

URANIUM TALENT SEARCH EXAMINATION(UTSE) - 2015

(For CBSE/ICSE affiliated Schools)

Time: 60 minutes(2 pm - 3 pm)

Class- VIII

F.M - 180(+3/-1 system)

Declaration of Result in the internet(www.theuranium.org) : 03.03.2015

(There are 60 MCQs and each has one correct answer. 3 marks will be given for each correct answer and 1 mark will be deducted for each wrong answer.)

- Suppose you applied a 40 newton pulling force on an object and at the same instant your sister applied a 25 newton pushing force on the same object. Then what is the resultant force acting on the object ?
(a) 65 N (b) 15 N (c) 32.5 N
(d) cannot be said as the directions of the applied forces are not known
- Playing carrom and opening up of the lid of a box respectively belong to which kind of force ?
(a) Pull, Push (b) Push, Pull (c) Pull, Pull (d) Push, Push
- What change can occur to a moving body by applying a force onto it ?
(a) speed (b) direction (c) both speed and direction (d) no change
- Suppose you are riding a bicycle and going in north direction. Suddenly you stopped paddling and continued to be on the moving cycle and observed that the cycle is moving of its own for some distance after which it stopped spontaneously. Then which factor was responsible for the change of the state of motion of your bicycle ?
(a) A pushing force acted in the south direction (b) friction force acted in the south direction
(c) A pulling force acted in north direction (d) your weight force brought the bicycle to rest
- If the distance between two objects having equal masses is doubled, then the gravitational force between them will
(a) become $\frac{1}{4}$ (b) increase 4 times (c) increase 2 times (d) become $\frac{1}{2}$
- Suppose you and your sister are applying pushing force on the opposite sides and in opposite directions of a cubical wooden box having 25 m length of each side. You are applying 100 N force and your sister 75 N force. So the pressure that is being exerted on the box due to both of you is
(a) 7 N/m² (b) 1 N/m² (c) 0.04 N/m² (d) 0.28 N/m²
- Suppose you took a rubber sucker in your right hand and pressed its flat portion hard on the palm of your left hand. You will find it to stick onto your left palm even after you stopped applying any pressure by the right hand. The correct reason why the sucker is not detached from your palm for quite sometime is
(a) the air pressure inside the sucker is lesser than atmospheric pressure
(b) atmospheric pressure is lesser than the air pressure inside sucker
(c) the air pressure inside the sucker is equal to atmospheric pressure
(d) this does not depend on air pressure
- Suppose you started pushing a heavy metal box with increasing force and found that the box did not move forward. In stead, it remained at the same position. What was happening when you were increasing the pushing force onto the box ?
(a) static frictional force was decreasing (b) kinetic frictional force was increasing
(c) sliding frictional force was increasing (d) static frictional force was increasing
- Ball bearings are used in automobiles and many other machines. The reason for their use is
(a) to decrease sliding friction (b) to decrease fluid friction
(c) to decrease rolling friction (d) to increase static friction

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10. In which of the following motion, drag does not act significantly ?
 (a) while a bird flies in the sky (b) while a boat sails in river
 (c) when you walk on a slippery road (d) when a parachuter descends down in sky
11. Pairs consisting of sound producing instrument and its vibrating part are given below. Which of the pairs is not correct ?
 I: human sound box : vocal chord II: Flute : thin wooden part made up of bamboo
 III: Veena : Strings of Veena IV : School bell : metal of the bell
 (a) I (b) II (c) III (d) IV
12. Suppose you are a boy. A girl friend of yours belonging to your class shouted at you in a loud voice by calling your name. You replied 'Yes' to her but in a low voice. Which is correct about the sound that you and your girl friend produced ?
 (a) both the amplitude and frequency of your sound were lower
 (b) the sound produced by your girl friend had a greater amplitude but lower frequency
 (c) the sound produced by you had a lower amplitude but greater frequency
 (d) the sound produced by your girl friend had lower amplitude as well as lower frequency
13. Supposing you are lines man in a railway station. You hurled a green flag to give a signal to the train driver to pass by (i.e., not to stop). You made to and fro motion of the green flag thereby oscillating it about a mean position. If the flag takes 0.1 sec to go from one end of the motion to the opposite end, the frequency of the oscillation of the flag will be
 (a) 10 Hz (b) 100 Hz (c) 50 Hz (d) 5 Hz
14. If you use a LED bulb in a simple tester that you prepared to test the conductivity of the following , then in which case, the LED bulb will glow the dimmest(with least brightness) ?
 (a) vinegar (b) tap water (c) table salt solution (d) distilled water
15. Which of the following is true ?
 (a) air is good conductor of electricity at standard conditions
 (b) air can conduct electricity during the time of lightning
 (c) under very high voltange conditions the particles present in air exist in neutral state
 (d) air does not conduct electricity at any condition
16. When scientist William Nicholson passed electricity in acidulated water, what he found at the catode to be liberated ?
 (a) hydrogen (b) oxygen (c) sulphur dioxide (d) none of these
17. You pass electric current through a CuSO_4 solution in which a graphide rod and copper rod are dipped. If grpahite rod is connected to -ve terminal and copper rod to the +ve terminal of a battery, what will happen ?
 (a) coating of copper will be made on copper rod
 (b) coating of copper will be made on graphite rod
 (c) hydrogen gas will be produced at grphite electrode
 (d) oxygen gas will be produced at copper electrode
18. Coating(plating) of which metal on iron is called galvanisation ?
 (a) Sn (b) Zn (c) Cr (d) Ag
19. You rubbed a plastic straw on a small piece polyethene sheet and also rubbed a glass rod on a small piece of silk. Immediately after rubbing, you placed the piece of silk close to polyethene sheet. What will happen between them?
 (a) attraction (b) repulsion (c) neither attraction nor repulsion (d) cannot be said
20. Prepare a simple aluminium leaf electroscope. Charge an used refill plastic by way of friction and then make its contact with the upper metallic paper clip of the electroscope. Which is correct ?
 (a) the aluminium foils inside the electroscope will acquire the same charge as the charged refill and there will be repulsion between them
 (b) the aluminium foils inside the electroscope will acquire opposite charge with respect to the charged refill and there will be repulsion between them
 (c) the aluminium foils inside the electroscope will acquire the same charge as the charged refill and there

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will be attraction between them

(d) the aluminium foils inside the electroscope will acquire opposite charge with respect to the charged refill and there will be attraction between them

21. During lightning the transference of charge takes place between cloud and earth. Which is correct ?
(a) +ve charge transferred from earth to cloud (b) +ve charge transferred from cloud to earth
(c) -ve charge transferred from earth to cloud (d) -ve charge transferred from cloud to earth
22. Which is correct about the image formed by a plane mirror ?
(a) erect, elongated (b) erect, real and same height as object
(c) erect, virtual, lateral inversion, same distance as object
(d) erect, real, same distance as object, lateral inversion, same height as object
23. Suppose a plane mirror is painted with a number of horizontal and equidistant black coloured stripes on the reflecting surface. A white donkey is standing in front of such a mirror. The image of the donkey will be observed as
(a) a donkey (b) a zebra (c) a donkey with less brightness
(d) a zebra with less brightness
24. Suppose you keep two plane mirrors face to face and parallel to each other and place a burning candle in between the mirrors. How many images you can see in any one mirror ?
(a) 1 (b) 3 (c) infinite (d) no image will be seen
25. What is the type of lens present in our eye and the light rays coming from an object is focussed on which part of the eye ?
(a) convex, retina (b) concave, retina (c) convex, iris (d) convex, pupil
26. In which part of human eye cataract develops ?
(a) retina (b) eye lens (c) nerve cells (d) cornea
27. What are formed when potassium metal reacts with water ?
(a) KOH +heat (b) K_2O +heat (c) KOH + H_2 + heat (d) $K(OH)_2$ +heat
28. Which one does not react with dilute sulphuric acid ?
(a) copper (b) sulphur (c) iodine (d) all of these
29. Which among the following can react both with dilute H_2SO_4 and dil NaOH solution and which gas is evolved in each case ?
(a) Mg, H_2 (b) Al, H_2 (NaOH), SO_2 (H_2SO_4) (c) Sn, H_2 (d) Fe, H_2
30. Which metal on reaction with ferrous sulphate solution will render the light green colour of the solution change?
(a) Zn & Cu (b) Al & Zn (c) Al & Cu (d) Zn & Fe
31. Which element when kept open in air reacts to form a product which on dissolution in water forms an acid ? Then the element and the acid formed in water respectively are
(a) C, H_2CO_3 (b) S, H_2SO_3 (c) P_4 , H_3PO_4 (d) all of these
32. The nonmetallic and metallic conductors of electricity are respectively
(a) Graphite, Hg (b) Iodine, Zn (c) Phosphorous, Fe (d) Mercury, Copper
33. By reacting with which substances iron forms rust and what is the chemical composition of rust ? These respectively are
(a) O_2 , Fe_2O_3 (b) $[O_2+H_2O]$, $Fe_2O_3 \cdot 3H_2O$ (c) O_2 , FeO (d) $[O_2, H_2O], Fe_2O_3$
34. Which of the following is a natural radioactive element ?
(a) Cesium (b) iodine (c) lead (d) thorium
35. Which of the following plastics possesses the crosslinked polymer chains ?
(a) teflon (b) polystyrene (c) melamine (d) polypropene
36. In each of the following pairs, one polymer and its application are given. Indicate which pair is wrong ?
(a) melamine - thermocole (b) formica - sunmica (c) polypropene-fibers for fishing net
(d) bakelite - electric switch, plugs

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37. Which is wrong about fibres ?
 (a) nylon fibres are used to strengthen tyres
 (b) rayon fibres are prepared from polyester type of polymers
 (c) the fibres made of PET are called terylene and dacron
 (d) the weakest fibre among nylon, rayon and terylene is the rayon fibre
38. Which of the following fibres on burning does not produce burning hair smell ?
 (a) nylon (b) silk (c) wool (d) polyester
39. Coal having maximum carbon content was subjected to destructive distillation. The coal and the residue during the distillation process respectively are
 (a) anthracite, coal tar (b) bituminous, coke (c) bituminous, coal tar
 (d) anthracite, coke
40. Which substance and which distillation process of such substance will produce pitch and bitumen respectively?
 (a) coal tar-destructive distillation; crude petroleum oil-destructive distillation
 (b) crude petroleum oil-destructive distillation; coal tar-fractional distillation
 (c) crude petroleum oil - fractional distillation; coal tar- fractional distillation
 (d) coal tar - fractional distillation; crude petroleum oil- fractional distillation
41. Once you saw a thatched house in your village was on fire and fire brigade personnel were pouring water onto the fire by means of water pipes. So what happens when water is applied on the thatched house on fire?
 (a) the outside temperature becomes lower than the ignition temperature of the combustible substance
 (b) the amount of substance supporting combustion decreases near the combustible substance
 (c) both a) & b) (d) none of these
42. Which is correct about bacteria ?
 (a) it is a unicellular organism in which there is no nuclear membrane separating its nucleus from cytoplasm
 (b) its cell is of eukaryotic type (c) its cell does not have a cell wall
 (d) its cell has plastids in it
43. Protoplasm does not include
 (a) cytoplasm (b) plasma membrane (c) nucleus (d) cell organelles
44. Which of the following statements is wrong about chromosomes ?
 (a) they have thread like appearance and exist in nucleus (b) they are made up of DNA
 (c) they are also present in nucleolus (d) they carry genes
45. Which is true about the poultry egg that we eat ?
 (a) the egg produced from fertilized egg is multicellular
 (b) the egg produced from unfertilized egg is multicellular
 (c) the egg is produced by the external fertilization of female gamete of hen and male gamete of rooster
 (d) freshly laid egg is the foetus state of embryo
46. Which of the following does not undergo metamorphosis in its life cycle ?
 (a) butterfly (b) silkworm (c) hen (d) none of these
47. Which of the following is true about 'In Vitro Fertilization' process leading to birth of test tube baby ?
 (a) After external fertilization and subsequent embryonic development, the foetus is placed in the mother's uterus till full development into a baby
 (b) External fertilization is brought about, but the embryo develops into foetus in the mother's uterus and then to into a baby
 (c) Internal fertilization occurs and the zygote develops into a baby outside the mother's uterus
 (d) the externally fertilized zygote develops into a baby in a test tube in laboratory
48. By which process hydra and amoeba reproduce respectively ?
 (a) binary fission, budding (b) budding , binary fission
 (c) binary fission in both (d) budding in both
49. The physical, mental, vital and emotional changes that occur in the onset of puberty in teenagers is due to a proteinous substance called hormone. Then which is true about hormone ?
 (a) it is secreted by endocrine glands and mix in blood through ducts
 (b) it is secreted by pituitary ductless glands
 (c) endocrine glands are one type of pituitary gland (d) all of these are true
50. Suppose a girl acquires a height of 190 cm after crossing 18 years of age. Then what was her approximate

height when she was 9 years old ?

- (a) 95 cm (b) 235 cm (c) 153 cm (d) 160 cm
51. Which is correct about the causative microorganism and the mode of transmission for hepatitis-B and dengue fever ?
(a) Hepatitis-B: virus, air (b) Dengue: bacteria, aedes mosquito
(c) Dengue: virus, aedes mosquito (d) Hepatitis-B: bacteria, water
52. By which scientist and from which microorganism penicillin was prepared first ?
(a) Louis Pasteur, fungus (b) Alexander Fleming, bacteria
(c) Alexander Fleming, fungus (d) Edward Jenner, protozoa
53. Find the odd man out .
(a) sodium metabisulphite-antibiotic (b) yeast - fermentation
(c) salt - food preservative (d) Rhizobium-roots of soyabean plant
54. Maize, paddy and groundnut belong to which type of crops ?
(a) Maize, paddy and groundnut : Kharif (b) paddy and groundnut-Kharif, Maize-Rabi
(c) Paddy-Kharif, Maize and groundnut-Rabi (d) Maize, paddy and groundnut : Rabi
55. Which of the following is true about extinct and endangered group of animals ?
(a) Dinosaurs-endangered; Barasingha-extinct (b) Dinosaurs-extinct; Barasingha-endangered
(c) Dinosaurs-extinct; Barasingha-extinct (d) Dinosaurs-endangered; Barasingha-endangered
56. If girl child is born to a family, the father is squarely responsible for this. Even in this age of India illiterate and some literate persons do not believe this scientific fact. Due to their ignorance, mother-in-law, father-in-law and also the husband of a female person inflict lot of atrocities and maltreatment on a female. Then which is correct regarding the scientific concept given below ?
(a) Out of 23 pairs of chromosomes, one pair is XY in case of a female
(b) X chromosome in the male sperm fertilizes with Y chromosome in the female egg to form girl child
(c) X chromosome in female egg fertilizes with X chromosome in male sperm to form a boy child
(d) Y chromosome in the male sperm fertilizes with X chromosome in the female egg to form boy child
57. Which is correct about the shape of human cells ?
(a) red blood cell-spherical, muscle cell-long branched; nerve cell-spindle shaped
(b) muscle cell-spherical, red blood cell-long branched; nerve cell-spindle shaped
(c) red blood cell-spindle shaped; muscle cell-long branched; nerve cell- spherical,
(d) red blood cell-spherical, muscle cell-spindle shaped ; nerve cell-long branched
58. Which is correct about zoo and wild life sanctuary ?
(a) in zoo, the animals are kept in captivity for the purpose of exhibition in artificially created traps
(b) in sanctuary, the animals are kept in their natural habitat without captivity with full protection to their lives
(c) in both zoo and sanctuary, killing and capturing animals are prohibited
(d) all these are correct
59. Which of the following does not contain nitrogen ?
(a) proteins (b) chlorophyll (c) carbohydrate (d) nucleic acids
60. What are the anhydride of sulphuric acid and carbonic acid respectively ?
(a) SO_3 , CO_2 (b) SO_2 , CO_2 (c) SO_2 , CO_3 (d) SO_3 , CO_3

Answer Keys:

- 1.d 2.d 3.c 4.b 5.a 6.c 7.a 8.d 9.c 10.c 11.b 12.a 13.d
14.d 15.b 16.a 17.b 18.b 19.a 20.a 21.d 22.c 23.c 24.c 25.a 26.b
27.c 28.d 29.c 30.b 31.c 32.a 33.b 34.d 35.c 36.a 37.b 38.d 39.d
40.d 41.c 42.a 43.b 44.c 45.a 46.c 47.b 48.b 49.b 50.c 51.c 52.c
53.a 54.a 55.b 56.d 57.d 58.d 59.c 60.a