

GLOBAL TALENT SEARCH EXAMINATION

SCIENCE

Class : IX

Max Marks : 80

Time : 11:00 to 12:30 noon

Instructions to Candidates :

01. This question paper has 40 objective questions. In addition to this question paper, you are also given an answer-sheet.
02. Read the instructions carefully for each section before attempting it.
03. For each correct answer **2 marks** will be awarded and there is no negative marking.
04. On the answer-sheet, fill up all the entries carefully in the space provided, **ONLY IN BLOCK CAPITAL LETTERS.**
05. Incomplete / incorrect / carelessly filled information may disqualify your candidature.
06. On the answer-sheet, use **PENCIL / BLUE or BLACK BALL PEN.**
07. No extra sheet will be provided for rough-work. Use the space available in the paper for your rough- work.
08. Use of calculator is not permitted.
09. No student is permitted to leave the examination hall before time is complete.
10. Use of unfair means shall invite cancellation of the test.

Roll No.

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Centre No.

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Male / Female _____

Name of the candidate : (In English only, as you would like it to be printed on the certificate).

Signature of the
invigilator

Signature of
the candidate

AMITY INSTITUTE FOR COMPETITIVE EXAMINATIONS

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Each question has four alternatives marked (A), (B), (C) and (D), but only one of these alternatives is the correct answer.

1. One end of a strip is fastened between two layers of wood of a table, as shown. Its other is plucked so that it starts vibrating up and down (perpendicular or transverse to its length). The sound produced by this vibration is



- (A) transverse in nature
 (B) longitudinal in nature
 (C) partly transverse and partly longitudinal
 (D) neither purely transverse nor purely longitudinal
2. Calcium nitrate is an inorganic compound with formula $\text{Ca}(\text{NO}_3)_2$. This colourless salt absorbs moisture from the air and is commonly found as a tetrahydrate. It is mainly used as a component in fertilisers. How many molecules are present in 4.1 g of pure $\text{Ca}(\text{NO}_3)_2$? (Atomic mass of Ca = 40)
- (A) 15.055×10^{22} (B) 15.055×10^{21}
 (C) 15.055×10^{20} (D) 15.055×10^{19}
3. A cell has been found in which there are three structures enclosed by double membranes. In which group will you assign this cell ?
- (A) Animal cell (B) Fungal cell
 (C) Bacterial cell (D) Plant cell
4. Which one of the following is prepared without using the process of fermentation ?
- (A) Coffee powder (B) Tea powder
 (C) Bread (D) *Idli*

Rough Work

5. When one person pushes a motorcar, it does not move at all. But two persons are able to push the same motorcar with an acceleration of 0.5 ms^{-2} along the horizontal surface and three persons are able to push it with an acceleration of 1.5 ms^{-2} . If the mass of the motorcar is 800 kg, find the force of push of each person, assuming that each person pushes the motorcar with same force.
- (A) 1200 N (B) 1000 N
(C) 800 N (D) 600 N
6. In the above question, the force of friction acting on the motor car would be
- (A) 1350 N (B) 1200 N
(C) 1250 N (D) 1000 N
7. Which of the animal phyla are bilaterally symmetrical ?
- (A) Mollusca and nematoda
(B) Annelida and cnidaria
(C) Porifera and platyhelminthes
(D) Cnidaria and porifera
8. Which one of the following solids cannot be converted into liquid by supplying more and more heat energy ?
- (A) Gold (B) Solid oxygen
(C) Ammonium chloride (D) Diamond (form of carbon)
9. Tick-mark(\surd) the *incorrect* statement from the following.
- (A) Some forms of life, especially bacteria, are poisoned by elemental oxygen
(B) Carbon dioxide, even in small concentration is toxic in nature
(C) Chlorine is a poisonous gas and was used for the first time in World War I by Germans
(D) Ozone (O_3) is a poisonous gas

Rough Work

10. When a body is moving with initial velocity u , a constant acceleration a is given to the body for time t . The average velocity of the body during this time interval t would be

(A) $\frac{3u}{2}$

(B) $\frac{u + at}{2}$

(C) $\frac{u + 2at}{2}$

(D) $\frac{2u + at}{2}$

11. A body starts running towards a large convex mirror with a uniform speed v . His image appears to move towards the mirror with speed v' such that

(A) $v > v'$ and v' decreases with uniform rate

(B) $v > v'$ and v' is also uniform

(C) $v > v'$ and v' is not uniform

(D) $v = v'$

12. A body P moves along a circle of radius R in a horizontal plane, whereas another body Q moves along a circle of radius r in a vertical plane such that $R > r$. If the work done by gravity on the two bodies be W_P and W_Q , respectively, then

(A) $W_P > W_Q$

(B) $W_P = W_Q = 0$

(C) $W_P = 0$, but $W_Q \neq 0$

(D) No relation can be established as data are not sufficient

13. Tuberculosis (abbreviated as TB) is a common and often deadly disease. Tuberculosis usually attacks the lungs, though it affects the other systems of the body, bones, joints and the skin. The typical symptoms of tuberculosis are chronic cough with blood-tinged sputum, fever, night sweats and weight loss. Tuberculosis is

(A) a bacterial disease (B) a protozoan disease

(C) a viral disease (D) a worm-infectious disease

14. Match the statement given in column I with those given in column II and tick-mark (\checkmark) the correct matching.

<i>Column I</i>	<i>Column II</i>
(a) Farming system with minimal or no use of chemicals as fertilisers, herbicides, pesticides, etc.	(i) crop rotation
(b) Growing of two or more crops simultaneously on the same piece of land	(ii) inter-cropping
(c) System of farming on a particular farm which includes crop production, raising of live stocks, etc.	(iii) organic farming
(d) Growing two or more crops in definite row patterns	(iv) mixed farming
(e) Growing of two different crops on a piece of land in pre-planned succession	(v) mixed cropping

(A) (a) - iii, (b) - v, (c) - iv, (d) - ii, (e) - i

(B) (a) - iii, (b) - v, (c) - iv, (d) - i, (e) - ii

(C) (a) - iii, (b) - iv, (c) - v, (d) - ii, (e) - i

(D) (a) - iii, (b) - iv, (c) - v, (d) - i, (e) - ii

15. The velocity of sound in air is 340 ms^{-1} . At what minimum distance from a small hill should a person shout so that he can hear the echo of his shouting?

(A) 34 m

(B) 17 m

(C) 340 m

(D) 170 m

16. When 0.365 g of HCl gas is dissolved in one litre of water, then it forms a solution of

- (A) 10 N (B) 1 N
(C) 0.1 N (D) 0.01 N

17. When a hollow wooden cylinder is floating vertically in water, two-fifth of its height is inside the water. But when a weight of 6 kg is put on its upper surface, the cylinder just immerses fully into the water. If density of water is 10^3 kg m^{-3} , then weight of the wooden cylinder is

- (A) 6 kg weight (B) 4 kg weight
(C) 3 kg weight (D) 2 kg weight

18. To increase food production, one of the methods is the choice of seeds for planting. This approach depends on finding a crop variety that can give a good yield. Varieties of crops can be selected which have useful characteristics such as disease resistance, response to fertilizers, production quality and high yields. One way of incorporating desirable characteristics into crop varieties is by hybridisation. Hybridisation does not include

- (A) Crossing between the different genera
(B) Crossing between two different species of same genus
(C) Crossing between different varieties
(D) Crossing between same variety under different climatic conditions

19. Plasmolysis occurs

- (A) when a plant cell is placed in water
(B) when an animal cell is placed in water
(C) when a plant cell is placed in concentrated sugar solution
(D) when an animal cell is placed in concentrated sugar solution

Rough Work

20. Two stable isotopes of copper are ^{63}Cu and ^{65}Cu . Ignoring other unstable isotopes, which are negligible, if ^{63}Cu and ^{65}Cu are present in the ratio of 70% and 30%, find the average atomic mass of copper.
- (A) 63.8 (B) 63.6
(C) 63.5 (D) 63.4
21. Which of the following represents the formula of a substance which contains about 26% nitrogen and 74% oxygen ?
- (A) N_2O (B) NO_2
(C) N_2O_5 (D) NO
22. Solid carbon dioxide is called *dry ice*. This is because
- (A) in solid form it looks like ice flakes
(B) it is used in refrigerators for producing very cold ice
(C) in solid form, it can float in water without being wet
(D) it is directly converted into gaseous state, without being liquefied
23. Tick-mark(\surd) the *incorrect* statement from the following.
- (A) Two isobars are chemically different, though their atomic masses are equal
(B) In $^{40}_{20}\text{Ca}$, the number of electrons in K, L, and M shells are respectively 2, 8 and 10
(C) Existence of nucleus was experimentally proved by α -scattering experiment
(D) Generally the atomic masses of elements are whole numbers, but the atomic mass of chlorine is not a whole number

Rough Work

24. A body is thrown vertically upwards. When it rises to a height of 140 m, its velocity is reduced to three-fourth of the velocity with which it was thrown. With what velocity is the body thrown up ? (Take $g = 10 \text{ ms}^{-2}$).
- (A) 140 ms^{-1} (B) 80 ms^{-1}
(C) 70 ms^{-1} (D) 60 ms^{-1}
25. In the above question, find how farther will the body rise before falling back to the ground ?
- (A) 180 m (B) 210 m
(C) 240 m (D) 280 m
26. Energy will be absorbed in a process of separating
- (A) a neutron from a proton
(B) an electron from an electron
(C) an electron from a neutron
(D) an electron from a proton
27. Which one of the following quantum numbers determines the energy of electron in an atom ?
- (A) Azimuthal quantum number
(B) Magnetic quantum number
(C) Principal quantum number
(D) Spin quantum number
28. The trachea are lined by
- (A) stratified squamous epithelium
(B) simple squamous epithelium
(C) ciliated columnar epithelium
(D) glandular epithelium

- 29.** 4.0 g of caustic soda contains same number of sodium ions as are present in
- (A) 58.5 g of NaCl (B) 0.5 mole of NaNO_3
- (C) 10.6 g of Na_2CO_3 (D) 0.05 moles of Na_2SO_4
- 30.** Isotopes are atoms having same atomic number and isobars are atoms having same atomic mass, whereas isotones are atoms having same number of neutrons. The triad of nuclei which is isotonic is
- (A) ${}_6\text{C}^{14}$, ${}_7\text{N}^{14}$, ${}_9\text{F}^{17}$ (B) ${}_6\text{C}^{14}$, ${}_7\text{N}^{14}$, ${}_9\text{F}^{19}$
- (C) ${}_6\text{C}^{14}$, ${}_7\text{N}^{15}$, ${}_9\text{F}^{17}$ (D) ${}_6\text{C}^{12}$, ${}_7\text{N}^{14}$, ${}_9\text{F}^{19}$
- 31.** Which one of the following is common to both fungi and plantae ?
- (A) Presence of chlorophyll
- (B) Presence of cell wall
- (C) Heterotrophic mode of nutrition
- (D) Well differentiated body design into root, stem and leaves
- 32.** Just like animals, plants and crops also require nutrients for healthy growth. Nutrients are supplied to plants by air, water and soil. Air supplies carbon and oxygen and water supplies hydrogen. In addition to these 3 nutrients (carbon, oxygen and hydrogen), the number of other nutrients for the plants is
- (A) 16 (B) 13
- (C) 12 (D) 10
- 33.** Consider a total solar eclipse being observed from the earth. At this time, consider an observer on the moon, at a suitable location. This observer on the moon will observe
- (A) total earth eclipse (B) total solar eclipse
- (C) partial earth eclipse (D) partial solar eclipse

34. Considering molecules of water to be spheres of radius 10^{-8} m, how many molecules of water should be present in a volume of 1 cm^3 . Ignore the volume left between the molecules due to very close packing.

(A) 2.4×10^{19} (B) 2.4×10^{18}

(C) 2.4×10^{17} (D) 2.4×10^{16}

35. Which one of the following sets of dispersed phase and dispersing phase does not produce colloids ?

Dispersed phase Dispersing phase

(A) solid solid

(B) liquid liquid

(C) gas gas

(D) solid gas

36. In an accident, a person sustains a head injury. Which tissue is most likely to be damaged ?

(A) Connective tissue (B) Epithelial tissue

(C) Muscular tissue (D) Nervous tissue

37. Tick-mark(\checkmark) the *wrong* statement from the following.

(A) Antibiotics do not reduce the severity and duration of common cold

(B) Immune cells specialize in killing infecting microbes

(C) If not treated properly, HIV-AIDS virus but no other infectious microbes will ultimately kill the person

(D) Acute disease does not cause major effect on general health

38. When we think about causes of diseases, we must remember that there are many levels of such causes. Tick mark the correct relation between causes of diseases and their level.

<i>First level cause</i>	<i>Second level cause</i>	<i>Third level cause</i>
(A) Poverty, lack of public services	Infectious agent	Lack of good nourishment
(B) Poverty, lack of public services	Lack of good nourishment	Infectious agent
(C) Infectious agent	Poverty, lack of public services	Lack of good nourishment
(D) Infectious agent	Lack of good nourishment	Poverty, lack of public services

39. Vaccination provides

- (A) immunity against the disease
- (B) a method to cure a disease
- (C) prevention of the disease
- (D) control for the spread of disease

40. Dispersion phase in shoe polish is

- (A) gas
- (B) liquid
- (C) solid
- (D) solid + liquid

ANSWERS CLASS IX (SCIENCE)

1	B	2	B	3	D	4	A	5	C
6	B	7	A	8	C	9	B	10	D
11	C	12	B	13	A	14	D	15	B
16	D	17	B	18	D	19	C	20	B
21	C	22	D	23	B	24	B	25	A
26	D	27	C	28	C	29	D	30	C
31	B	32	B	33	C	34	C	35	C
36	D	37	C	38	D	39	A	40	B