

BOARD - QUE PAPER  
**3**  
SOLUTION

**SOLUTIONS**

SCIENCE AND TECHNOLOGY  
**QUESTION PAPER-3 : MARCH-2016**

STANDARD-10  
**MARCH 2016**  
011(E)

• Part-A : Time : 1 Hour 15 minutes / Marks : 50 • Part-B : Time : 2 Hours / Marks : 50

**PART-A**

Time : 1 Hour 15 Minutes]

011(E)

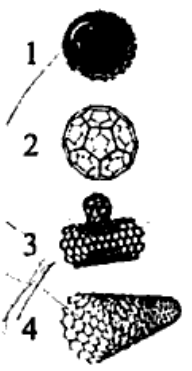
[Maximum Marks : 50

- Instructions :
1. There are 50 Multiple Choice Questions (M.C.Q.) in Part - A and all questions are compulsory.
  2. The questions are serially numbered from 1 to 50 and each carries 1 mark.
  3. Read each question carefully, select proper alternative and answer in the O.M.R. sheet.
  4. The OMR sheet is given for answering the questions. The answer of each question is represented by (A) ○, (B) ○, (C) ○, (D) ○. Darken the circle ● of the correct answer with ball-pen.
  5. Set No. of Question Paper printed on the upper-most right side of the Question Paper is to be written in the column provided in the OMR sheet.
  6. Rough work is to be done in the space provided for this purpose in the Test Booklet only.

1. An important parameter that determines the functioning of nano material is surface area to volume ratio. Because of which reason small granules of sugar dilute faster than big piece of sugar cube?
  - (A)  $\frac{SA}{V}$  ratio is same for sugar and sugar cube
  - (B) Can not say anything without knowing temperature of solvent
  - (C)  $\frac{SA}{V}$  ratio of sugar granules is smaller than sugar cube
  - (D)  $\frac{SA}{V}$  ratio of sugar granules is larger than sugar cube

2. Make proper pair.

- (a) Fullerene
- (b) SWNT
- (c) MWNT
- (d) Carbon nano buds



- (A) a-4, b-2, c-1, d-3
- (B) a-3, b-1, c-2, d-4
- (C) a-2, b-4, c-1, d-3
- (D) a-1, b-3, c-4, d-2

3. From the understanding of cartesian sign convention for reflection by spherical mirror, students took part in group discussion for FA-1 in classroom. Who is wrong in the

http://www.gsebonline.com

http://www.gsebonline.com

group discussion?

Alpesh : All the distances are measured from the pole of a mirror parallel to the principal axis.

Beena : The distance measured in the direction of incident ray are taken positive.

Champak : The height measured upward and perpendicular to principal axis is taken negative.

Daksha : The height measured downward and perpendicular to principal axis is taken as positive.

(A) Alpesh and Beena

(B) Only Champak

(C) Champak and Daksha

(D) Only Daksha

4. Which statement is wrong from the following for the reflection by plane mirror?

(A) A plane mirror forms virtual and erect image

(B) Object distance and image distance is same

(C) The size of image is same as size of object

(D) Image of the object is not laterally inverted

5. Which coloured light scatters least by fog and smoke?

(A) Blue

(B) Yellow

(C) Green

(D) Red

6. Which is true for the far sightedness or hypermetropia from the following?

(A) Nearby object cannot be seen clearly

(B) Distant object cannot be seen clearly

(C) Eyelens does not become thin as per requirement

(D) Defect can be corrected by using concave lens

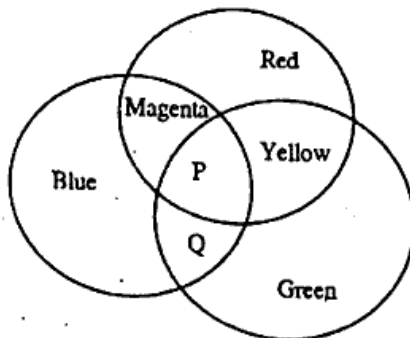
7. Specify the colour for P and Q from the following diagram.

(A) White and Yellow

(B) White and Cyan

(C) Magenta and Yellow

(D) Magenta and Cyan



8. Which pair is not correct for the instrument used in the laboratory and their uses from the following?

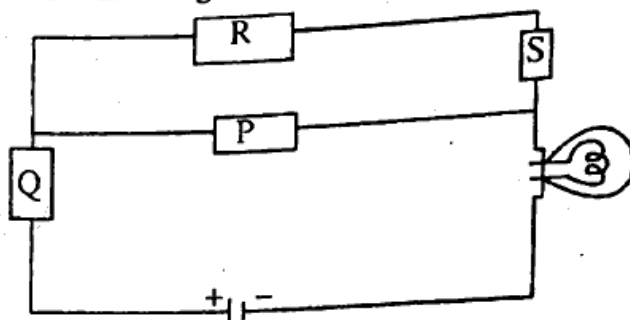
Instrument	Uses
(A) Galvanometer	To detect the presence of current
(B) Ammeter	To measure the electric current
(C) Voltmeter	To measure the electric potential difference
(D) Resistor	To supply the electric energy to circuit

9. To deposit the copper on the iron spoon, the copper plate is to be connected with what?

(A) With the negative terminal

(B) With the positive terminal

- (C) With the iron spoon  
 (D) Between the positive and negative terminal of battery
10. P, Q, R and S are the conductors in the following diagram. By removing which conductor the bulb will not glow?



- (A) Q                      (B) R                      (C) S                      (D) P
11. Which statement is true according to Ohm's law?  
 (A) Resistance will increase by increasing current in circuit  
 (B) Resistance will increase by increasing voltage in circuit  
 (C) Current will increase by increasing voltage in circuit  
 (D) Resistance and current both will increase by increasing voltage
12. Which statement is wrong from the following ?  
 (A) In India, voltage between two wires is 110V.  
 (B) In India, current flowing through wire is AC and its frequency is 50 Hz.  
 (C) The earthing wire is green coloured.  
 (D) T.V., tubelight, bulbs are connected with 5A line.

13. Match the following :

Section A	Section B
1. Fuse	P. converts electric energy in to mechanical energy.
2. Electric generator	Q. heating effect of electric current.
3. Electric motor	R. converts mechanical energy in to electrical energy.

- (A) 1-P, 2-Q, 3-R    (B) 1-Q, 2-P, 3-R    (C) 1-Q, 2-R, 3-P    (D) 1-P, 2-R, 3-Q
14. Which instrument is used to convert electrical energy in to heat energy?  
 (A) Electric Bell                      (B) Electric Iron  
 (C) Room heater                      (D) Electric water heater

15. Planets are divided in to two groups based on their characteristic.

Group-1	Group-2
* Structure of planets resemble to earth	* Structure of planets resembles Jupiter
* They have fewer natural satellites	* They have large number of natural satellites
* They have thin atmosphere	* Rings are seen around planets

Which of the following are included in group - 2 ?

- (A) Jupiter and Saturn  
 (B) Saturn and Mercury  
 (C) Mercury and Venus  
 (D) Jupiter and Venus

16. Some planets and their characteristics are given below. Which option is wrong among this ?
- (A) Mars - reddish planet
  - (B) Venus - bright planet
  - (C) Earth - possesses living organism
  - (D) Jupiter - smallest planet

17. Which statement is wrong from the following ?

Statement-1 : METSAT is useful for weather forecasting.

Statement-2 : INSAT is useful for Direct to Home (DTH) transmission.

Statement-3 : CARTOSAT is useful for astronomical observation.

- (A) Statement - 1 and 2
- (B) Statement - 3
- (C) Statement - 1
- (D) Statement - 2

18. In which planet sun sets in east?

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

19. When honeybee bites, which chemical enters into our body?

- (A) Formic acid
- (B) Melittin
- (C) Calcium Formate
- (D) Magnesium hydroxide

20. One student examines the properties of substance in laboratory. Aqueous solution of this substance converts Blue litmus paper in to red. Identify the substance

P. Lemon juice Q. Tomato juice R. Washing soda

- (A) P and Q
- (B) Q and R
- (C) P and R
- (D) P, Q and R all

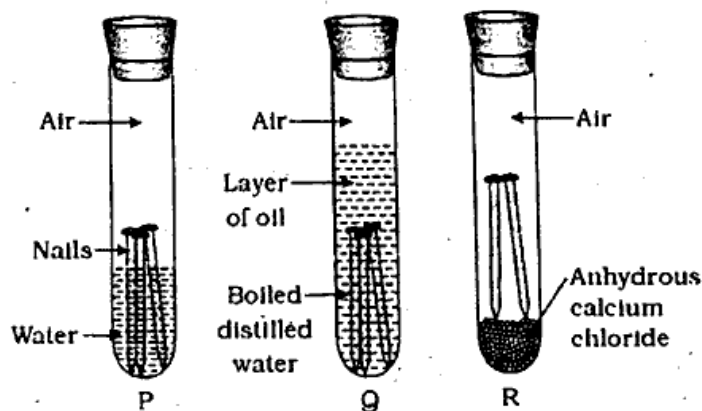
21. By which we can measure the exact pH of aqueous solution?

- (A) pH paper
- (B) litmus paper
- (C) pH meter
- (D) universal indicator

22. Which gas is produced during the reaction of base with metals?

- (A) Carbon dioxide
- (B) dioxygene
- (C) dihydrogen
- (D) dinitrogen

23. In three test tubes P, Q and R iron nails, water, oil and anhydrous calcium chloride is taken. Among these test tubes, in which test tubes corrosion of nails will not take place?



- (A) P and Q
- (B) P and R
- (C) P, Q and R
- (D) Q and R

24. Which displacement reaction will not occur among the following reactions ?

- (A)  $\text{Cu}_{(s)} + \text{FeSO}_{4(aq)}$
- (B)  $\text{Fe}_{(s)} + \text{CuSO}_{4(aq)}$
- (C)  $\text{Zn}_{(s)} + \text{CuSO}_{4(aq)}$
- (D)  $\text{Mg}_{(s)} + \text{CuSO}_{4(aq)}$

25. In the table, properties of some specimens are given.

Specimen	Melting Point	Shining	Malleability	Electric conductivity
P	High	more	No	insulator
Q	High	less	No	conductor
R	High	more	Yes	conductor
S	Low	less	Yes	low conductor

Which specimen is precisely a metal?

- (A) P (B) Q (C) R (D) S

26. Which statement is wrong among the following statement ?

Statement-1 : Non metal possess the property of ductility and malleability.

Statement-2 : Non metallic elements in solid form are brittle.

Statement-3 : Metal can produce ringing sound by striking.

Statement-4 : Melting points and boiling points of metals are low.

- (A) Statement 1 and 4 (B) Statement 2 and 3  
(C) Statement 1 and 3 (D) Statement 2 and 4

27. Properties of one gas is given below. Identify the gas.

- It is produced by Haber's process.
- It possesses very intensive smell, causing irritation in the nose and eyes.
- It is highly soluble in water.
- Its aqueous solution acts as a weak base.

- (A)  $N_2O$  (B)  $H_2$  (C)  $SO_2$  (D)  $NH_3$

28. Make the correct pairs from below mentioned X and Y.

X	Y
(a) Dehydrating agent	(1) Sulphur dioxide gas
(b) In preparation of fire crackers	(2) Concentrated sulphuric acid
(c) Weak bleaching agent	(3) Dihydrogene gas
(d) Lightest gas	(4) Sulphur

- (A) (a - 4), (b - 3), (c - 1), (d - 2) (B) (a - 3), (b - 2), (c - 4), (d - 1)  
(C) (a - 2) (b - 4), (c - 1), (d - 3) (D) (a - 3), (b - 1), (c - 2), (d - 4)

29. Water gas is a mixture of which gas?

P. Carbon dioxide Q. Hydrogen R. Carbon monoxide.

- (A) P and R (B) P and Q (C) Q and R (D) P, Q and R

30. Which component, obtained from refining of petroleum, is used as solvent petrochemicals?

- (A) Naphtha (B) Kerosene (C) Tar (D) Petroleum

31. Properties of one of the mineral coal is given below. Identify the mineral coal

- It is a matured form of mineral coal.
- It contains 94 to 98% carbon.
- Its heat energy is about 33 kJ  $gram^{-1}$ .

- (A) Peat (B) Lignite (C) Bituminous coal (D) Anthracite

32. What is called fossil fuel ?  
(A) Mineral coal (B) Petroleum (C) Natural gas ~~(D) All the given~~
33. The general formula for alcohol series is  $C_nH_{2n+1}OH$ . Which is the formula for alcohol contains four carbon?  
(A)  $C_4H_8OH$  ~~(B)  $C_4H_9OH$~~  (C)  $C_5H_{11}OH$  (D)  $C_3H_8OH$
34. One girl student uses the liquid compound to remove nail paint from her nail. The liquid compound removes the nail paint from her nail. Give the name of this compound.  
(A) Ethanol (B) Formalin ~~(C) Acetic acid~~ ~~(D) Propanone~~
35. From which of the following methanal is not used?  
(A) to preserve residues of dead animals  
(B) used as raw material in plastic industry  
(C) for making dyes, phenol and polymer  
(D) in production of ammonia
36. The food we take in our body travels through a long and complex path. Which starts from mouth and ends at anus. Which is the correct sequence of process on food in digestive system ?  
(A) Digestion → Ingestion → Absorption → Egestion  
(B) Ingestion → Egestion → Digestion → Absorption  
(C) Digestion → Absorption → Egestion → Ingestion  
(D) Ingestion → Digestion → Absorption → Egestion
37. Which statement is true for structure of human heart?  
(A) There is a tricuspid valve between left atrium and left ventricle.  
(B) There is a bicuspid valve between right atrium and right ventricle.  
(C) The walls of atria are thin while the wall of ventricles are thick.  
(D) The upper two chambers of heart is called ventricles and lower two chambers is called atria.
38. In which part of the body blood gets purified (becomes oxygenated) ?  
(A) Heart ~~(B) Lungs~~ (C) Atrium (D) Ventricle
39. During which process blood is filtered out in Bowman's capsule ?  
(A) Reabsorption (B) Secretion ~~(C) Ultrafiltration~~ (D) None of them
40. By which name, the short tubular region after Bowman's capsule in kidney, is known?  
(A) Neck (B) Proximal tubule (C) Henle's loop (D) Distal tubule
41. What is called the movement of plant towards gravity?  
(A) hydrotropism ~~(B) geotropism~~ (C) chemotropism (D) phototropism
42. Which of the following is a mis-matched pair?  
(A) ~~adrenaline~~ - pituitary gland (B) estrogen - ovary  
(C) insulin - pancreas (D) testosterone - testis
43. What does the figure indicates given below?  
(A) Buddin in yeast  
(B) Formation on temporary finger like projection in Amoeba  
~~(C) Binary Fission in Amoeba~~  
(D) Formation of cyst in Amoeba



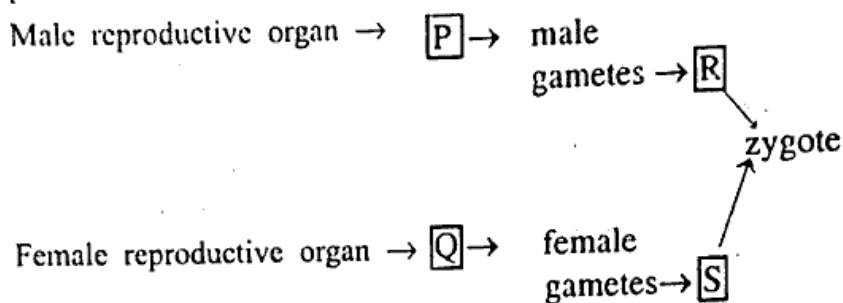
44. In which living organism asexual reproduction take place among following?

- P. Banana Q. Dog R. Yeast S. Amoeba  
(A) Q and S (B) P, R and S (C) P and Q (D) Q, R and S

45. Which process is important for production gametes in living organism performing sexual production in context with chromosomes?

- (A) mitosis (B) meiosis (C) unequal fission (D) multiple fission

46. The following chart depicts the fertilization between male and female during sexual production



Which is true for P, Q, R and S from the following.

Sr. No.	P	Q	R	S
1.	Ovary	Testis	Ova	Sperms
2.	Testis	Ovary	Sperms	Ova
3.	Uterus	Penis	Ova	Sperms
4.	Penis	Uterus	Sperms	Ova

- (A) Sequence-1 (B) Sequence-2 (C) Sequence-3 (D) Sequence-4

47. Which is the correct sequence in context with the least bio degradable to most biodegradable material?

- (A) Plastic, Metal Can, Bones, Paper (B) Paper, Metal Can, Bones, Plastic  
(C) Bones, Plastic, Paper, Metal Can (D) Plastic, Bones, Paper, Metal Can

48. Which sentence is not true in context with house hold waste management?

- (A) Increase the uses of polythene  
(B) Throwing waste in garbage  
(C) Buy loose fruits and vegetables to avoid packaging  
(D) Use rechargeable batteries

49. When we destroy forest, what we are actually destroying?

- (A) Only trees (B) Only wild life's habitate  
(C) Only food for wild life (D) Our environment

50. Today we are using natural resources maximum. Which of the following alternative correctly explain the natural resources?

- (A) Resources made and used by human  
(B) Resources made by human and used by all living organism  
(C) Resources not made by human but made by nature and used by living organism  
(D) Only forest product