reproduction. How does it help in providing stability to the population of species?
- Question 8.** Explain the term "Regeneration" as used in relation to reproduction of organisms. Describe briefly how regeneration is carried out in multicellular organisms like Hydra.

**OR**

Which of the two is a better option:

- (a) To collect rainwater in ponds or artificial lake or  
(b) To let it recharge groundwater by water harvesting? List four advantages of the option chosen to justify your answer.

**Question 9.** "Two areas of study namely 'evolution' and 'classification' are interlinked". Justify this statement.

**Question 10.** How do Mendel's experiment show that traits are inherited independently?

**OR**

State and describe in brief any three main factors responsible for the rise of new species.

**Question 11.** Describe an activity to show that colors of white light splitted by a glass prism can be recombined to get white light by another identical glass prism. Also draw ray diagram to show the recombination of the spectrum of white light.

### SECTION C

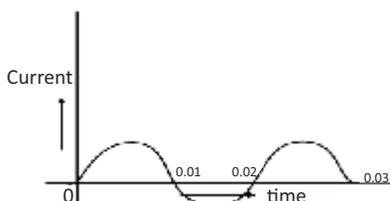
Total number of questions: 5	Marks allocated to each question: 6	Total marks: 30
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**Question 12.** Draw a neat diagram of human male reproductive system and label Prostate gland, seminal vesicle and testis. State the function of testis.

**OR**

- State two advantages of vegetative propagation .Name two plants in which it is practiced.
- How does Hydra reproduce ? Explain with the help of labeled diagram.

**Question 13.** You are given following current-time graphs from two different sources:



- Name the type of current in two cases.
- Identify any one source for each type of these currents.
- What is the frequency of current in case II in India?
- Use above graphs to write two difference between the current in two cases.
- What is the advantage of AC over DC?

OR

In a household electric circuit different appliances are connected in parallel to one another. Give two reasons. An electrician puts a fuse of rating 5A in that part of domestic electrical circuit in which an electrical heater of rating 1.5kW, 220V is operating. What is likely to happen in this case and why? What change, if any, needs to be made?

**Question 14.** Draw ray diagrams to show the formation of a three times magnified (i) real image (ii) virtual image of an object kept in front of a converging lens. Mark the positions of object, F, 2F, O and position of image clearly in the diagram.

An object of size 5 cm is kept at a distance of 25 cm from the optical centre of a converging lens of focal length 10cm. Calculate the distance of the image from the lens and size of the image.

OR

- (a) Explain the mechanisms of the cleansing action of soaps.
- (b) Detergents are effective in hard water but soaps are not. Why?

**Question 15.** (a) Draw the ray diagrams for the image formation by a concave mirror when the object is at  
(i) infinity (ii) between F and C (iii) between P and F  
(b) Explain why we prefer to use a convex mirror as a rear view mirror in vehicles?  
(c) Write any two uses of a concave mirror.

OR

- (a) An object is placed at a distance of 15cm from a convex mirror of focal length 20cm. Find the position and nature of the image.
- (b) Define refractive index. Light enters from air to diamond having refractive index 2.42. Find the speed of light in the diamond. The speed of light in vacuum is  $3 \times 10^8$ m/s.

**Question 16.** With the help of a suitable example, explain how ionic compounds are formed. State any three general properties of ionic compounds.

OR

- (a) Write two differences between autotrophic and heterotrophic nutrition.
- (b) Draw a diagram showing cross - section of a leaf and label on it  
(i) Phloem (ii) Xylem (iii) Vascular bundle and (iv) Lamina.

END OF THE QUESTION PAPER