

SMART SOCIETY INTERNATIONAL SCIENCE OLYMPIAD (SSISO)



Organized by

Department of Basic Science and Humanities

INSTITUTE OF ENGINEERING & MANAGEMENT,

IEM-UEM GROUP and SMART SOCIETY, USA

TOTAL QUESTIONS: 40

DURATION: 1 HOUR

INSTRUCTIONS TO THE CANDIDATES:

1. The question paper is divided into 3 sections.
Section A - Logical Reasoning (10 Questions)
Section B - Science (10 Questions)
Section C- Achiever's Level Science (20 Questions)
2. In section A, each question carries 2 marks. In Section B, each question carries 2 marks. In section C, each question carries 3 marks.
3. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
4. There is only one correct answer.
5. To mark your choice of correct answers, darken the circles on the OMR sheet. For this purpose, use HB Pencil or Black ball point pen.
6. Rough work should be done in the blank space provided at the end of the booklet.
7. Return the OMR sheet to the invigilator at the end of examination.
8. Please fill in your personal details in the space provided below.

NAME:

SCHOOL NAME:

CONTACT DETAILS OF GUARDIAN:

SECTION A

LOGICAL REASONING

- What number will come in place of question mark $16:28::32:?$
a) 52 b) 56
c) 36 d) 46
- Identify the wrong term
26, 8, 38, 10, 50, 13, 62, 14, 74
a) 62 b) 10
c) 74 d) 13
- Identify the odd one
a) BIK b) DFH
c) JEN d) GOM
- A and B are brothers. R is father of B. T is the mother of A. S is the brother of T and maternal uncle of A. What is T to R?
a) mother b) wife
c) sister d) brother
- A means ' \times '; B means ' \div '; C means ' $-$ '; D means ' $+$ ' then
 $17A36B3C6D8$ means
a) 204 b) 156
c) 98 d) 206
- A man started walking towards south. After moving 4 km he turned towards east and walked 6 km. Again he turned towards north and walked 12 km. How far is he from the starting point?
a) 18 km b) 14 km
c) 10 km d) 22 km
- To attend an examination, Puja reached the school by travelling 5 km towards South, and after a sharp left turn she travelled for about 10 km. She again made a sharp left turn and reached in front of school by travelling 5 km more. Which direction is puja's school from the starting point?
a) east b) west
c) north d) south
- By using the rule of pattern and find the missing term $A2\text{---}C4\text{---}E8\text{---}G16\text{---}$?
a) O128 b) K64
c) I32 d) M36
- If the 2nd of a month falls on Tuesday, what day will the 29th of that month be?
a) Monday b) Tuesday
c) Sunday d) Wednesday
- Complete the following equation with correct arithmetic signs ($+$, $-$, \times , \div)
 $16_22_8=44$
a) \div and \times b) $+$ and $-$
c) \times and \div d) $-$ and \times

SECTION B

SCIENCE

- If displacement of a particle is zero, then the distance covered:
a) Must be zero
b) May or may not be zero
c) Cannot be zero
d) Depends upon the particle
- Brilliance of diamond is due to;
a) Shape b) Cutting
c) Reflection d) Refraction
- Which of the following modes of heat transmission does not require medium?
a) Conduction b) Convection

- c) Radiation d) All of these
14. The positive terminal in a battery is always at a –
- Lower potential
 - higher potential
 - zero potential
 - negative potential
15. The 100 parts of Celsius scale is equal to X part of Fahrenheit scale, where X is –
- 100 b) 90
 - 180 d) 75
16. What type of salt is formed when sodium hydroxide (NaOH) reacts with hydrochloric acid (HCL)?
- Neutral salt b) Acidic salt
 - Basic salt d) None of the above
17. In addition to carbon, hydrogen and oxygen, proteins also contain;
- Nitrogen b) Potassium
 - Sodium d) Chlorine
18. The colour of plasma is
- pale yellow b) pale orange
 - bright orange d) brick red
19. pH of blood –
- is greater than 9
 - ranges between 7-8
 - is less than 7
 - none of these
20. Part of the gynoecium which receives the pollen is called –
- style b) stigma
 - ovule d) ovary

SECTION C

ACHIEVER'S LEVEL

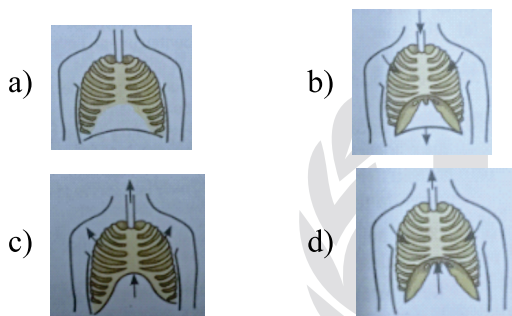
21. Two friends are eating together on a table. One of them suddenly starts coughing while swallowing some food; this coughing would have been due to improper movement of:
- epiglottis b) diaphragm
 - glottis d) larynx
22. Pitcher plant traps insects because it
- is a heterotroph
 - grows in soils which lack in nitrogen
 - does not have chlorophyll
 - has a digestive system like human beings.
23. In an experiment, a student put baking soda in an empty bottle, then he added vinegar and then placed a balloon over the neck of the bottle. Very soon, the balloon started to inflate. Which gas is responsible for this?
- N₂ b) O₂
 - H₂ d) Co₂
24. Differences in climates in various areas of the earth result largely from
- ocean currents
 - complexity of the food chain in a particular region
 - movements of plates of the earth's crust
 - difference in the amount of sunlight striking at different latitudes
25. Statement-1: Iron pipes coated with zinc do not get rusted easily
Statement -2: Condensation of steam is not a chemical change
- Both are correct
 - Both are incorrect

- c) Only statement -1 is correct
d) Only statement-2 is correct
26. Which of the following is true about the cyclone becoming steadily weaker on reaching the landmass?
a) Due to friction with land
b) Due to shortage of moisture
c) Both (1) and (2) are correct
d) None of these
27. Statement-1: Mixing red and green marbles is a physical change.
Statement -2: Physical change takes place when a matter changes its state.
a) Both are correct
b) Both are incorrect
c) Only statement -1 is correct
d) Only statement-2 is correct
28. On heating the air it ----- and becomes ----- dense.
a) expands, less b) expands, more
c) contracts, less d) contracts, more
29. Statement-1: An antacid is acidic in nature.
Statement-2: Acetic acid is present in vinegar.
a) Both are correct
b) Both are incorrect
c) Only statement-1 is correct
d) Only statement-2 is correct
30. In lichens which component is known as mycobiont –
a) Algal component
b) Fungal component
c) Both algal and fungal component together
d) None of the above
31. The manufactured food in a green plant moves from the leaves to other parts through
a) Xylem b) Phloem
c) Cortex d) Pith
32. Match the column-I and column-II and select the correct answer?
Column-I Column-II
i) earthworm a) trachea
ii) cockroach b) general body surface
iii) lizards c) moist cuticle
iv) sponges d) gills
v) fish e) lungs
a) i-c, ii-a, iii-e, iv-b, v-d
b) i-d, ii-a, iii-b, iv-c, v-e
c) i-c, ii-a, iii-b, iv-d, v-e
d) i-b, ii-c, iii-d, iv-e, v-a
33. A boy stands straight in front of a mirror at a distance of 30 cm away from it. He sees his erect image whose height is $\frac{1}{5}$ th of his real height. The mirror he is using is –
a) Plane mirror b) Convex mirror
c) Concave mirror d) None of the above
34. Which of the following options represents correct systemic circulation in human being?
a) Deoxygenated blood from left ventricle to tissues and oxygenated blood from tissues to right ventricle
b) Oxygenated blood from right ventricle to tissues and deoxygenated blood from tissues to right auricle
c) Deoxygenated blood from left ventricle to tissues and oxygenated blood from tissues to right auricle
d) Oxygenated blood from left ventricle to tissues and deoxygenated blood from tissues to right auricle

35. **ASSERTION-** A convex lens may be diverging.
REASON- Nature of a lens depends upon refractive index of the lens and that of the surrounding medium.

- a) Assertion and reason both are correct and reason is the correct explanation of assertion
- b) Assertion and reason both are correct but reason is not a correct explanation of assertion
- c) Assertion is correct but reason is incorrect
- d) Both are incorrect

36. Exhalation is the process of expulsion of air through the respiratory tract. Which fig. illustrates the process of exhalation?



37. The figure given below shows three stages in the cardiac cycle.



Which of the following sequences is correct regarding this?

- a) 2-3-1
- b) 1-2-3
- c) 2-1-3
- d) 3-1-2

38. **Statement-1:** Xylem transport is unidirectional.

Statement-2: Phloem transport is bi-directional.

- a) Both are correct
- b) Only statement- 1 is correct
- c) Only statement-2 is correct
- d) Both are incorrect

39. Match the column-1 and column-2

Column-1

Column-2

- | | |
|--------------------|---------------------------|
| a. scouring | i. yields silk fibers |
| b. mulberry leaves | ii. wool yielding animal |
| c. yak | iii. food of silkworm |
| d. cocoon | iv. cleaning sheared skin |

- a) a-iv, b-iii, c- ii, d-i
- b) a-iii, b-ii, c-i, d-iv
- c) a-iv, b-ii, c-iii, d-i
- d) a-iii, b-i c- iv, d- ii

40. From the given figure identify X, Y and Z in it–



- a) X- buds, Y-nodes, Z-adventitious root
- b) X-nodes, Y- buds, Z – adventitious root
- c) X- node, Y- adventitious root, Z- buds
- d) X- buds, Y- adventitious root, Z-nodes

Space for rough work