

# Science & Technology (English) (Old Course)

This Question Paper contains 12 Printed Pages.

Sl. No.

**N-11 (E)**  
(OLD COURSE)  
(MARCH, 2013)

પ્રશ્નપત્રના સેટનો ક્રમાંક જે ઉમેદવારે  
OMR sheet માં ઘટ્ટે કરવાનો છે.  
Set No. of Question Paper which  
is to be darken in OMR sheet.

**15**

## **PART - A**

*Time : 60 minutes*

*[Maximum Marks : 50*

### **Instructions :**

- (1) There are **50** objective type questions in this part and **all** are **compulsory**.
  - (2) The questions are serially numbered from **1** to **50** and each carries **1** mark.
  - (3) You are supplied with separate OMR sheet with the alternatives (A) , (B) , (C) , (D)  against each question number. For each question, select the correct alternative and darken the circle  as  completely with the pen against the alphabet corresponding to that alternative in the given OMR sheet.
- From the following **1** to **50** questions, select the correct alternative from the given four answers and darken the circle with pen against the alphabet, against the number in OMR sheet.
  - Each question carries **1** mark.

1. In Electrolytic refining for purification of metals, there always occurs ..... at cathode.  
(A) Oxidation (B) Ionization  
(C) None of the given three. (D) Reduction
2. In 'Hall-Heroult' method, which substance is used to bring down the melting point?  
(A) Cryolite (B) Bauxite  
(C) Limonite (D) Copper Sulphate
3. .... is used in the chemical production of Methanol and Hydrochloric acid.  
(A) Ammonia (B) Hydrogen  
(C) Calcium (D) Sulphur
4. The ornaments contain ..... parts gold and 4 parts of mixture of Copper or Silver, then the ornaments are called as of 20 carat gold.  
(A) 22 (B) 18  
(C) 20 (D) 24

5. Scientist ..... discovered the "laws of Planetary motion."
- (A) Feynman (B) Johan Kepler  
(C) Rutherford (D) K. Ericson
6. If in a solution; concentration of  $\text{H}_3\text{O}^+$  increases then value of pH ....
- (A) Increases. (B) Remains same.  
(C) No effect. (D) Decreases.
7. Which of the following source of energy is not associated with Solar energy ?
- (A) Hydel Energy  
(B) Geo thermal Energy  
(C) Wind Energy  
(D) Fossil Fuel
8. The full form of OTEC is .....
- (A) Ocean Tidal Energy Conversion.  
(B) Ocean Temperature Energy Conversion.  
(C) Ocean Thermal Energy Conservation.  
(D) Ocean Thermal Energy Conversion.
9. How many satellites does Venus possesses ?
- (A) 31 (B) 8  
(C) 0 (zero) (D) 30
10. Which of the following is not an artificial satellite ?
- (A) Rohini (B) Phobos  
(C) Sross (D) Insat

11. The magnetic field due to an electric current in a conductor is .....
- (A) In the opposite direction of electric current.
  - (B) Perpendicular to the direction of current.
  - (C) Circular around the conductor.
  - (D) In the direction of electric current.
12. The value of Solar constant is .....  $\text{KW/m}^2$ .
- (A) 1.535
  - (B) 1.348
  - (C) 1.624
  - (D) 1.353
13. How many Neutrons are released at the end of each splitting of an atom ?
- (A) 2 to 5
  - (B) 4 to 5
  - (C) 1 to 2
  - (D) 2 to 3
14. Silicon is .....
- (A) Insulator
  - (B) Semi conductor
  - (C) Super conductor
  - (D) Conductor
15. If two electric bulbs of same wattage are joined (connected) in series, and if one bulb blows off then .....
- (A) Second Electric bulb will not glow at all.
  - (B) Second Electric bulb will glow for sometime & then blows off.
  - (C) Second Electric bulb will glow with bright light.
  - (D) Second Electric bulb will give dim light.
16. In construction of fuse, ..... effect of electric current is used.
- (A) Chemical
  - (B) Heat
  - (C) Light
  - (D) Biological



[4]

17. The corresponding (subsequent) Aldehyde obtained from Methane is .....
- (A) Formic acid (B) Formaldehyde  
(C) Ethanol (D) Methanol
18. Which of the following organisms show parasitic mode of nutrition ?
- (A) Ascaris (B) Plasmodium  
(C) All the given three (D) Cascuta
19. In digestive system of which organism, Gizzard is found ?
- (A) Amoeba (B) Grasshopper  
(C) Earthworm (D) Man
20. How many chambers are present in human heart ?
- (A) 4 (B) 6  
(C) 8 (D) 2
21. In the following biological process, Oxygen is not required.
- (A) Photosynthesis (B) Fermentation  
(C) Nutrition (D) Aerobic Respiration
22. If solution of Ethanol contains 5% H<sub>2</sub>O (water), then that solution is called .....
- (A) Fertilizer (B) Insecticide  
(C) Copper sulphate (D) Rectified Spirit
23. .... is used in preparation of artificial leather and artificial fibres.
- (A) Acetone (B) Acetic acid  
(C) Carboxylic acid (D) Methanol

[5]

24. In living organisms, the number of chromosomes in comparison to the number of genes are ..... .
- (A) More (B) Equal  
(C) None (D) Less
25. Every living organism produces organism of its own kind. This phenomenon is known as .....
- (A) Reproduction.  
(B) Ageing.  
(C) Alternation of Generation.  
(D) Growth.
26. The time period before Menopause is called as .....
- (A) Embryo development.  
(B) Menstrual Cycle.  
(C) Puberty.  
(D) Gestation Period.
27. In males, the Testis produce ..... hormone.
- (A) Progesterone (B) Aldosterone  
(C) Testosterone (D) Oestrogen
28. In Scrotal sacs, ..... °C temperature is less (lower) than the body temperature.
- (A) 5 (B) 10  
(C) 6 (D) 3

29. Which method is used for removal of Sulphur dioxide gas and Ammonia gas released from polluted air in industries?
- (A) Absorption.
  - (B) Gravitational methods.
  - (C) Electrostatic precipitator.
  - (D) Wet Scrubbers.
30. In polluted water, BOD is ..... and in drinking water, BOD is .....
- (A) Less - Medium
  - (B) Medium - More
  - (C) Less - More
  - (D) More - Less
31. The unit of expression of genetic information from one generation to another generation is .....
- (A) RNA
  - (B) DNA-RNA
  - (C) None
  - (D) DNA
32. In which type of chromosome, the centromere are slightly displaced from the centre ?
- (A) Sub-metacentric
  - (B) Acrocentric
  - (C) Telocentric
  - (D) Metacentric
33. Volcano is ..... source of Air pollution.
- (A) Natural
  - (B) Both artificial and natural.
  - (C) Man made.
  - (D) Artificial

34. .... is added in Glass to obtain green coloured glass.
- (A) Manganese Oxide (B) Cobalt Oxide  
(C) Chromium Oxide (D) Ferric Oxide
35. .... is used as Oxidizing agent in chemical industries.
- (A)  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  (B)  $\text{CaOCl}_2$   
(C)  $\text{NaOH}$  (D)  $\text{NaHCO}_3$
36. Ammonia Soda process is used for production of ..... in industry.
- (A)  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  (B)  $\text{NaCl}$   
(C)  $\text{NaOH}$  (D)  $\text{NaH}_2\text{CO}_3$
37. The alloy of ..... is used for soldering of Electric wire.
- (A) Zinc and Nickel  
(B) Lead and Tin  
(C) Lead and Copper  
(D) Copper and Zinc
38. Arrhenius 'theory of acid-base' depends on .....
- (A) Proton-Transfer.  
(B) Acceptance of Electron pair.  
(C) Donation of Electron pair.  
(D) Ionization.
39. In  $\text{NaOH}$  solution if value of  $\text{pOH}$  is 2.5229, then  $\text{pH}$  value of solution is .....
- (A) 13.4771 (B) 11.4771  
(C) 10.4771 (D) 12.4771

[8]

40. The unit of Electric charge is .....
- (A) Ampere (B) Volt  
(C) Coulomb (D) Electron
41. The splitting of white light gives seven colours, in which the velocity of violet light is ..... and velocity of red light is .....
- (A) Highest - Least  
(B) Least - Highest  
(C) Maximum-Minimum  
(D) Same - Same
42. The molecular formula of Copper pyrite is .....
- (A)  $\text{CuFeP}_2$  (B)  $\text{CuFe}_2\text{P}_3$   
(C)  $\text{CuFeS}_2$  (D)  $\text{Cu}_3\text{Fe}_2\text{S}$
43. The boy is standing in front of plane mirror at a distance of 1.5 meter, then the distance between the boy and his image will be ..... cms.
- (A) 3 (B) 30  
(C) 3000 (D) 300
44. .... is weak acid, which immediately (speedily) converts into Sulphur dioxide and Water.
- (A)  $\text{H}_2\text{SO}_3$  (B)  $\text{H}_3\text{PO}_4$   
(C)  $\text{H}_4\text{SO}_4$  (D)  $\text{H}_2\text{SO}_4$
45. What is the most important property of Nano-materials ?
- (A) Friction (B) Pressure  
(C) Temperature (D) Force



46. Which part of human brain possesses 'Centre for visual reception' ?
- (A) Parietal lobe
  - (B) Temporal lobe
  - (C) Occipital lobe
  - (D) Frontal lobe
47. Which type of specific messages are conducted (carried) by hormones in human body ?
- (A) Physical
  - (B) Biological
  - (C) None
  - (D) Chemical
48. Which of the following plant hormone works (functions) as growth inhibitor ?
- (A) Auxin
  - (B) Gibberellin
  - (C) Cytokinin
  - (D) Ethylene
49. Through thin walls of ....., different substances present in blood get diffused in cells.
- (A) Arteries
  - (B) Blood Capillaries
  - (C) None of the given three.
  - (D) Veins
50. With the help of transverse band of nerves, Pons connects which two organs ?
- (A) Cerebellum and Central Nervous System.
  - (B) Both the Cerebral Hemispheres.
  - (C) Sympathetic and Parasympathetic.
  - (D) Nerves of Brain and Spinal cord.

# N-11 (E)

(MARCH, 2013)

## PART - B

*Time : 2.00 Hours]*

*[Maximum Marks : 50*

### **Instructions :-**

- (i) There are total **four** sections in this part.
- (ii) **All** questions are **compulsory**.
- (iii) Draw neat labelled diagrams wherever required.
- (iv) There are internal options in some questions. Pay attention to them.
- (v) Figures to the right indicate marks.

### **SECTION - A**

*Question number 1 to 5 are short answer type questions. Answer each question in word limit of 30 words. (Each question carries 2 marks)*

1. State the uses of Nano-crystals in Energy Resources. 2
2. Distinguish between the following :-  
Near Sightedness and Far Sightedness  
(State two points of difference) 2

**OR**

2. What is 'Solenoid' ? Explain its construction and working with diagram in brief.
3. Explain Electro-magnetic Induction. 2
4. State four limitations of Wind energy. 2

**OR**

4. Mention the tasks performed by Space shuttle in space. (Any four).
5. State four properties of 'Quick Lime'. 2

**OR**

5. State four uses of Ethanol.

**SECTION - B**

Question No.6 to 10 are short answer type questions. Answer each question in word limit of maximum 30 words. (Each carries 2 marks.) 10

6. Explain in brief "Photoperiodism". 2

**OR**

6. Write short note on "Oxidation Pond." 2
7. If electric bulb of 50 watt is used daily for 4 hours, then 2
- (a) Calculate the energy used (consumed) in one day.
- (b) Also calculate the energy used (consumed) in 30 days.

**OR**

7. Write the scientific devices for population control. Describe about any one device.
8. Derive an equation for parallel connection of resistances, i.e.

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \quad (\text{Diagram is not necessary}). \quad 2$$

9. What is 'Metal Corrosion'? Write any two methods for prevention of metal corrosion. 2
10. Write balanced chemical equation for the following - 2
- (a) Sulphur dioxide reacts with lime water.
- (b) Sulphur dioxide reacts with Hydrogen sulphide.

**SECTION - C**

Question Number 11 to 15 are short answer type questions. Answer each question in word limit of maximum 50 words. (Each carries 3 marks.)

11. Explain structure of Nephron with diagram. 3

**OR**

11. Write about Co-ordination in animals.



Science & Technology (Hindi)  
(Old course)

This Question Paper contains 12 Printed Pages.

Sl. No.

**N-11(H)**

(OLD COURSE)  
(MARCH, 2013)

प्रश्नपत्रका सेटनो क्रमांक ले उभेदवारे  
OMR sheet मां घट्ट करवानो छे.  
Set No. of Question Paper which  
is to be darken in OMR sheet

**15**

**PART - A**

**Time : 60 minutes]**

**[Maximum Marks : 50**

सूचनाएँ -

- (1) नीचे 50 वस्तुनिष्ठ प्रश्न दिए गए हैं। सभी प्रश्न अनिवार्य हैं।
- (2) नीचे दिये गये 1 से 50 वस्तुनिष्ठ प्रश्नों के गुण (अंक) समान हैं। प्रत्येक प्रश्न का 1 गुण है।
- (3) आपको अलग से दिये गये O.M.R. पत्रक में प्रत्येक प्रश्न के सामने (A) O, (B) O, (C) O, (D) O दिया गया है। प्रश्न का जो उत्तर सही हो, उसके विकल्प के पास निर्दिष्ट O (वृत्त) को पेन से भरकर सम्पूर्ण घट्ट ● करना है।

1 से 50 प्रश्नों के नीचे दिये गए 4 उत्तरों में से सही विकल्प चुनकर सही विकल्प के क्रम अक्षर पर O.M.R. पत्रक में पेन से पूरा गाढ़ा करें। (प्रत्येक का 1 गुण)

1. धातुओं की शुद्धिकरण की विद्युत-विभाजन पद्धति में कैथोड पर ..... होता है।  
(A) ऑक्सीडेशन (B) आयनीकरण  
(C) एक भी नहीं (D) रिडक्शन
2. हॉल-हेराउल्ट पद्धति में गलन बिन्दु नीचे लाने के लिए किस पदार्थ का इस्तेमाल होता है ?  
(A) क्रायोलाइट (B) बॉक्साइट  
(C) लिमोनाइट (D) कॉपर सल्फेट
3. .... का उपयोग मिथेनॉल व हाइड्रोक्लोरिक एसिड के रासायनिक उत्पादन में किया जाता है।  
(A) अमोनिया (B) हाइड्रोजन  
(C) कैल्शियम (D) सल्फर
4. जिस गहने में ..... भाग सोना और 4 भाग कॉपर अथवा चाँदी का मिश्रण हो, तो उसे 20 कैरेट सोना कहते हैं।  
(A) 22 (B) 18  
(C) 20 (D) 24