BOARD - QUE.PAPER **5** SOLUTION

SOLUTIONS

SCIENCE AND TECHNOLOGY

QUESTION PAPER-5 : MARCH-2015

STANDARD-10 | MARCH 2015 | 011(E)

Part-A : Time : 1 Hour / Marks : 50 **Part-B : Time : 2 Hours / Marks : 50**

PART-A

Time : 1 Hour] **[Maximum Marks : 50**

Instructions : As per Question Paper-1

1. The human species have genetic roots in _____ .
   (A) Africa (B) America (C) India (D) Australia

2. What is famous for the constructive and functional unit?
   (A) Food web (B) Food chain (C) Ecosystem (D) None of these

3. Chlorine is the main factor to damage Ozone layer. CFC is considered responsible for 80% of total decrease in Ozone layer.

   If the pollution in the atmosphere increases, which of the following is possible in future?

   P. The ice at poles will melt and all the organisms will die living at the island

   Q. Many organisms living at island may migrate.

   R The existance of forests on the earth will be no more.

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

4. Names of endangered plant species are published in _____ .
   (A) Red data book (B) Green data book
   (C) Endangered species book (D) Yellow data book

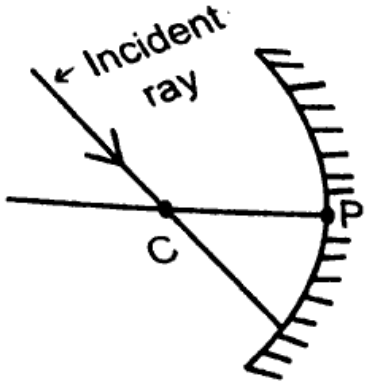
5. One day the contractor's workers appeared in the forest to cut the trees but the men folk were absent. However, the women from the village reached the forest quickly and clasped the tree trunks preventing the workers from felling the trees. Thus the forest trees were saved.

   This incident was originated in a remote village called "Rem" in Garhwal in the early 1970s. By which name is this andolan known as?
   (A) Prakruti Samrakshan Andolan (B) Vankatai Andolan
   (C) Amritadevi Andolan (D) Chipko Andolan

6. Thermal Conductivity of standard SWNT along its length is _____ $\frac{\text{Watt}}{\text{m.K}}$
   (A) 350 m.K/Watt (B) 35,000 Watt/m.K
   (C) 3500 Watt/m.K (D) 3600 Watt

7. By which name is nanotechnology known for its higher performance?
   (A) Engineering Technology (B) Ideal Technology
   (C) Modern Technology (D) Green Technology

8. In which direction the incident ray shown by → in the following figure, will go after reflection?



(A) Passes through the focal point of mirror

(B) Comes back in the direction of incident ray

(C) Passes through pole of mirror

(D) Becomes parallel to principal axis

9. For which of the following the total internal reflection of light is possible?

(A) Angle of incidence is more than critical angle

(B) Angle of incidence is less than critical angle

(C) Angle of incidence = Critical angle

(D) Angle of incidence = Angle of refraction

10. Gita arranges some mirrors in group-1 and group-2 according to the magnification, type of image and size of image from the following data.

Sr.No.	Group-1	Group-2
(1)	< 1 and negative	real, inverted and small
(2)	> 1 and positive	real, inverted and enlarged
(3)	> 1 and negative	virtual, erect and enlarged
(4)	< 1 and positive	virtual, erect and small

For which of the pairs from group 1 and group 2 you disagree.

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

11. Which colour of light is scattered the most (maximum) in the atmosphere?

(A) Blue (B) Yellow (C) Red (D) Green

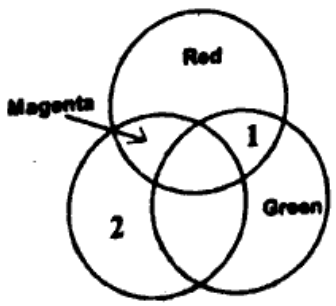
12. In the following figure, which colours should be there in number 1 and 2 respectively?

(A) Yellow and Cyan

(B) Blue and Yellow

(C) Yellow and Blue

(D) Cyan and Yellow



13. What is the unit of electric charge in S.I. system?
(A) Watt (B) Volt (C) Coulomb (D) Ampere

14. What is used as anode in Volta's cell?
(A) Carbon rod (B) Copper plate (C) Zinc plate (D) Iron plate

15. The connection of resistances is divided into two groups as follows.

Group-1	Group-2
• The resistances are connected in series such that same (equal) electric current flows through each resistance. • Equivalent resistance is more than evey resistance connected in series	• The resistances are connected in parallel. So that the voltage drop through each resistance is same. • Equivalent resistance is smaller than every resistance connected in parallel

Which of the following is not true?
(A) The use of group-1 connection is to increase the resistance of the circuit.
(B) If we connect group-2, the equivalent resistance obtained is,

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \ldots\ldots + \frac{1}{R_n}$$

(C) The use of group-2 connection is to increase the resistance of circuit.
(D) The use of group-1 connection is to decrease the resistance of the circuit.

16. On which factor does the resistance of a conductor not depend upon?
(A) Area of cross section of conductor (B) Length of conductor
(C) Volume of conductor (D) Material of conductor

17. Who gave the law of electromagnetic induction?
(A) Volta (B) Farade (C) Oersted (D) Ampere

18. How many times does an AC electric current of frequency 50 Hz change its direction?
(A) 100 (B) 50 (C) 25 (D) 200

19. The figure showing Fleming's left hand rule is given. Which finger or thumb shows the direction of flow of electric current?
(A) Thumb
(B) Second finger
(C) First finger
(D) Small forger

20. In which of the following statements the word light year is used correctly?
(A) The next complete solar eclipse will be seen after 32 light year
(B) Cetus dwarf galaxy is 2.46 million light year away from us
(C) Light travels with the speed of 1 light year in the Universe
(D) The earth takes 365 days to complete the distance of 1 light year around the sun.

21. What is the distance of geo-stationary satellites from the earth?
(A) 43,000 km (B) 35,786 km (C) 37,956 km (D) 23,123 km

22. In the accident of which space shuttle, Kalpana Chawla died?
(A) Discovery (B) Challenger (C) Colambia (D) Atlantis

23. Which of the following statement is true for 'black hole'?
(A) Its temperature is equal to the temperature of the sun.
(B) Its temperature is directly proportional to its density.
(C) It emits radiations in large number.
(D) Its temperature is inversely proportional to the density.

24. What is true for acidic aqueous solution?
(A) $[H_3O^+] > 10^{-7}$ M (B) $[H_3O^+] < 10^{-7}$ M
(C) $[H_3O^+] = 10^{-7}$ M (D) $[H_3O^+] < [OH^-]$

25. What is formed by the reaction between metal oxide and water?
(A) salt (B) base (C) acid (D) metal

26. 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 NH 3!, 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) Only Student - 3 (B) Student - 3 and Student - 4
(C) Student - 1 and Student - 2 (D) Only Student - 4

27. An ant has biten Khushi while she was playing. She is feeling burning sensation. Which acid may have entered her body.
(A) Benzene (B) Melitin (C) Formic acid (D) Tenin

28. By which reaction metal can be obtained from metal oxide?
(A) Calcination (B) Reduction (C) Liquefaction (D) Roasting

29. Which of the following substances is hygroscopic?
(A) Feldspar (B) Anhydrous calcium chloride (C) Cryolite (D) Slag

30. What is the molecular formula of Calcium hydride?
(A) Ca_2H (B) CaH (C) CaH_2 (D) Ca_2H_2

31. With which of the following, carbon does not react?
(A) Di Oxygen gas (B) Di Chlorine gas
(C) Dilute Hydrochloric acid (D) Di Hydrogen gas

32. $N_2(g) + 3H_2(g) \underset{200\text{-}300\ BAR}{\overset{773K}{\rightleftharpoons}} 2NH_3(g)$ + heat heat
Which of the following works as catalyst?
(A) Fe (B) K_2O (C) Al_2O_3 (D) V_2O_5

33. Which of the following is a weak bleaching agent?
(A) Sulphur (B) Dihydrogen gas
(C) Concentrated'sulphuric acid (D) Sulphur dioxide

34. What is the general formula of alkyne series?
(A) C_nH_{2n+2} (B) C_nH_{2n-2} (C) C_nH_{2n} (D) C_nH_n

35. Which of the primary state in transformation of coal?
(A) Bitumen (B) Lignite (C) Peat (D) Anthracite

36. From where mineral coal is obtained in Gujarat ?
(A) Thangadh (B) Khambhat (C) Ankleshwar (D) Kalol

37. What is the angle between any two bonds in methane molecule?
(A) 119° 28' (B) 109° 28' (C) 105° 54' (D) 190° 28'

38. What is prepared by Fisher-Tropsch method?
(A) Acetaldehyde (B) Acetic acid (C) Acetone (D) Ethancl

39. Which of the following monomers is in polythene?
(A) CH = CH (B) $CH_2 + CH = CH\text{-}CH_3$
(C) $CH_3 - CH_3$ (D) $CH_2 = CH_2$

40. Why does one who drinks alcohol get tempted to drink more alcohol?
(A) because amount of enzyme P-450 increases in liver
(B) because Formaldehyde increases in liver
(C) because CO_2 increases in liver
(D) because amount of disulphiram increases in liver.

41. What is the length of small intestine in an adult human being?
(A) 4.5 m (B) 6.5 m (C) 3.5 m (D) 2.5 m

42. How many uriniferous tubules are there in each kidney?
(A) 30 Lakhs (B) 20 Lakhs (C) 10 Lakhs (D) 1 Lakh

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

44. By what name is the liquid medium of blood known as?
(A) Waste (excretory) substances (B) Blood particles
(C) Plasma (D) Waste material

45. Where are the waste products stored in plants?
(A) In Phloem cell (B) In Cytoplasm
(C) In Plant cells (D) In Cellular Vacuoles

46. Which of the following pairs is not true?
(A) Pancreas-Insulin (B) Adrenaline-Pituitary gland
(C) Testosterone-Testes (D) Progesterone-Ovary

47. Cerebellum, medulla oblongata and pons are the part of _____.
(A) fore-brain (B) hind-brain (C) mid-brain (D) spinal cord

48. Which of the following are the true methods of artificial propagation?
(A) Cutting, Layering, Grafting (B) Layering, Cutting, Budding
(C) Fission and Budding (D) Cutting, Grafting, Budding

49. How many Chromosomes are there in human ovum?
(A) 23 (B) 64 (C) 46 (D) 32

50. Which of the following organs are not the homologous organs?
(A) Wings of bat and birds (B) Forelimb in lizard and frog
(C) Forelimb in human and lizard (D) Wings of butterfly and bat