



THE H. B. KAPADIA NEW HIGH SCHOOL

AHMEDABAD, ENGLISH MEDIUM



SA-2 Examination (February - 2016)

Standard : X

Marks : 50

Subject : Science(11)

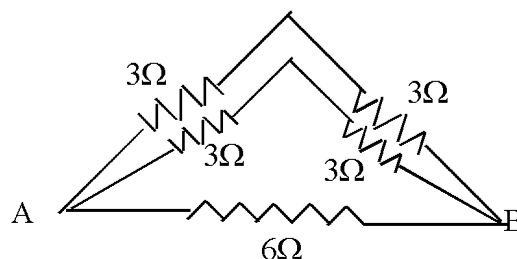
Duration : 1 hr.

Part - A

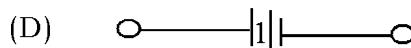
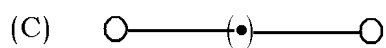
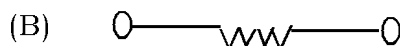
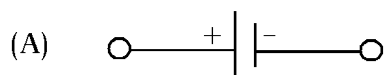
Instructions:

- There are 50 multiple choice questions in this paper.
- Each question carries one mark.

- Which instrument is used to manipulate atoms or molecules efficiently ?
(A) Electron Microscope (B) Optical Microscope
(C) Scanning Tunneling Microscope (D) Scanning Tuned Microscope
- Nano Science represents the study of _____.
(A) Optics (B) Quantum mechanics
(C) Wave mechanics (D) Classical mechanics
- Due to burning of engine fuel in Kirti's bicycle, smoke with blue colour is emitted because of _____.
(A) Tyndall effect (B) atmosphere refraction
(C) Total internal reflection (D) due to Looming effect
- I - a real image is always inverted; II - a virtual image is always erect.
(A) Only I is true (B) Only II is true
(C) I and II both are true (D) Neither I nor II is true
- If diopetre of lens is doubled, what will be its focal length ?
(A) half (B) double (C) one (D) constant
- Following is being discussed in class about human eye. Who is incorrect
(A) Vilas : Iris regulates/controls amount of light intering the eyes
(B) Ghanshyam : Image is formed on Retina.
(C) Rakesh : Eye lens helps changing size of pupil.
(D) Kinneri : ciliary muscles help eyelens to change its thickness.
- The image of any object seen persists on the retina for _____ second, even after the removal of the object
(A) 16 (B) 1/16 (C) 61 (D) 1/61
- What is the main principle involved in voltaic cell ?
(A) Conversion of chemical energy to electrical energy.
(B) Conversion of electrical energy to chemical energy.
(C) Conversion of chemical energy to heat energy.
(D) Conversion of heat energy to electrical energy.
- What will be the equivalent resistance between the points A and B of the following circuit ?
(A) 1Ω (B) 2Ω
(C) 3Ω (D) 4Ω



10. Which of the following circuit symbols is used to represent a resistor ?



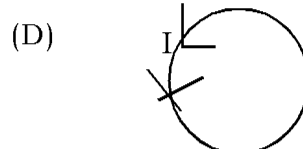
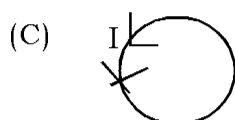
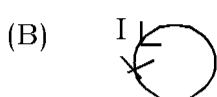
11. For plating an iron spoon with copper, copper plate should be joined at _____ .

- (A) +ve electrode (B) - ve electrode (C) gas electrode (D) all

12. Name the scientist who is not related with his contribution in the recent work in the field of electricity.

- (A) Maxwell (B) Dalton (C) Oersted (D) Faraday

13. In given figure below, centre of which ring has maximum magnetic field.



14. For domestic use in America the value of AC Voltage is _____ and its frequency is ____

- (A) 220V, 60Hz (B) 110V, 60Hz (C) 220V, 50Hz (D) 110V, 50Hz

15. Match the following :

section - I	section - II
1) Galileo 2) Ptolomy 3) Copernicus 4) John Kepler	a) Law of planetary motion b) Discovery of 4 satellites of Jupiter c) Earth - Centered model d) Sun - Centered model

(A) (1-b)(2-c)(3-d)(4-a)

(B) (1-a)(2-b)(3-c)(4-d)

(C) (1-c)(2-a)(3-b)(4-d)

(D) (1-d)(2-c)(3-a)(4-b)

16. I am living on different planet. I can withstand temperature between -173 °C to 427 °C

I can also live in presence of vapours of sodium and potassium. I am a resident of which planet ?

- (A) Venus (B) Mercury (C) Pluto (D) Mars

17. Which one of following is not true about Nakshatra ?

(A) The ecliptic of imaginary sphere which is divided into 27 equal parts and each of them is called nakshatra.

(B) Moon remains in each nakshatra for one day

(C) area of each nakshatra is 20°13'

(D) Sun stays in each nakshatra for 13.5 days.

18. How many Asteroids are there approximately ?

(A) 10^5

(B) 10^3

(C) 10^{11}

(D) 10^{22}

19. The students of a class discuss about acid base rule as follows :

Student-1 :A substance which donates proton to other substance is an acid.

Student-2 :A substance which accepts proton from other substance is base.

Student-3 :OH⁻ ion is not formed in NH₃, therefore it may not be a base.

Student-4 :OH⁻ ion is not formed in NH₃, then also it is a base.

Who is wrong in this group discussion ?

- (A) Student 1 & 2 (B) Student 3 & 4 (C) Only student 3 (D) Only student 4

20. The outer layer of teeth is made up hard substance _____ which does not dissolve in water.
 (A) Ca_3PO_2 (B) Ca_3PO_4 (C) CaO (D) $\text{Ca}_3(\text{PO}_4)_2$
21. What is the pH value of blood ?
 (A) 7.0 (B) 4.5 (C) 7.4 (D) 10.5
22. What is the approximate pH value of an aqueous solution if pH paper turns pink when dipped into it ?
 (A) 2 (B) 5 (C) 7 (D) 10
23. Which method is used to separate out solid and light particles from an ore ?
 (A) Roasting (B) Calcination (C) Magnetic Separation (D) Centrifugation
24. Make the correct Pair :

I	II
A) Steel B) Brass C) Bronze D) Magnesium	1)Copper, Tin 2)Iron, Carbon 3)Copper, Zinc 4)Aluminium, Manganese 5)Aluminium , Magnesium

- (A) (A-2)(B-3)(C-5)(D-4) (B) (A-2)(B-3)(C-1)(D-5)
 (C) (A-3)(B-2)(C-1)(D-5) (D) (A-3)(B-1)(C-2)(D-4)
25. $\text{Fe}_{(s)} + \text{H}_2\text{SO}_{4(aq)} \rightarrow \text{X} + 3\text{H}_{2(g)}$ than X = _____
 (A) $\text{Fe}(\text{SO}_4)_{2(aq)}$ (B) $\text{FeSO}_{4(aq)}$ (C) $\text{FeS}_{(aq)}$ (D) $\text{FeS}_{2(aq)}$
26. Which acid is diprotic ?
 (A) HNO_3 (B) HCl (C) H_2SO_4 (D) All
27. Ammonia is useful in making which of the following medicine ?
 (A) Methyl Salicylate (B) B.D. - Cold (C) Aspirin (D) Para Aminobenzoic Acid
28. A glass rod dipped in conc hydrochloric acid is placed near the vessel containing ammonia gas, _____ is formed as small particles.
 (A) NH_4OH (B) NaCl (C) NH_4Cl (D) NaOH
29. What is the general formula of alkyne series ?
 (A) $\text{C}_n\text{H}_{2n+2}$ (B) $\text{C}_n\text{H}_{2n-2}$ (C) C_nH_{2n} (D) C_nH_n
30. Hexane $\xrightarrow{\text{Cracking}}$ Butane + X. What is X ?
 (A) Ethyl chloride (B) Methyl Mercaptan
 (C) Methyl chloride (D) None
31. Match the correct Pair :
- | | |
|--------------------|----------------------|
| Part - I | Part - II |
| a) - COOH | (i) alcohol |
| b) >C=O | (ii) Ester |
| c) - CHO | (iii) ketone |
| d) - OH | (iv) carboxylic acid |
| e) - COOR | (v) aldehyde |
- (A)(a-i)(b-ii)(c-iii)(d-iv)(e-v) (B)(a-v)(b-iv)(c-iii)(d-ii)(e-i)
 (C)(a-iv)(b-iii)(c-v)(d-i)(e-ii) (D)(a-iv)(b-ii)(c-v)(d-iii)(e-i)
32. Check correctness about origin and discovery of petroleum ?
 (1) Mineral oil is a result of fossils of plant and animal kingdoms buried under the surface of sea in prehistoric times.
 (2) Oil wells were already created by nature
 (3) First ever well of petroleum was in Tittusville village
 (4) First well of petroleum in Asia was drilled in Dubai
 (A) TTFF (B) TTFF (C) TFFF (D) TTTT

33. There was not enough wind on the day of Uttarayan so kids started sending rubber balloons in sky filled with gas. Which gas would have been filled in balloons ?
 (A) Hydrogen (B) Acetylene (C) Nitrogen (D) Ammonia
34. The atom or the group of atoms by which the characteristic reactions of organic compounds are determined, that atom or group of atoms is called _____.
 (A) Functional group (B) Atom (C) Hydrocarbon (D) Compound
35. What is missing in esterification process shown below ?

$$\text{CH}_3\text{COOH}_{(l)} + \text{X} \xrightarrow[\text{H}_2\text{SO}_4]{\text{Conc.}} \text{Y} + \text{H}_2\text{O}_{(l)}$$

 (A) X: CH_3COCH_3 Y: CH_3OH (B) X: $\text{CH}_3\text{COOC}_2\text{H}_5$ Y: CH_3OH
 (C) X: $\text{C}_2\text{H}_5\text{OH}$ Y: $\text{CH}_3\text{COOC}_2\text{H}_5$ (D) X: CH_3OH Y: CH_3COCH_3
36. By which cells the structure of stomata is formed ?
 (A) Epidermal cells (B) Guard cells (C) Accessory cells (D) Leaf cells
37. Which converts starch to glucose, protein to amino acids and fats to glycerol ?
 (A) Salivary juice (B) Gastric juice (C) Pancreatic juice (D) Intestinal juice
38. The branches of artery are called _____.
 (A) arterilites (B) Venules (C) capillaries (D) none of these
39. Constituents of blood.
 1) RBC (A) Haemoglobin
 2) WBC (B) Soldier
 3) Thrombocyte (C) Blood clotting
 4) Lymphocyte (D) Immunoglobulin
 (A) (1-A)(2-B)(3-C)(4-D) (B) (1-D)(2-C)(3-B)(4-A)
 (C) (1-D)(2-C)(3-A)(4-B) (D) (1-A)(2-C)(3-D)(4-B)
40. Bowman's capsule possesses a mass of capillaries, which is known as ?
 (A) Veins (B) Blood capillaries (C) glomerulus (D) Arteries
41. How many pairs of nerves are in spinal cord ?
 (A) 21 (B) 31 (C) 41 (D) 51
42. The filaments of certain algae break again and again & each part develops as individual algae, which type of process is this ?
 (A) Fragmentation (B) Binary Fission (C) Multiple Fission (D) Budding
43. Which hormone/hormones are called hormones of fight or flight mechanism ?
 (A) ACTH, GH (B) TSH, GTH (C) Adrenaline (D) Oxytocin hormone
44. When will sex determination in human take place
 (A) During fission of unfertilized egg (B) When fertilized ovum is implanted in uterus
 (C) During fertilization (D) During sexual intercourse
45. From where is the origin of Homo sapiens ?
 (A) Philippines (B) Eurasia (C) Indonesia (D) Africa
46. The structural & functional unit of the environment is known as _____.
 (A) food chain (B) food web (C) ecosystem (D) none of these
47. Which type of source of air pollution, volcano is ?
 (A) artificial & natural (B) artificial
 (C) natural (D) None
48. Which leaves are used in the manufacture of Bidis ?
 (A) Eucalyptus (B) Banyan (C) Khakro (D) Tendu
49. How many National Parks are there in Gujarat ?
 (A) 5 (B) 4 (C) 21 (D) 24
50. Anuska makes a beautiful show piece using old computer CD-DVDs & other items. Which of the following are of saving environment she used ?
 (A) Reduce (B) Recycle (C) Reuse (D) Resource

BEST OF LUCK



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SA-2 Examination (February - 2016)

Standard	: X	Marks	: 50
Subject	: Science(11)	Duration	: 2 hrs.
		Date	: 08/02/2016

PART - B

Instructions:

- There are four sections in this question paper.
- All questions are compulsory.

SECTION - A

- Answer the following question according to marks : (2 marks each) (10)

1. Explain how surface area to volume ratio is important for nano- Structured materials.

OR

1. "Carbon forms the backbone of biology of life on the earth" Justify
2. Give the Definition of electric potential and mention its unit.
3. Explain Aromatization and Alkylation.
4. Write a short note on - Functions of lymphatic system
5. Distinguish between grazing food chain and Detritus food chain.

SECTION - B

- Answer the following question according to marks : (2 marks each) (10)

6. Write a short note on Jupiter
7. Name the hormones of the anterior pituitary lobe and explain two abnormalities caused due to GH
8. How will you prepare 100 ml 2M NaOH solution ?
9. What are Fossils ? Give the examples of the fossils.

OR

9. Distinguish between : Homologous organ and Analogous organ
10. Explain four approaches to the water management

SECTION - C

- Answer the following question according to marks : (3 marks each) (15)

11. Give the reason for two minutes early sunrise and two minutes delayed Sunset. and also explain why red light is used for danger.
12. What precaution should be taken during the use of electricity
13. Explain Properties of sulphuric acid and state its uses.
14. Write the preparation of ethanoic acid (acetic acid) and Mention uses

OR

14. Write short note : Condensation polymers
15. Explain Male reproductive system

SECTION – D

- **Answer the following question in detail : (5 marks each) (15)**

16. Explain the construction and working of a compound microscope with diagram.
17. Give the different methods for concentration of Ores and explain electrolytic process for purification of Cu along with figure.

OR

17. Explain Bayer's process
18. Explain the process of digestion with diagram

OR

18. Explain respiratory system with mechanism of respiration in human.

BEST OF LUCK