

## 9th Std. – English

**THE MUMBAI SCIENCE TEACHERS' ASSOCIATION**  
**DR. HOMI BHABHA BAL VAIDNYANIK COMPETITION**

**QUESTION BOOKLET**

DATE OF EXAMINATION : 4<sup>TH</sup> SEPTEMBER 2010

TIME : ONE HOUR THIRTY MINUTES

MARKS : 100

ROLL NO. :

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**EXAMPLE**

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9	1	7	0	1	8	3	5	
①	●	①	①	●	①	①	①	
②	②	②	②	②	②	②	②	
③	③	③	③	③	③	●	③	
④	④	④	④	④	④	④	④	
⑤	⑤	⑤	⑤	⑤	⑤	⑤	●	
⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	
⑦	⑦	●	⑦	⑦	⑦	⑦	⑦	
⑧	⑧	⑧	⑧	⑧	●	⑧	⑧	
●	⑨	⑨	⑨	⑨	⑨	⑨	⑨	
⑩	⑩	⑩	●	⑩	⑩	⑩	⑩	

**IMPORTANT**

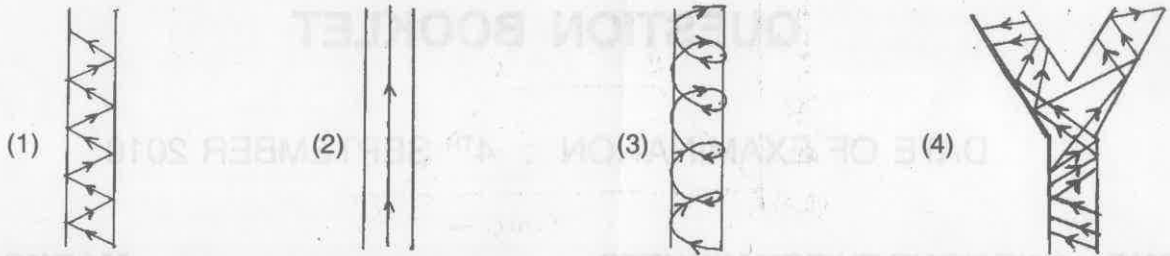
Please write **your Roll number** in the row of boxes in column No.14 of your **ANSWERSHEET** and darken the oval that corresponds to each of the numerals as shown in the example, using pencil.

**INSTRUCTIONS :**

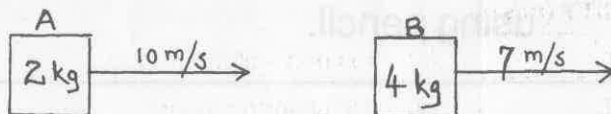
1. Write your Roll Number on this Test booklet in the space provided above.
2. This test booklet contains 100 Questions.
3. Each question carries 1 mark.
4. Check to make sure that you have received the appropriate test booklet for your Standard / Medium.

## ENGLISH

- Q.1.** The temperature of a body has changed by  $20^{\circ}\text{C}$ . What will be the change in its temperature in Kelvin scale ?  
 (1) 293 K (2) 27.3 K (3) 253 K (4) 20 K
- Q.2.** A bullet of 60 gm is fired using a rifle of mass 12 Kg. Rifle recoils with a velocity of 2.5 m/s. Calculate initial velocity of the bullet.  
 (1) 50 m/s (2) 500 m/s (3) 0.5 m/s (4) 12.5 m/s
- Q.3.** Stethoscope is an instrument used to hear the heart beats of a patient by the doctor. Select the correct figure showing movement of sound waves inside the stethoscope.



- Q.4.** Which of the following cells is rechargeable ?  
 (1) Dry cell (2) Leclanche cell (3) Nickel – Cadmium cell (4) Daniel cell
- Q.5.** Select the correct statement, with respect to value of universal gravitational constant and acceleration due to gravity.  
 (1) Both of them change from place to place.  
 (2) Former does not change but later changes according to position.  
 (3) Both have fixed value always.  
 (4) Former changes but later does not change according to position.
- Q.6.** Who am I; if I am useful for \_\_\_\_\_  
 • Communication between ships  
 • To detect cracks in metallic bells  
 • To destroy microbes from milk  
 • For welding plastic material.  
 (1) Heat (2) Ultrasound (3) SONAR (4) Reverberration
- Q.7.** Adjacent diagram shows mass and velocities of two bodies A and B, which have started from rest. Observe the diagrams and compare the work that can be done by A and B.



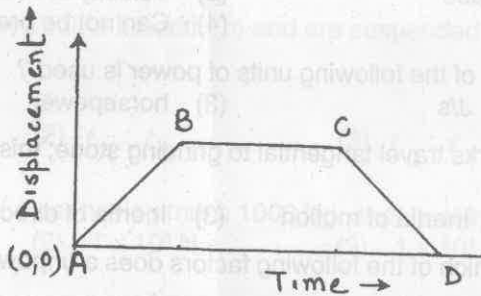
- (1) 'A' can do more work than 'B'  
 (2) Both 'A' and 'B' can do same work  
 (3) 'B' can do more work than 'A'  
 (4) Given information is not sufficient to calculate work.

Q.8. Read the following statements and choose the correct option :

- (A) Moon revolves around the earth due to gravitational force
- (B) Planets revolve around the Sun due to gravitational force
- (C) Gravitational force is ineffective in case of free fall
- (D) Buoyancy does not depend on gravitational force

- (1) All four statements are correct
- (2) A and B are correct whereas C and D are incorrect
- (3) A and B are incorrect whereas C and D are correct
- (4) All four statements are incorrect

Q.9. The displacement – time graph of a body is as shown below. Which segment/s of the graph represent uniform motion ?



- (1) BC
- (2) AB and BC
- (3) AB and CD
- (4) AB

Q.10. When a bus is at rest, a person sitting inside it is at rest with respect to \_\_\_\_\_

- (1) the bus
- (2) jeep passing by
- (3) trees around
- (4) both (1) and (3)

Q.11. Which of the following statements is **incorrect** ?

- (1) Action and reaction force act on different bodies
- (2) Action and reaction force are equal in magnitude
- (3) Action and reaction force are opposite in direction
- (4) Reaction force gets activated after action force

Q.12. The salt content of Dead sea is considered to be very high (27‰). We can easily float in it. With the help of this information, select the correct option.

- (1) Our body weighs more than that of displaced sea water.
- (2) Dead sea water offers upward pressure on the body.
- (3) Upthrust balances gravitational force at Dead sea.
- (4) Due to high salt content, osmosis will lead to loss in body weight.

Q.13. Plimsoll lines are found on which of the following vehicles ?

- (1) Aeroplane
- (2) Submarine
- (3) CNG Rickshaw
- (4) Ship

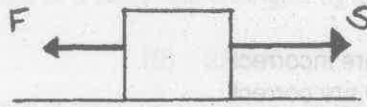
Q.14. Observe the table and choose the correct option :

NO.	TIME(s)	VELOCITY (m/s)
1	0	0
2	5	4.5
3	10	9.0
4	15	13.5
5	20	18.0
6	25	22.5

- (1) It is non uniform motion
- (2) It is uniform motion
- (3) It is uniformly accelerated motion
- (4) It is non uniformly accelerated motion

- Q.15.** Water is used as coolant because ———
- (1) It has high specific heat capacity (2) It is easily available  
 (3) It is a good conductor of heat (4) It is inexpensive

- Q.16.** Observe the diagram and select the correct option :



F - Force

S - Displacement.

- (1) Velocity of body will increase (2) Velocity of body will decrease  
 (3) Velocity will not change (4) Can not be predicted
- Q.17.** For industrial purposes, which of the following units of power is used ?  
 (1) Newton (2) J/s (3) horsepower (4) Joule
- Q.18.** While sharpening a knife; sparks travel tangential to grinding stone; this is an example of which of the following ?  
 (1) Inertia of rest (2) Inertia of motion (3) Inertia of direction (4) None of these
- Q.19.** Due to the force exerted by which of the following factors does a unpowered car accelerate downwards on an inclined road ?  
 (1) Tyres of the car (2) Weight of the car  
 (3) Force of the air (4) Roughness of the road
- Q.20.** Which of the following laws expressed in terms of a formula using standard meanings, has to be proved by experimental observation only ?

- (1)  $S = ut + \frac{1}{2} at^2$  (2)  $F = G \frac{m_1 m_2}{r^2}$   
 (3)  $m_1 u_1 + m_2 u_2 = m_1 v_1 + m_2 v_2$  (4) Total Energy =  $\frac{1}{2} mv^2 + mgh$

- Q.21.** Speed of sound is maximum in which of the following media ?  
 (1) Vacuum (2) Solids (3) Liquids (4) Gases

- Q.22.** The time period of a simple pendulum is,  $T = 2\lambda \sqrt{\frac{\ell}{g}}$ . Express 'g' in terms of 'T'.

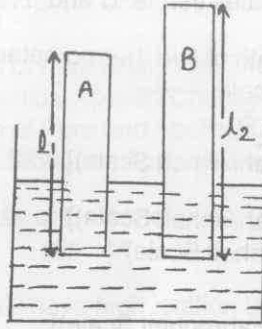
- (1)  $g^2 = \frac{T^2}{2\lambda \sqrt{\ell}}$  (2)  $g^2 = 2\lambda \frac{\sqrt{\ell}}{T}$  (3)  $g = 4\lambda^2 \frac{\ell}{T^2}$  (4)  $g = 2\lambda \sqrt{\frac{\ell}{T}}$

- Q.23.** Size of a bubble increases as it rises from bottom to top of a water tank. This can be explained by which of the following ?

- (1) Density of water changes as the bubble moves in water.  
 (2) The pressure exerted by water on bubble decreases as height of water column above it decreases.  
 (3) At constant temperature, the pressure inside the bubble is inversely proportional to volume of bubble.  
 (4) Both (2) and (3)

- Q.24.** What will be the time period of a wave, having frequency 50 Hz ?  
 (1) 0.2 s (2) 0.02 s (3) 0.5 s (4) 0.05 s

Q.25. Observe the diagram :



Metal plates A and B have same breadth ( $b$ ) and are suspended in water. What is the ratio of pressure on A and B ?

- (1) 1 : 1                      (2)  $l_1 : l_2$                       (3)  $l_2 : l_1$                       (4)  $l_1 b : \frac{l_2}{b}$

Q.26. Calculate momentum of a car having mass 1000 Kg. and velocity 10 m/s.

- (1)  $1 \times 10^2$  N s                      (2)  $1 \times 10^3$  N s                      (3)  $1 \times 10^4$  N s                      (4)  $1 \times 10^5$  N s

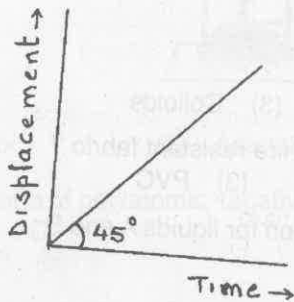
Q.27. What does a sound wave carry when it travels from one place to another ?

- (1) mass                      (2) wavelength                      (3) velocity                      (4) energy

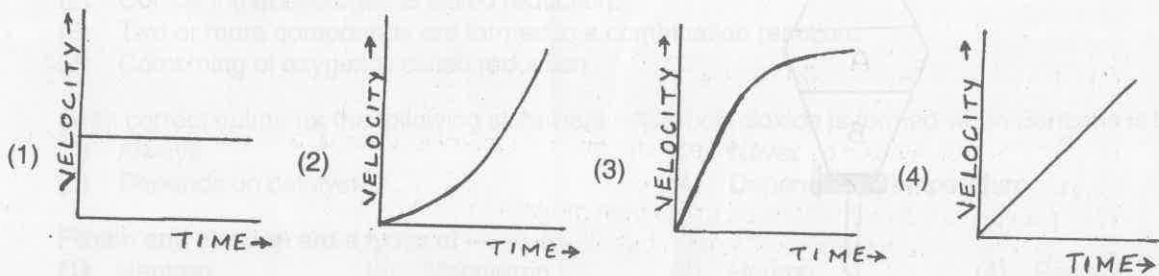
Q.28. Which part of the human ear recognises qualities of sound i.e. loudness and pitch ?

- (1) Ear drum                      (2) Cochlea                      (3) Auditory Canal                      (4) Auditory nerve

Q.29. Displacement – Time graph is shown below :



Which of the following will be the velocity – time graph for the same motion ?



**Q.30.** Temperature is measured by two types of scales that is °C and °F.  $1^{\circ}\text{C} = \frac{5}{9}(\text{F} - 32)$ . Using this information, select the correct option for length of two thermometers having same temperature range; one in celcius scale and one in Fahrenheit scale ———

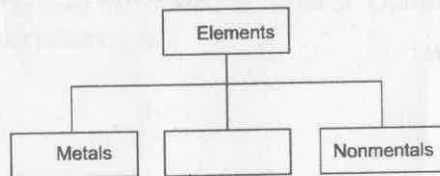
- (1) Length (celcius scale) =  $\frac{5}{9}$  [Length (Fahrenheit Scale)] + 32
- (2) Length (celcius scale) = 2 x [Length (Fahrenheit Scale)]
- (3) Length (celcius scale) = Length (Fahrenheit Scale)
- (4) Length (celcius scale) =  $\frac{1}{2}$  x [Length (Fahrenheit Scale)]

**Q.31.** Identify tetraatomic molecule of the following ———  
 (1) Chlorine (2) Carbondioxide (3) Sulphur (4) Phosphorus

**Q.32.** Choose the correct statement.  
 As water turns into a solid ———  
 (1) Its density and volume increases  
 (2) Its density remains same and volume decreases  
 (3) Its density decreases and volume increases  
 (4) Its density increases and volume decreases

**Q.33.** Which of the following qualities is rendered to stainless steel by carbon ?  
 (1) Shine (2) Hardness (3) Scratch proofness (4) Antirust property

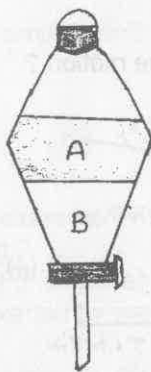
**Q.34.** Choose the correct option to complete the following chart for classification of matter :



- (1) Gases (2) Compounds (3) Colloids (4) Metalloids

**Q.35.** Which of the following materials is used to prepare fire resistant fabric ?  
 (1) Thermoplastic (2) Melamine (3) PVC (4) Bakelite

**Q.36.** Observe the experiment and select the correct option for liquids A and B :

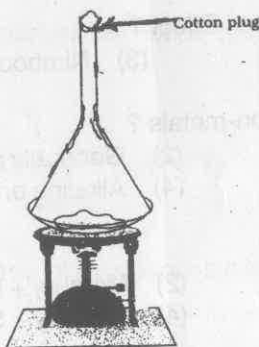


- (1) A = Water, B = Chloroform (2) A = Chloroform, B = Benzene
- (3) A = Water, B = Benzene (4) A = Water, B = Kerosene

**Q.37.** For  ${}_{16}^{32}\text{A}$ ; which of the following elements can replace 'A' ?

- (1) Cl (2) S (3) O (4) Na

- Q.38. Radioactive isotope of which of the following elements was found in scrap godowns at Delhi recently ?  
 (1) Cobalt (2) Carbon (3) Hydrogen (4) Strontium
- Q.39. What is IUPAC ?  
 (1) International Union of Pure Analytical Chemistry  
 (2) Indian Union of Practical Applied Chemistry  
 (3) International Union of Pure and Applied Chemistry  
 (4) Italian Union of Practical and Applied Chemistry
- Q.40. Calculate molecular mass of Carbondioxide. (Atomic mass of C = 12 and O = 16).  
 (1) 192 (2) 44 (3) 188 (4) 28
- Q.41. Which of the following will have high ignition temperature ?  
 (1) loban (dhoop) (2) petrol (3) yellow phosphorus (4) wood
- Q.42. Select **incorrect** option for Rutherford's observations \_\_\_\_\_  
 (1) Most alpha particles passed straight through gold foil.  
 (2) Some alpha particles scattered at large angles.  
 (3) Some deviated at very small angles.  
 (4) Most bounced back towards source.
- Q.43. Which of the following options is best suitable for the given experiment ?

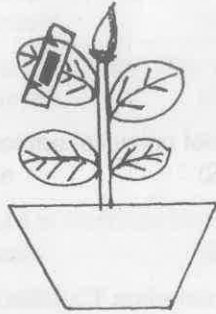


- (1) Camphor (2) Asafoetida (3) Baking Soda (4) Alum
- Q.44. Select the group of polyatomic negatively charged ions.  
 (1) Cl, Cu, PO<sub>4</sub> (2) NH<sub>4</sub><sup>+</sup>, OH<sup>-</sup>, CO<sub>3</sub><sup>2-</sup>  
 (3) NO<sub>2</sub><sup>-</sup>, CO<sub>3</sub><sup>2-</sup>, Br<sup>-</sup> (4) HCO<sub>3</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>3</sub><sup>2-</sup>
- Q.45. Choose the correct statement.  
 (1) A displacement reaction is formation of a single product.  
 (2) Combining of hydrogen is called reduction.  
 (3) Two or more compounds are formed in a combination reaction.  
 (4) Combining of oxygen is called reduction.
- Q.46. State correct option for the following statement : "Carbon dioxide is formed when Benzene is burnt".  
 (1) Always (2) Never  
 (3) Depends on catalyst (4) Depends on Temperature
- Q.47. Proton and electron are a types of \_\_\_\_\_  
 (1) Neutron (2) Magnatron (3) Hadron (4) Positron
- Q.48. What will be the molecular formula of "Alluminium Sulphate" ?  
 (1) Al<sub>3</sub>(SO<sub>4</sub>)<sub>2</sub> (2) AlSO<sub>4</sub> (3) Al<sub>4</sub>(SO<sub>4</sub>)<sub>2</sub> (4) Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>

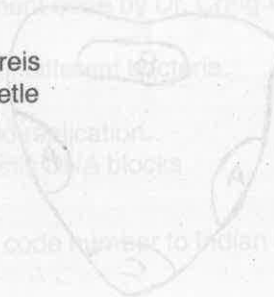
- Q.49.** Atomic number of Zn is 30. How many electrons will be present in its 'N' shell ?  
 (1) 2 (2) 0 (3) 12 (4) 10
- Q.50.** Identify neutral salt from the following \_\_\_\_\_  
 (1) Sodium Sulphate (2) Ammonium Sulphate  
 (3) Aluminium Chloride (4) Calcium Carbonate
- Q.51.** Which of the following methods can be used to reduce air pollution from exhaust of a factory ?  
 (1) Centrifugation (2) Sublimation  
 (3) Fractional Distillation (4) Condensation
- Q.52.** Which of the following statements regarding catalyst is NOT true ?  
 (1) It can initiate a reaction  
 (2) It remains unchanged at the end of the reaction  
 (3) It does not alter equilibrium of a reaction  
 (4) They are sometimes very specific in terms of reaction
- Q.53.** Which of the following is an example of isotopes ?  
 (1) Pb, Bi (2) H, D, T (3) C, N, O (4) K, Ca
- Q.54.** Compressibility of O<sub>2</sub> is \_\_\_\_\_  
 (1) very high (2) very low (3) zero (4) weak
- Q.55.** Which of the following solutions show Tyndall Effect ?  
 (1) Honey (2) Tea extract (3) Nimboo sherbat (4) Oil
- Q.56.** What is the chemical nature of oxides of non-metals ?  
 (1) Generally acidic (2) Generally alkaline  
 (3) Generally neutral (4) Alkaline or neutral only
- Q.57.** Which of the following is not an amalgum ?  
 (1) Mercury + Potassium (2) Mercury + Platinum  
 (3) Mercury + Gold (4) Mercury + Silver
- Q.58.** Who amongst the following suggested that, "Electrons cannot move freely, in between the orbits."  
 (1) Dalton (2) Thomson (3) Rutherford (4) Bohr
- Q.59.** What is the approximate width of microchip components ?  
 (1) 0.06 mm (2) 0.015 mm (3)  $1 \times 10^{-19}$  m (4) 0.25  $\mu$
- Q.60.** Earth's surface remains cooler because of which of the following phenomena ?  
 (1) Absorption (2) Condensation (3) Sublimation (4) Evaporation
- Q.61.** Select odd one out from the following \_\_\_\_\_  
 (1) Rhizobium (2) Azotobacter (3) Nitrobacter (4) Pseudomonas
- Q.62.** Choose correct statement for hormone insulin \_\_\_\_\_  
 (1) It enhances blood sugar level  
 (2) It is stored in gall bladder  
 (3) It helps in digestion of sugar  
 (4) It enables cells to absorb glucose
- Q.63.** Identify Shell fish out of the following \_\_\_\_\_  
 (1) Mrigal (2) Renavi (3) Muddushi (4) Boi
- Q.64.** Which of the following diseases leads to difficulty in swallowing ?  
 (1) Tuberculosis (2) Polio (3) Typhoid (4) Rabies



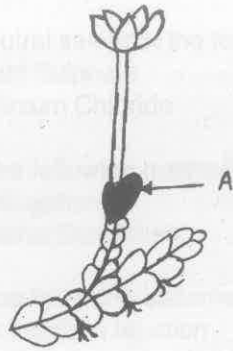
- Q.65.** In the adjoining experiment, cobalt chloride papers are attached on **BOTH** the surfaces of the leaf. Paper on which side will turn pink faster ?



- (1) Upper always (2) Lower always  
(3) Both simultaneously (4) Upper in the night and lower during the day
- Q.66.** Select correct pair of the following :
- (1) Leeuwenhock — 1<sup>st</sup> invented microscope  
(2) Purkinje — Protoplasm  
(3) Z. Jansen — Observed protozoan  
(4) R. Brown — Cell : Unit of life
- Q.67.** Which of the following type of tissues will not be seen in blood vessels ?
- (1) Smooth muscle fibre (2) Squamous epithelium  
(3) Connective tissue (4) Stratified epithelium
- Q.68.** Which stage of farming involves furrow cutting ?
- (1) Pre sowing (2) Sowing (3) Post sowing (4) Depends on crop
- Q.69.** Identify odd man out on the basis of circulatory system.
- (1) Dhaman (2) Draco (3) Magar (4) Turtle
- Q.70.** Why did cells observed by Robert Hooke appeared 'empty' under the microscope ?
- (1) The cells are compact suberinised parenchymatous cells.  
(2) The cells are dead sclerenchymatous lignified cells.  
(3) The cells are from meristamatic growing tissue.  
(4) The cells were perforated sieve tube cells of phloem.
- Q.71.** RNTCP scheme is related to which of the following diseases ?
- (1) Ranikhet in poultry (2) Chicken pox  
(3) Tuberculosis (4) Polio
- Q.72.** Identify odd one out on the basis of presence of chitin.
- (1) Mushroom (2) Nereis  
(3) Centipede (4) Beetle



Q.73. Choose correct label for 'A'.



Q.74. (1) Thallus (2) Rhizoid (3) Leaf (4) Perianth  
Select natural reflex of the following.

- (1) Salivation on thought of delicious food.
- (2) Closing of eye on sudden exposure to glare.
- (3) Swimming
- (4) Performing traditional dance.

Q.75. Which of the following plants will not have aerenchyma tissue ?

- (1) Colocasia (2) Pistia (3) Bamboo (4) Banana

Q.76. Select odd man out on the basis of movement of solvent through cells.

- (1) Earthworm moves away on sprinkling salt.
- (2) Dry pulses swell on soaking in water.
- (3) Feeling thirsty on eating lots of wafers.
- (4) Dipping pineapple slices in sugar syrup while canning.

Q.77. Which of the following factors was not considered in Whittaker's classification ?

- (1) Habitat (2) Cell structure (3) Nutrition (4) Body structure

Q.78. Wild variety of which of the following plants acts as a weed ?

- (1) Barley (2) Wheat (3) Oats (4) Sesame

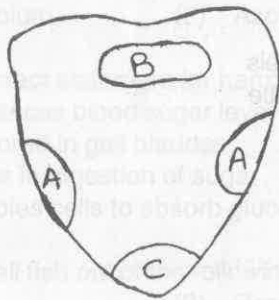
Q.79. Select **INCORRECT** statement about lysosomes.

- (1) It supplies energy.
- (2) It produces digestive enzymes.
- (3) It helps in metamorphosis.
- (4) It is immune system of cell.

Q.80. Identify the organism showing spherical symmetry.

- (1) Echinus (2) Sycon (3) Puffer fish (4) Pila

Q.81. On which part of the tongue can we sense bitter taste ?



- (1) A (2) B (3) C (4) Everywhere

Q.82. Which of the following crops is grown in sandy soil ?

- (1) Fenugreek (2) Pepper (3) Mustard (4) Coriander

- Q.83.** Select the animal with highest number of chromosomes.  
 (1) Domestic cat (2) Mouse (3) Dog (4) Lion
- Q.84.** Which tissue will be present at the tip of human nose ?  
 (1) Ligament (2) Cartilage (3) Aerolar tissue (4) Bone
- Q.85.** Food poisoning at the time of ceremony can be categorised as which type of disease ?  
 (1) Endemic (2) Pandemic (3) Epidemic (4) (1) or (2)
- Q.86.** At which of the following locations intercalary meristem will be present ?  
 (1) Node (2) Cambium (3) Vascular bundle (4) Epidermis
- Q.87.** Pisciculture is normally carried out in combination with which of the following crops ?  
 (1) Wheat (2) Jowar (3) Moong (4) Rice
- Q.88.** Select **CORRECT** statement about Monerans and Protistans.  
 (1) Both have vacuoles  
 (2) Monerans have DNA while protistans don't  
 (3) Both have ribosomes  
 (4) Monerans have flagellum while protistans have cilia
- Q.89.** Identify odd one out on the basis of coelom.  
 (1) Tape worm (2) Hook work (3) Round worm (4) Pin worm
- Q.90.** Which of the following trees is important for lac production ?  
 (1) Khair (2) Palas (3) Ain (4) Tuti (Mulberry)
- Q.91.** What is polygraph test ?  
 (1) Narco analysis (2) Brain mapping (3) Lie detector (4) 2D ecocardiograph
- Q.92.** Presence of which chemical on grapes led to their rejection in European markets this year ?  
 (1) BHC (2) Cypermethrin (3) 2, 4-D (4) Leocene
- Q.93.** Online admissions for 11<sup>th</sup> standard in Maharashtra are taken care of by ———  
 (1) MH-CIT (2) MKCL (3) IIT, Mumbai (4) MIT
- Q.94.** Which of the following is India's first indigenously built stealth frigate ?  
 (1) Shivalik (2) Trishul (3) Chetak (4) Vikrant
- Q.95.** Monorail in Mumbai will run on which type of wheels ?  
 (1) Wheels made up of unbreakable fibre (2) Wheels with special PVC coating  
 (3) Wheels with rubber tyre (4) Wheels with iron rim
- Q.96.** In a large Hadron Collider, which of the following is used to keep magnets at operating temperature of 1.9 K ?  
 (1) Liquid Helium (2) Liquid Nitrogen (3) Dry ice (4) Ether
- Q.97.** At which of the following places will soap bubbles last longer ?  
 (1) Juhu beach (2) Jaisalmer (3) Ladakh (4) Pune
- Q.98.** Atomic Energy Project at which place in Maharashtra is strongly opposed by locals recently ?  
 (1) BARC (2) Madban (3) Anjarla (4) Dabhol
- Q.99.** Which of the following explains major feature of experiment done by Dr. Craig Venter on bacterial cell recently ?  
 (1) Constructed bacterial DNA by recombining codes of different bacteria.  
 (2) Introduced viral DNA into bacterium.  
 (3) Inserted mutant gene into bacterial cell and induced replication.  
 (4) Copied bacterial DNA code and constructed synthetic DNA blocks.
- Q.100.** What is UNICODE system ?  
 (1) Project headed by Dr. Nandan Nilekanni to assign code number to Indian citizens.  
 (2) A binary code system of '0' and '1'.  
 (3) Multilingual text encoding system.  
 (4) Common code for all Microsoft operating systems.