



INTSO EDUCATION

SCIENCE TALENT SEARCH OLYMPIAD (STSO) 2015-16

STAGE - 2

TIME : 60 min.

CLASS : VIII

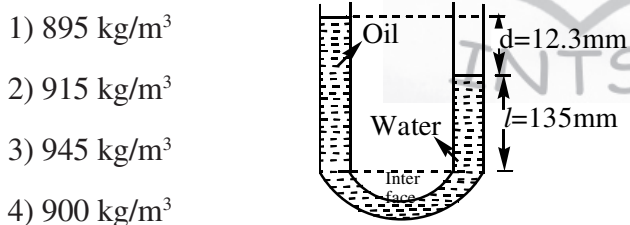
Max. Marks : 50

Instructions:

- ⇒ Fill the OMR sheet completely and carefully.
- ⇒ Each question carries one mark and has only one correct answer. $\frac{1}{4}$ (one fourth) marks will be deducted for indicating incorrect response of each question.
- ⇒ The question paper contains 50 questions to be answered in 60 minutes.

PHYSICS

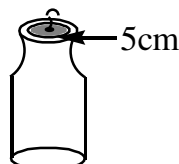
1. Suppose a 65 kg boy and a 45 kg girl use a massless rope in a tug of war on an icy, resistance - free surface. If the acceleration of the girl towards the boy is 3 m/s^2 , then the magnitude of the acceleration of the boy towards the girl is []
1) 1 m/s^2 2) 2 m/s^2 3) 3 m/s^2 4) 2.1 m/s^2
2. A student stands on a weighing scale in an elevator at rest on the 64th floor of a building. The scale reads 836N. As the elevator approaches the 74th floor, the scale reading drops to 782 N. The acceleration of the elevator is _____ m/s^2 . []
1) -0.63 2) 0.63 3) 1.3 4) -1.3
3. Two bodies are in equilibrium when suspended in water from the arms of a balance. The mass of one body is 28g and its density is 5.6 g/cc. If the mass of the other body is 36g, its density is []
1) 2 g/cc 2) 2.8 g/cc 3) 3 g/cc 4) 3.6 g/cc
4. The U - tube as shown in figure contains two liquids in static equilibrium. Water density is 998 kg/m^3 . The density of the oil is []



5. A block of density $\rho = 800 \text{ kg/m}^3$ floats in a fluid of density $\rho_f = 1200 \text{ kg/m}^3$. The block has height (h) = 6cm. If the block is held fully submerged and then released, then the acceleration of block is []
1) 5 m/s^2 2) 2.5 m/s^2 3) 4 m/s^2 4) 4.9 m/s^2
6. A bottle of circular shaped mouth of radius 5 cm is closed by a tightly fitted light cork. A light hook is attached to the cork (shown in figure). The coefficient of friction between cork and bottle is $\frac{7}{22}$. The normal contact force exerted by bottle on cork per unit circumference of the cork is

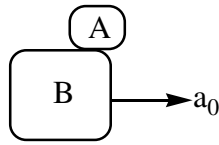
100 N/m. Find the maximum force F applied on the hook, so that the cork does not pop out.

- 1) 10N []
- 2) 100N
- 3) 50N
- 4) Zero



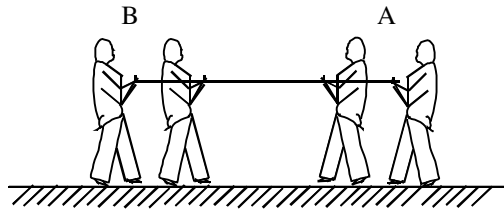
7. A small block A can slide on upper rough surface of a block B, which is accelerating horizontally with $a_0 = 3 \text{ m/s}^2$. The length of the block B is 2m. Find the time after which block A will separate from block B. The coefficient of kinetic friction between A and B is $\mu_k = 0.2$. []

- 1) 1s
2) 2s
3) 3s
4) 4s



8. In a tug of war team A of total mass m_1 is found to be winning over the team B of total mass m_2 . The coefficient of friction for team A and ground is μ_1 and that for team B and ground is μ_2 , then []

- 1) $\mu_1 m_1 > \mu_2 m_2$
2) $\mu_1 m_1 = \mu_2 m_2$
3) $\mu_1 m_1 < \mu_2 m_2$
4) No sufficient information



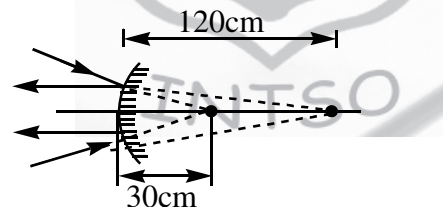
9. An object moves with 5 ms^{-1} toward right while the mirror moves with 1 ms^{-1} toward the left as shown in figure. Find the velocity of image. []

- 1) 7 m/s towards left
2) 7 m/s towards right
3) 5 m/s towards left
4) 5 m/s towards left



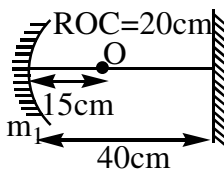
10. Converging rays are incident on a convex spherical mirror so that their extensions intersect 30 cm behind the mirror on the optical axis. The reflected rays form a diverging beam so that their extensions intersect the optical axis 1.2 m from the mirror. The focal length of the mirror is []

- 1) 30 cm
2) 24 cm
3) 12 cm
4) 2.4 m



11. Find the position of final image after three successive reflections taking first reflection on m_1 . []

- 1) $v = 12.5 \text{ cm}$
2) $v = 7.5 \text{ cm}$
3) $v = -7.5 \text{ cm}$
4) $v = -12.5 \text{ cm}$



12. A concave mirror gives a real image magnified 4 times. When the object is moved 3 cm the magnification of the real image is 3 times. The focal length of mirror is []

- 1) 12 cm 2) 24 cm 3) 36 cm 4) 18 cm

13. The bells of a college (or) temple are made of large size. It is for []

- 1) producing sound of high pitch
2) producing loud sound
3) producing sound of high quality
4) None

14. It is possible to recognise a person by hearing his voice even if he is hidden behind a solid wall. This is due to the fact that his voice []
 1) has a definite pitch 2) has a definite quality
 3) has a definite loudness 4) can penetrate the wall
15. Processed food items are preserved _____ coated iron cans []
 1) zinc 2) chromimum 3) tin 4) gold
16. Due to rubbing of air particles the water droplets in clouds get ____ charge []
 1) positive 2) negative 3) Both 1 and 2 4) None
17. Highest latitude in AndhraPradesh []
 1) Chittor 2) Prakasam 3) Adilabad 4) Visakha

CHEMISTRY

18. Match the terms of Column A correctly with the phrases given in Colum B. []

Column A

i) Polyester

ii) Teflon

iii) Rayon

iv) Nylon

1) d, a, c, b

Column B

a) Prepared by using wood pulp

b) Used for making parachutes and stockings

c) used to make non-stick cookwares

d) Fabrics do not wrinkle easily

3) d, c, a, b

4) b, a, c, d

19. Rahul categorised the following substances as shown below

S. No	Substance	Biodegradable	Nonbiodegradable
p)	Peels of vegetable and fruit	√	×
q)	Paper	×	√
r)	Cotton cloth	√	×
s)	Woolen items	×	√
t)	Wood	×	√
w)	Metal cans	√	×
x)	Plastic bag	×	√

Which of the following substances are not correctly matched []

1) p, r, x

2) r, s, t, x

3) q, s, t, w

4) s, w, p, r

20. Which of the following is not included in 4R principle []

1) Reuse

2) Reserve

3) Recycle

4) Recover

21. Raju's mother is preparing lemon pickle. She is searching for a vessel to store that pickle. Raju suggested her mother to store the pickle in a vessel made of []

1) Aluminium

2) Clay

3) Copper

4) Glass.

22. Sanjana went to a goldshop with her parents and she asked the gold smith why gold is preferred for making jewellery. Goldsmith gave some reasons. Gold is

a) Malleable

b) Ductile

c) Non corrosive

d) Costlier

e) Lustrous

Which of the above reasons are suitable. []

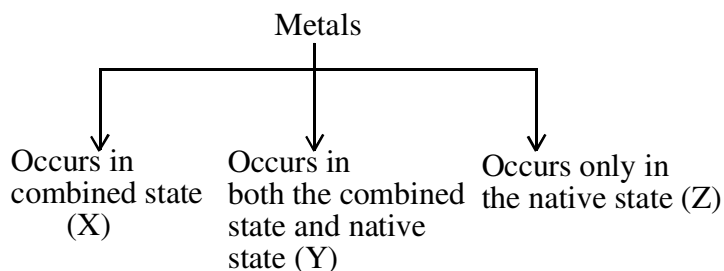
1) Only a,e

2) a, b, e only

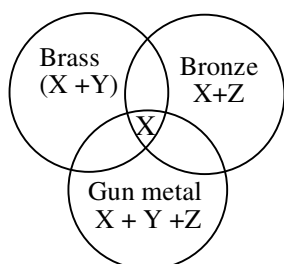
3) d only

4) a, b, c, e

Based on the following flow chart, answer the following questions 23, 24 and 25



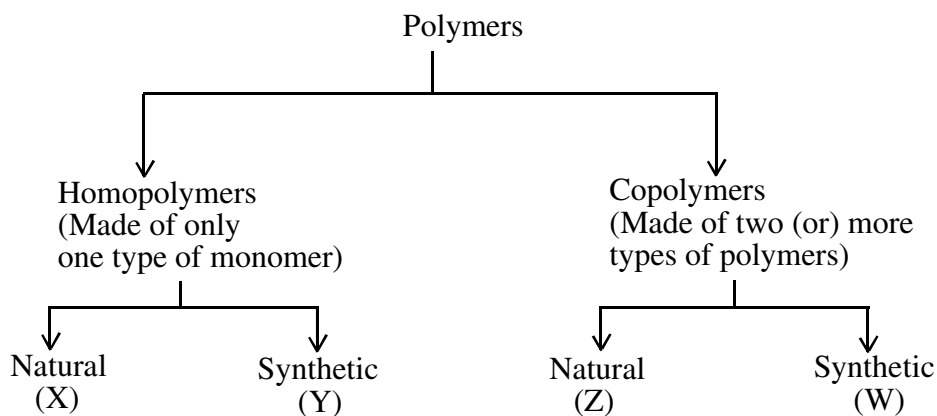
23. What is the Latin name of the metal suitable for the category Y. []
 1) Natrium 2) Aurum 3) Argentum 4) Ferrum
24. Which of the following is a ore of metal belong to the category X []
 1) Copper glance 2) Horn silver 3) Bauxite 4) All of these
25. Some metals like Cr and Mn can be extracted by the reduction of its oxide with the powder of some metal. That metal belongs to which of the following category []
 1) X 2) Y 3) Z 4) Either or Y or Z
26. Manufacturing of synthetic fibres help in []
 1) Controlling of soil pollution 2) Conservation of forests
 3) Saving of electricity 4) All of these
27. $M + HCl(aq) \rightarrow \text{Metal chloride} + H_2 \uparrow$ []
 Select the odd one from the following based on the above reaction
 1) Zn 2) Mg 3) Au 4) Al



28. Point X refers to []
 1) Cu 2) Sn 3) Zn 4) Fe

29. $\text{Non metal (A)} + O_2 \rightarrow X \xrightarrow{H_2O} Y$ []
 Y is used in making of cool drinks . The composition of 'A' and O in the substance X by their mass is
 1) 3 : 4 2) 1 : 2 3) 3 : 8 4) 1 : 1

Based on the following flow chart, answer the questions 30 and 31 .



30. Nylon belongs to which of the following category []
 1) X 2) Y 3) Z 4) W
31. Which of the following Polymers come under the category X. []
 1) Rubber 2) Proteins 3) Polyester 4) PET
32. Three polymers were given
 A = Natural rubber, B = Nylon C = Polyethene []
 Arrange these in the increasing order of their intermolecular forces
 1) $A > B > C$ 2) $A < C < B$ 3) $C < A < B$ 4) $B > C > A$

33. $\begin{array}{c} \text{Sodium halide} \\ \text{NaX} \\ \downarrow \\ \begin{array}{cccc} \text{F}_2 & \text{Cl}_2 & \text{Br}_2 & \text{I}_2 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ \text{NaF} + \text{X}_2 & \text{NaCl} + \text{X}_2 & \text{NaBr} + \text{X}_2 & \text{No reaction} \end{array} \end{array}$
- Select the correct statement from the following []
 1) Halogen 'X' is more reactive than F, Cl, Br 2) I is more reactive than X
 3) I is less reactive than X 4) Reactivity of X = Reactivity of I

34. In Which of the following cases, H_2 gas is liberated []

Metal	HCl	NaOH
Zn	1	2
Al	3	4
Pb	5	6
Cu	7	8

- 1) 1, 2, 3, 4, 5, 6 only 2) 1, 2, 3, 4 only
 3) 1, 2, 3, 4, 7 and 8 only 4) 5, 6, 7, 8 only

BIOLOGY

35. Which of the following represents informative writing []
 1) Describing inference 2) Telling a story 3) Writing a poem 4) Writing a song
36. Siva identified a bulb which is not working. He found that it may be due to Fuse failure or switch problem. The skill be used here is []
 1) Making hypothesis 2) Observation 3) Comparison 4) Collecting data
37. Hetergenous material present in the cell, which contains membrane bound cell organelles is []
 1) Nucleus 2) Cell membrane 3) Cytoplasm 4) Cell wall
38. Lysosomes are the suicidal bags of cell, which are formed from []
 1) Endo plasmic reticulum 2) Golgi vesicles
 3) Cytoskeleton 4) Nucleus
39. Synthesis and modification of preteins occurs respectively on []
 1) Rough endoplasmic reticulum & Golgi complex
 2) Smooth endoplasmic reticulum & Golgi complex
 3) Nucleus & rough endoplasmic reticulum
 4) Ribosomes and Lysosomes

40. What is the function of cell shown in this picture []
- 1) Phagocytosis
 - 2) Production of antibodies
 - 3) Transport of oxygen
 - 4) Transport of food



41. []

Disease	Causative organism
1) Tikka disease of ground nut	Fungi
2) Tobacco mosaic	A
3) Smurt of rice	B
4) Citrus canker	C

A, B, & C respectively are

- 1) Fungi, virus and bacteria
 - 2) Bacteria, virus and protozoa
 - 3) Virus, fungi and bacteria
 - 4) Bacteria, virus and fungi
42. Which of the following increases soil fertility []
- 1) Growing cereal crops
 - 2) Growing pulse crops
 - 3) Spraying chemical fertilizers
 - 4) Spraying pesticides
43. Eating spoiled fish leads to food poisoning. This is due to the growth of []
- 1) *Clostridium tetani*
 - 2) *Clostridium botulinum*
 - 3) *Yersinia pestis*
 - 4) *Thermus aquaticus*
44. Pick the odd one out []
- 1) Polio
 - 2) Cholera
 - 3) Chiken pox
 - 4) Encephalitis
45. Identify the part of male reproductive system, where the production of spermatozoa occurs []
- 1) Epidymis
 - 2) Semial duct
 - 3) Seminiferous tubules
 - 4) Vasa efferentia
46. The site of fertilization in female reproductive system is []
- 1) Uterus
 - 2) Fallopian tube
 - 3) Ovary
 - 4) Egg
47. Embryo gets food from the mother through a special structure known as []
- 1) Umbilical cord
 - 2) Placenta
 - 3) Oviduct
 - 4) Uterus
48. Which of the following is correct regarding IVF []
- 1) Egg is allowed to fertilize in the female body with out a sperm
 - 2) Zygote is allowed to develop completely in the test tube
 - 3) Sperm and egg collect from a couple are allowed to fertilize in the test tube after a week zygote formed is placed in mother's uterus
 - 4) The baby formed through IVF will not be similar to a normal baby
49. Which of the following is not the function of hormone []
- 1) Controlling the sugar levels
 - 2) Controlling the calcium levels
 - 3) Controlling salt & water levels
 - 4) Removal of waste materials
50. Which of the following hormones causes ovulation []
- 1) Leutinizing hormone
 - 2) Follicle stimulating hormone
 - 3) Oestrogen
 - 4) Progesterone

