BOARD - QUE.PAPER **2** SOLUTION

SOLUTIONS

SCIENCE AND TECHNOLOGY

QUESTION PAPER-2 : MARCH-2017

STANDARD-10 | MARCH 2017 | 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. Which Hydrocarbon is present in the natural gas?
(A) Methane (B) Propane (C) Ethane (D) Butane

2. Study the following table :

	Fraction	Number of Carbon	Temperature Carbon range
(1)	Gases	C_1 to C_4	298 K
(2)	Petrol	C_5 to C_{10}	303 K to 393 K
(3)	Naphtha	C_8 to C_{10}	393 K to 453 K
(4)	Kerosene	C_{12} to C_{15}	453 K to 533 K
(5)	Diesel	C_{15} to C_{18}	533 K to 613 K
(6)	Lubricating oil	C_{16} to C_{20}	above 613 K

The table shows the products obtained by fractional distillation of petroleum and temperature range. From this give the right order of the product obtained?
(A) Petrol, Naphtha, Kerosene, Diesel (B) Kerosene, Petrol, Diesel, Naphtha
(C) Diesel, Kerosene, Naphtha, Petrol (D) Naphtha, Kerosene, Petrol, Diesel

3. What is the matured form of Coal?
(A) Lignite (B) Anthracite (C) Bitumin (D) Peat

4. What is the name of compound possesing (–CHO) functional group?
(A) Amide (B) Ketone (C) Aldehyde (D) Alcohol

5. In which of the following acetic acid is used?
(A) White lead (B) Antiseptic (C) To remove nail polish (D) Antibiotics

6. Which of the following structure is responsible for transportation of water in higher plants ?
(A) Sieve tube (B) Vessel (C) Sieve cell (D) Companion cell

7. In human pancreas secretes pancreatic juice. Match the pairs of enzyme and its function present in it.

Enzyme	Function
(1) Amylase	(a) Digestion of fat
(2) Trypsin	(b) Digestion of protein
(3) Lipase	(c) Digestion of starch

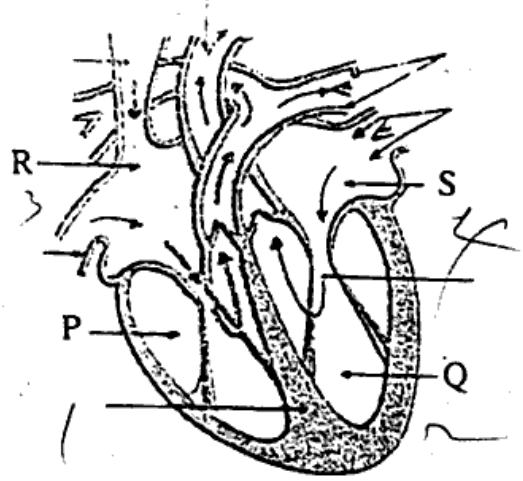
(A) 1 ↔ a 2 ↔ b 3 ↔ c (B) 1 ↔ b 2 ↔ c 3 ↔ a

(C) 1 ↔ c, 2 ↔ b 3 ↔ a (D) 1 ↔ c 2 ↔ a 3 ↔ b

8. In plants, food and other substances are transported through _____.

(A) Tracheids (B) Sieve tubes (C) Vessels (D) Companion cell

9. What are P, Q, R, S in the above figure?



(A) Right atrium, Right ventricle, Left atrium, Left ventricle

(B) Right ventricle, Left atrium, Right atrium, Left ventricle,

(C) Right atrium, Left atrium, Right ventricle, Left ventricle

(D) Right ventricle, Left ventricle, Right atrium, Left atrium

10. In which part of the body blood gets oxygenated?

(A) Heart (B) Atrium (C) Lungs (D) Ventricle

11. Which of the following plant show movement in response of touch?

(A) Bryophyllum (B) Sunflower (C) Mimosa (D) Periwrinkle

12. Which of the following is not a sex-hormone?

(A) Estrogen (B) Insulin (C) Projesteron (D) Testosteron

13. Match the pairs of types of asexual reproduction :

Section-A	Section-B
(1) Fission	(i) Spirogyra
(2) Fragmentation	(ii) Paramecium
(3) Regeneration	(iii) Mucor
(4) Spore-formation	(iv) Planeria

(A) 1 ↔ iii 2 ↔ iv 3 ↔ i 4 ↔ ii (B) 1 ↔ ii 2 ↔ iii 3 ↔ iv 4 ↔ i

(C) 1 ↔ ii 2 ↔ i 3 ↔ iv 4 ↔ iii (D) 1 ↔ iv 2 ↔ iii 3 ↔ ii 4 ↔ i

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14. What is stage between 40 - 50 years in woman called?

(A) Menstrual cycle (B) Menopause

(C) Pregnancy (D) Aborsion

15. For living organism reproduction is essential _____.

(P) For satisfying their energy requirement

(Q) For the survival of their species

(R) Making the things safe against the continuity of life

(S) To keep the organ of animal alive

(A) Statement Q and S are true (B) Statement Q and R are true

(C) Statement P and Q are true (D) Statement P and S are true

16. While diging the earth parts of the body of plants and animals are obtained, we call it fossils. Age of this fossil is determined by which method?

(A) Radio dating system (B) Fossil system

(C) Carbon dating system (D) Radio active system

17. The continuity of features from one generation to another is known as _____.

(A) Evolution (B) Heredity (C) Mutation (D) Generation

18. Names of endangered plant species are published in :

(A) Green Data Book (B) Endangered Species Book

(C) Red Data Book (D) Yellow Data Book

19. Which of the following is not a renewable source of energy?

(A) Wind energy (B) Solar energy (C) Water energy (D) Hydrocarbon fuel

20. Ecosystem is an interacting system made up of :

(A) Organisms and their physical surroundings

(B) Producer and their physical surroundings

(C) Producer and consumers

(D) Consumers and their physical surroundings

21. Microscope is used to observe microscopic objects.

Few microscopes are given below, which one of them is used to see the construction of nano-scale'?

(P) Optical Microscope

(Q) Atomic Force Microscope

(R) Scanning Tunneling Microscope

(A) Only P and Q (B) Only Q and R (C) Only P and R (D) All P, Q, R

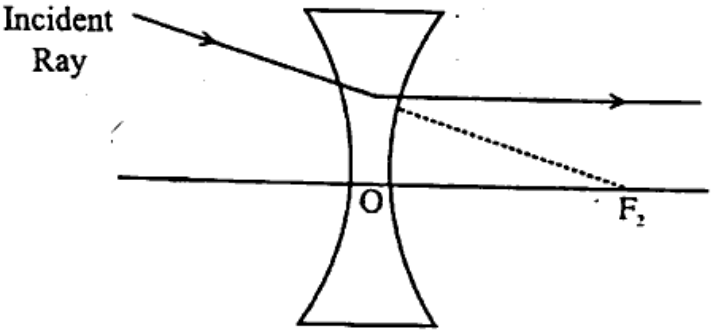
22. Thermal conductivity of standard SWNT along its length is _____ $\frac{\text{Watt}}{\text{m} \cdot \text{k}}$.

(A) 3500 (B) 35000 (C) 385 (D) 35

23. In the following table nature, size and position of images formed by concave mirror are given, which one is wrong?

Option	Position of object	Position of image	Nature of image	Size
A	At infinity	At focus	Real and inverted	Highly diminished
B	Between C and F	Beyond C	Real and inverted	diminished
C	Beyond C	Between C and F	Real and inverted	diminished
D	Between P and F	Behind mirror	Virtual and erect	magnified

24. What does above figure indicate?



(b)

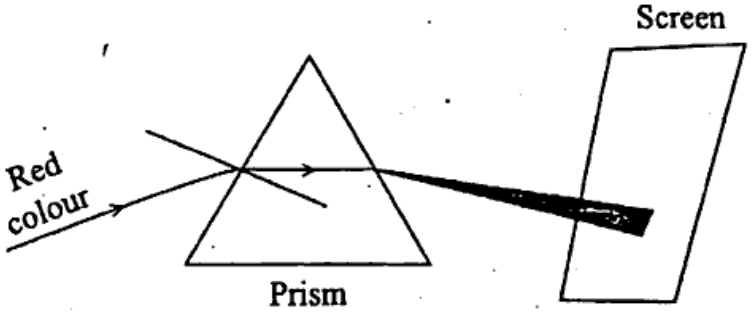
(A) A ray of light parallel to the principal axis after refraction goes way from principal axis by concave lens.

(B) A ray of light appear to meet at F_2 will emerge parallel to principal axis after refraction in concave lens.

(C) A ray of light passing through focus of concave lens will emerge parallel to principal axis.

(D) A ray of light originated from principal axis after reflection will emerge parallel to principal axis in concave lens.

25. Het : In the experiment of prism incident red colour ray instead of white light through prism. Which colour band will you observe on screen?



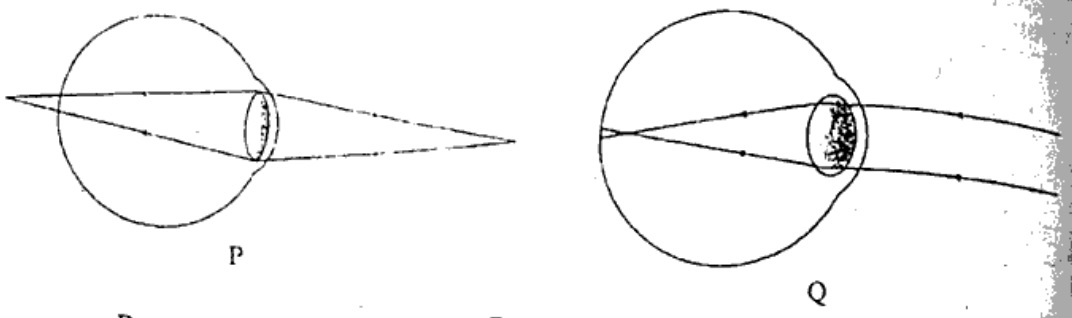
(A) White colour spectrum (B) Maroon and yellow colour spectrum

(C) All the colours of rainbow (D) Red colour spectrum

26. Due to which phenomenon of light does Tyndall effect result?

(A) Reflection (B) Seattering (C) Refraction (D) Dispersion

27. Which defect of vision of eye is shown respectively.



P Q

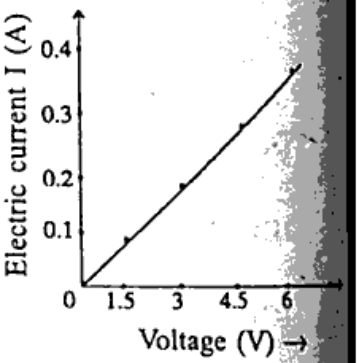
(A) P : Presbyopia Q : Far sightedness

(B) P : Near sightedness Q : Far sightedness

(C) P : Far sightedness Q : Near sightedness

(D) P : Presbyopia Q : Near sightedness

28. From the observation of Ohm's law I → V graph is drawn here. From that which points are concluded?



P : I → V graph is a straight line

Q : Ratio of V and I remains constant every time

R : The electric current in a conductor increases in same proportion with the increase in voltage

(A) Statements P and Q are true

(B) Statements P and R are true

(C) Statements Q and R are true

(D) Statements P, Q and R are all true

29. "The resistance of any conductor is directly proportional to length and inversely proportional to area of cross-section of the substance" from this it is concluded that _____.

P : Value of resistance increases with increase in the length of conductor

Q : Value of resistance decreases with increase in the length of conductor

R : Value of resistance decreases with increase in the area of cross-section

S : Value of resistance decreases with decrease in area of cross-section

(A) Statements Q and R are true (B) Statements P and R are true

(C) Statements P and S are true (D) Statements Q and S are true

30. If five equal pieces of 25 Ω are connected in parallel, then their equivalent resistance will be _____.

(A) $\frac{1}{5}$ Ω (B) 5 Ω (C) 1 Ω (D) 25 Ω

31. Electric Fuse wire is working on _____ principal?

(A) Heating effect of electric current (B) Control of current in circuit

(C) Chemical effect of electric current (D) Control of voltage in circuit

32. Which rule is used to know the direction of induced current in a circuit?

(A) Fleming's left hand rule (B) Right hand thumb rule

(C) Fleming's right hand rule (D) Galvanometer

33. The magnetic field produced in a straight conducting wire on passing the current through it is _____.

(A) In the direction of current (B) In the direction opposite to the current

(C) Circular around the wire (D) In the direction parallel to the wire

34. Who gave the principle of Electro-magnetic induction?

(A) Faraday (B) Ampere (C) Oerstead (D) Volta

35. Which of the following is not a member of the solar system?

(A) Asteroids (B) Sun (C) Shooting star (D) Artificial Satellite

36. Which satellite is launched by GSLV - Geo Synchronous Satellite Launch vehicle?

(A) EDUSAT (B) INSAT - 4 A (C) IRS - 2 (D) METSAT

37. Match pairs :

Section A	Section B
(1) Jupiter	(P) Bluish coloured planet
(2) Mars	(Q) The most bright planet
(3) Venus	(R) The biggest planet
(4) Neptun	(S) Reddish coloured planet

(A) 1 → R, 2 → S, 3 → P, 4 → Q (B) 1 → R, 2 → S, 3 → Q, 4 → P

(C) 1 → Q, 2 → P, 3 → R, 4 → S (D) 1 → Q, 2 → P, 3 → S, 4 → R

38. Poles of Mars are covered by _____.

(A) Dry ice (B) Nitrogen (C) Ice (D) Iron

39. Reaction of acid with base results in formation of salt and water. This reaction is called neutralisation reaction.

During the following reaction decide the pH value and conclusion of the aqueous solution of salts.

	Type of Acid	Type of Base	pH of aqueous solution of salt
(1)	Strong acid	Strong base	Neutral
(2)	Strong acid	Weak base	Acidic
(3)	Weak acid	Strong base	Basic

(P) pH = 7 (Q) pH < 7 (R) pH > 7

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(A) 1 ↔ R 2 ↔ P 3 ↔ Q (B) 1 ↔ P 2 ↔ R 3 ↔ Q

(C) 1 ↔ Q 2 ↔ P 3 ↔ R (D) 1 ↔ P 2 ↔ Q 3 ↔ R

40. Which substance is present in the poison of honey-bee?

(A) Lime (B) Melittin (C) Calcium phosphate (D) Pepsin

41. How many times aqueous solution of pH 2 is more acidic than aqueous solution of pH 4 ?

(A) Double (B) Ten times (C) Sixteen times (D) Hundred times

42. How many grams of NaOH should be added in 100 ml to get 2 m NaOH aqueous solution? (Atomic weight of NaOH is 40 gm/mole)

(A) 40 gm (B) 8 gm (C) 80 gm (D) 2 gm

43. Which metal is used in thermometer?

(A) Silver (B) Sodium (C) Mercury (D) Copper

44. Which alloy is used for the soldering of electric wire?

(A) Cu + Zn (B) Pb + Sn (C) Al (D) Sn + Cu

45. In which of the following, displacement reaction is possible?

(A) Solution of NaCl + Coin of Copper

(B) Solution of $FeSO_4$ + Coin of Silver

(C) Solution of $MgCl_2$ + Coin of Aluminium

(D) Solution of $AgNO_3$ + Coin of Copper

46. In which of the following mineral Copper is not found?

(A) Copper glance (B) Cuprite (C) Malachite (D) Magnetite

47. During which reaction dihydrogen gas is not produced under normal conditions?

(A) Metal + dilute sulphuric acid (B) Metal + dilute nitric acid

(C) Metal + dilute hydrochloric acid (D) Metal + water

48. Which of the following gases is used as preservative in juice of Fruits and Jams?

(A) Ammonia (B) Dihydrogen (C) Sulphur dioxide (D) Carbon dioxide

49. What is used as a fuel in Jet planes?

(A) Gasolene (B) Kerosene (C) Diesel oil (D) Liquid Petrol

50. What is called ethanol solution containing 5% water?

(A) Beer (B) Rectified spirit (C) Varnish (D) Perfumes

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