ATOMIC ENERGY CENTRAL SCHOOL NO. 2, MUMBAI

ACADEMIC SESSION – 2024-25

MULTIPLE CHOICE QUESTION EXAMINATION – 1 (MCQ – 1)

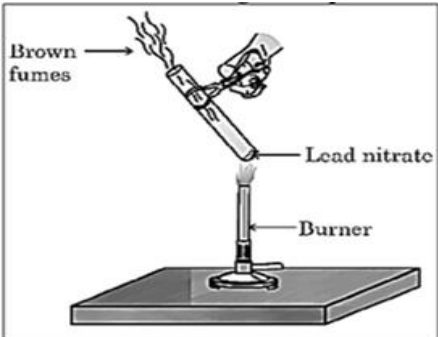**CLASS X – MATHEMATICS/SCIENCE/SOCIAL SCIENCE**

Time Allowed : 90 mins   **Maximum Marks :** 90   **Date :** 29.04.2024

	Attempt all questions. There is no negative marking.	
1	$7 \times 11 \times 13 + 13$ is a/an: a) odd number but not composite b) square number c) prime number d) composite number	**[1]**
2	HCF of $(3^4 \times 2^2 \times 7^3)$ and $(3^2 \times 5 \times 7)$ is: a) 567 b) 63 c) 630 d) 729	**[1]**
3	$3 + 2\sqrt{5}$ is a/an: a) natural Number b) integer c) irrational number d) rational number	**[1]**
4	The sum of a rational and an irrational number is a) Can be Rational or Irrational b) Irrational c) Always Rational d) Rational	**[1]**
5	The difference of a rational and an irrational number is always a) a rational number b) an irrational number c) an integer d) negative	**[1]**
6	The prime factorisation of 1728 is a) $2^6 \times 3^3$ b) $2^6 \times 3^2$ c) $2^5 \times 3^3$ d) $2^5 \times 3^4$	**[1]**
7	What is the largest number that divides 245 and 1029, leaving remainder 5 in each? a) 9 b) 15 c) 5 d) 16	**[1]**
8	The exponent of 2 in the prime factorisation of 144, is a) 4 b) 2 c) 6 d) 1	**[1]**
9	The least positive integer divisible by 20 and 24 is a) 480 b) 240 c) 360 d) 120	**[1]**
10	$2\sqrt{3}$ is a) a rational number b) an irrational number c) a whole number d) an integer	**[1]**
11	If two positive integers a and b are expressible in the form $a = pq^2$ and $b = p^3 q$; p, q being prime numbers, then HCF (a, b) is a) $p^3 q^3$ b) $p^3 q^2$ c) $p^2 q^2$ d) pq	**[1]**
12	If the HCF of 360 and 64 is 8, then their LCM is: a) 2880 b) 2780 c) 2480 d) 512	**[1]**

13	The HCF and the LCM of 12, 21, 15 respectively are:	[1]
	a) 3, 140 b) 420, 3 c) 12, 420 d) 3, 420	
14	If p is prime, then H.C.F. and L.C.M. of p and p + 1 would be	[1]
	a) H.C.F. = p, L.C.M. = p + 1 b) H.C.F. = 1, L.C.M. = p(p + 1)	
	c) H.C.F. = p, L.C.M. = p(p + 1) d) H.C.F. = p(p + 1), L.C.M. = 1	
15	The LCM of two numbers is 1200. Which of the following cannot be their HCF?	[1]
	a) 500 b) 200 c) 600 d) 400	
16	The number of polynomials having zeroes - 3 and 4 is:	[1]
	a) $x^2 - 2x + 1$ b) $x^2 + 2x + 1$ c) $x^2 - x - 12$ d) $x^2 + 2x - 1$	
17	A quadratic polynomial the sum and product of whose zeroes are - 3 and 2 respectively, is:	[1]
	a) $x^2 + 3x - 2$ b) $x^2 - 3x - 2$ c) $x^2 - 3x + 2$ d) $x^2 + 3x + 2$	
18	If α , β are the zeros of the polynomial f(x) = ax^2 + bx + c, then $\frac{1}{\alpha^2} + \frac{1}{\beta^2} =$	[1]
	a) $\frac{b^2+2ac}{c^2}$ b) $\frac{b^2-2ac}{c^2}$ c) $\frac{b^2+2ac}{a^2}$ d) $\frac{b^2-2ac}{a^2}$	
19	If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of 'k' is	[1]
	a) – 10 b) – 5 c) 10 d) 5	
20	If α and β are the zeroes of the polynomial 3x^2 + 11x - 4, then the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ is	[1]
	a) $\frac{13}{4}$ b) $\frac{12}{4}$ c) $\frac{11}{4}$ d) $\frac{15}{4}$	
21	If α and β are zeros of x^2 + 5x + 8, then the value of $(\alpha + \beta)$ is	[1]
	a) - 8 b) 8 c) 5 d) - 5	
22	Which of the following is a polynomial?	[1]
	1. $x^2 - 5x + 4\sqrt{x} + 3$	
	2. $x^{3/2} - x + x^{1/2} + 1$	
	3. $\sqrt{x} + \frac{1}{\sqrt{x}}$	
	4. $\sqrt{2}x^2 - 3\sqrt{3}x + \sqrt{6}$	
	a) Option (iv) b) Option (ii) c) Option (i) d) Option (iii)	
23	The quadratic polynomial, the sum of whose zeroes is - 5 and their product is 6, is:	[1]
	a) $x^2 + 5x + 6$ b) $x^2 - 5x - 6$ c) $- x^2 + 5x + 6$ d) $x^2 - 5x + 6$	
24	If one zero of the polynomial p(x) = (a^2 + 9)x^2 + 45x + 6a is reciprocal of the other, then the value of a is	[1]

	a) 2 b) 3 c) 0 d) 1	
25	If α and β are the zeroes of the polynomial $2x^2 - 13x + 6$, then $\alpha + \beta$ is equal to a) 3 b) - 3 c) $\frac{13}{2}$ d) $-\frac{13}{2}$	**[1]**
26	It is given that the difference between the zeros of $4x^2 - 8kx + 9$ is 4 and $k > 0$. Then, $k =$? a) $\frac{1}{2}$ b) $\frac{3}{2}$ c) $\frac{5}{2}$ d) $\frac{7}{2}$	**[1]**
27	If α, β are zeroes of the polynomial $x^2 - 1$, then value of $(\alpha + \beta)$ is: a) 0 b) 1 c) - 1 d) 2	**[1]**
28	The zeros of the quadratic polynomial $x^2 + 7x + 10$ are a) 2, -5 b) -2, -5 c) 2, 5 d) -2, 5	**[1]**
29	If - 2 and 3 are the zeros of the quadratic polynomial $x^2 + (a + 1)x + b$ then a) a = 2, b = 6 b) a = 2, b = - 6 c) a = - 2, b = - 6 d) a = - 2, b = 6	**[1]**
30	The degree of the polynomial $2 - x^2 + \sqrt{3} x$ is a) 0 b) 1 c) 2 d) none of these	**[1]**
31	Which of the following is not a physical change? a) Combustion of Liquefied Petroleum Gas (LPG) b) Dissolution of salt in water c) Boiling of water to give water vapour d) Melting of ice to give water	**[1]**
32	The balanced chemical equation showing reaction between quicklime and water is: a) $CaO + H_2O \rightarrow Ca(OH)_2 + H_2 + Heat$ b) $CaO + H_2O \rightarrow Ca(OH)_2 + Heat$ c) $2CaO + H_2O \rightarrow 2CaOH + H_2 + Heat$ d) $2CaO + 3H_2O \rightarrow 2Ca(OH)_3 + O_2 + Heat$	**[1]**
33	Select the appropriate state symbols of the products given as X and Y in the following chemical equation by choosing the correct option from table given below: $Zn_{(s)} + H_2SO_{4(l)} \rightarrow ZnSO_{4(X)} + H_{2(Y)}$ |	(X)	(Y)
(a)	(s)	(l)
(b)	(aq)	(g)
(c)	(aq)	(s)
(d)	(g)	(aq) | a) Option (c) b) Option (d) c) Option (a) d) Option (b)	**[1]**
34	To balance the following chemical equation the values of x and y should respectively be: $2NaOH + xAl_2O_3 \rightarrow yNaAlO_2 + H_2O$ a) 2, 3 b) 2, 4 c) 1, 2 d) 1, 4	**[1]**
35	In which of the following chemical equations, the abbreviations represent the correct states of the	**[1]**

	reactants and products involved at reaction temperature?	
	a) $2H_2 (g) + O_2 (g) \rightarrow 2H_2O(l)$ b) $2H_2 (g) + O_2 (l) \rightarrow 2H_2O(l)$ c) $2H_2 (l) + O_2 (l) \rightarrow 2H_2O(g)$ d) $2H_2 (g) + O_2 (g) \rightarrow 2H_2O(g)$	
36	A white precipitate formed by the reaction of barium chloride with sodium sulphate solution is due to a) $BaSO_3$ b) $BaSO_4$ c) BaO d) BaS	[1]
37	The emission of brown fumes in the given experimental set - up is due to a) thermal decomposition of lead nitrate which produces brown fumes of nitrogen dioxide. b) thermal decomposition of lead nitrate which produces brown fumes of lead oxide. c) oxidation of lead nitrate forming lead oxide and oxygen. d) oxidation of lead nitrate forming lead oxide and nitrogen dioxide.	[1]
38	A small amount of calcium oxide (quick lime) is taken in a beaker. Water is slowly added to this. Which of the following observations is/are incorrect about this activity? 1. The beaker becomes hot because it is an exothermic reaction. 2. A clear solution is obtained at the top after the reaction gets over. 3. This reaction is a combination reaction in which quick lime (CaO) is converted into slaked lime, $Ca(OH)_2$. a) Statement (i) only b) Statement (i) and (iii) only c) Statement (i), (ii) and (iii) d) Statement (ii) and (iii) only	[1]
39	Which of the following represents a double displacement reaction? a) $CuO + H_2 \rightarrow Cu + H_2O$ b) $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$ c) $ZnO + C \xrightarrow{Heat} Zn + CO$ d) $H_2S + CI_2 \rightarrow S + 2HCI$	[1]
40	In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate? a) Ammonium nitrate b) Potassium sulphate c) Lead acetate d) Lead sulphate (insoluble)	[1]
41	The process of photosynthesis occurs in:	[1]

	a) Dark b) Infrared radiation c) UV radiation d) Visible light	
42	The exit of unabsorbed food material is regulated by (a) liver (b) anus (c) small intestine (d) anal sphincter	**[1]**
43	Which of the following are energy foods? (a) Carbohydrates and fats (b) Proteins and mineral salts (c) Vitamins and minerals (d) Water and roughage	**[1]**
44	Which part of alimentary canal receives bile from the liver? a) Stomach b) Small intestine c) Large intestine d) Oesophagus	**[1]**
45	The contraction and expansion movement of the walls of the food pipe is called: a) translocation b) transpiration c) peristaltic movement d) digestion	**[1]**
46	One of the events that does not occur during photosynthesis is: a) Chlorophyll absorbs solar energy. b) Carbon dioxide is released during the process. c) Oxygen is released during the process. d) Carbon dioxide is absorbed during the process.	**[1]**
47	Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva? a) Starch breaking down into sugars. b) Proteins breaking down into amino acids. c) Absorption of vitamins. d) Fats breaking down into fatty acids and glycerol.	**[1]**
48	An organism which breaks down the food material outside the body and then absorbs it is a) an animal parasite, Tapeworm b) a fungi, Rhizopus c) a bacteria, Rhizobium d) a plant parasite, Cuscuta	**[1]**
49	In amoeba, food is digested in the: a) food vacuole b) mitochondria c) pseudopodia d) chloroplast	**[1]**
50	The autotrophic mode of nutrition requires: a) sunlight b) All of these c) carbon dioxide and water d) chlorophyll	**[1]**
51	No matter how far you stand from a mirror, your image appears erect. The mirror is likely to be **:** a) Either plane or convex b) Convex c) Plane d) Concave	**[1]**
52	The laws of reflection hold true for: a) convex mirrors only b) concave mirrors only c) all reflecting surfaces d) plane mirrors only	**[1]**
53	In a convex spherical mirror, reflection of light takes place at: a) a bulging - out surface b) a bent - in surface c) an uneven surface d) a flat surface	**[1]**
54	All the rays of light parallel to the principal axis after reflection pass through:	**[1]**

	a) Pole b) Focus c) Radius of curvature d) Mid point of lens.	
55	The image formed by a plane mirror is: a) real, behind the mirror, and of the same size as the object b) virtual, behind the mirror, and of the same size as the object c) virtual, behind the mirror, and enlarged d) real, at the surface of the mirror, and enlarged	**[1]**
56	An object is 100 mm in front of a concave mirror which produces an upright image (erect image). The radius of curvature of the mirror is: a) less than 100 mm (b) more than 200 mm (c) between 100 mm and 200 mm (d) exactly 200 mm	**[1]**
57	A student obtains a blurred image of an object on a screen by using a concave mirror. In order to obtain a sharp image on the screen, he will have to shift the mirror. a) towards the screen b) to a position very far away from the screen c) depending upon the position of the object d) away from the screen	**[1]**
58	Findthe focal length of a convex mirror of radius of curvature 1 m. a) 0.25 m b) 2 m c) 0.5 m d) 1 m	**[1]**
59	The angle between an incident ray and the plane mirror is 30°. The total angle between the incident ray and reflected ray will be: a) 120° b) 90° c) 60° d) 30°	**[1]**
60	An object is placed 20 cm in front of a plane mirror. The mirror is moved 2 cm towards the object. The distance between the positions of the original and final images seen in the mirror is: a) 2 cm b) 10 cm c) 4 cm d) 22 cm	**[1]**
61	_____% of the country's total population who speaks Dutch lives in Flemish region. a) 57 b) 59 c) 60 d) 58	**[1]**
62	Power can be shared among governments at different levels. Such a general government for the entire country is usually called: a) federal government b) regional government c) unitary government d) union government	**[1]**
63	Which one of the following is not the benefit of power - sharing? a) Ensures political stability in the long run b) It upholds the spirit of democracy c) All political parties get their expected share d) Reduces the possibility of conflicts between social groups	**[1]**
64	In India, the government at the provincial or regional level are called: a) Union Government b) Central Government c) Democratic Government d) State Government	**[1]**
65	Which one of the following countries does not share its boundary with Belgium?	**[1]**

	a) France b) Netherlands c) Sweden d) Luxembourg	
66	Brussels is the capital city of _____. a) Germany b) Luxembourg c) France d) Belgium	**[1]**
67	Which one of the following is the minority group in Sri Lanka? a) Muslims b) Sinhalese c) Tamils d) Christians	**[1]**
68	When compared to the size of Indian state, Belgium is smaller than which of the following? a) Goa b) Sikkim c) Manipur d) Haryana	**[1]**
69	Brussels has a separate government in which both the communities have equal _____. a) Both representation and rights b) Representation c) Rights d) Power	**[1]**
70	Sinhala became the official language of _____. a) Belgium b) Sri Lanka c) Tamil Nadu d) Malaysia	**[1]**
71	Name the community who got the benefit of economic development & education much later in Belgium? a) French - speaking b) German - speaking c) Dutch - speaking d) English - speaking	**[1]**
72	It is the law - making organ of the government. a) Defence b) Legislature c) Executive d) Judiciary	**[1]**
73	How many people speak French and Dutch in the capital city of Brussels? a) 80% German and 20% French b) 80% French and 20% Dutch c) 80% Dutch and 20% French d) 60% French and 40% Dutch	**[1]**
74	Power shared by two or more political parties is which kind of government? a) Central Government b) Coalition Government c) Community Government d) Federal govt.	**[1]**
75	Which of the following arrangement is used to give minority communities a fair share in power? a) Power shared among social groups b) Power shared among different parties c) Power shared among different organs of government d) Power shared among different levels of government	**[1]**
76	Choose the method that restricts soil erosion in hilly areas. a) Contour ploughing b) Terrace farming c) Strip cropping d) Shelterbelt	**[1]**
77	Mention the main reason for land degradation in states like Jharkhand, Chhattisgarh and Odisha. a) Over irrigation b) Mining c) Over - grazing d) Mineral processing	**[1]**
78	What are gullies?	**[1]**

	a) Deep channels created by seawater b) Deep channels created by running water c) Deep channels created by wind d) Deep channels created by drainage water	
79	Which state mostly has laterite soil? a) Karnataka b) Maharashtra c) Uttar Pradesh d) Andhra Pradesh	**[1]**
80	Which one of the following method is used to break up the force of the wind? a) Multiple cropping b) Strip cropping c) Contour ploughing d) Terrace farming	**[1]**
81	Which relief feature of India provides facilities for agriculture and industry? a) Mountain b) Plain c) Plateau d) Desert	**[1]**
82	Which relief feature of India provides facilities for tourism and ecological aspects? a) Mountain b) Plateau c) Desert d) Plain	**[1]**
83	Name the soil that has a higher concentration of **Kanker** nodules. a) Khader b) Black soil c) Bangar d) Yellow	**[1]**
84	What is the percentage share of plains in the total land area? a) 20% b) 80% c) 30% d) 43%	**[1]**
85	What per cent of the desired area is required for the forest in our country? a) 20% b) 23% c) 33% d) 30%	**[1]**
86	Choose the industrial activity that is responsible for land degradation. a) Grinding of limestone for the cement industry b) Crushing of sugarcane for sugar industry c) Ginning of cotton for the textile industry d) Using water for industries	**[1]**
87	Where was the Earth Summit held in 1992? a) Delhi b) New York c) Rio de Janeiro d) France	**[1]**
88	Which one of the following statements refers to sustainable development? a) The overall development of various resources. b) The economic development of people. c) Development should take place without damaging the environment. d) Development that meets the desires of the members of all communities.	**[1]**
89	Which relief feature of India constitutes 30% of the total surface area of the country? a) Desert b) Plain c) Plateau d) Mountain	**[1]**
90	The state of is very well endowed with solar and wind energy but lacks in water resources. a) Gujarat b) Chhattisgarh c) Haryana d) Rajasthan	**[1]**