	a) $xy < 0$ b) $x + y = 0$ c) $\frac{1}{x} - \frac{1}{y} = 0$ d) $x^2 y > 0$	
8	If the product of the roots of the equation $x^2 - 3x + k = 10$ is - 2 then the value of k is a) - 8 b) 12 c) - 2 d) 8	1
9	The quadratic equation $ax^2 + 2x + a = 0$ has two distinct roots, if a) $a = \pm 1$ b) $a = 0$ c) $a = 0, 1$ d) $0 = -1, 0$	1
10	$x^2 - 30x + 225 = 0$ have a) Real roots b) No real roots c) Real and Equal roots d) Real and Distinct roots	1
11	The nth term of the A.P. a, 3a, 5a, ...is: a) (2n + 1) a b) (2n – 1) a c) na d) 2na	1
12	The common difference of the A.P. can be a) only negative b) only zero c) positive, negative or zero d) only positive	1
13	Which term of the A.P. 121, 117, 113, ... is its first negative term? a) 32 b) 33 c) 30 d) 31	1
14	$\triangle$ ABC $\triangle$ DEF and the perimeters of $\triangle$ ABC and $\triangle$ DEF are 30 cm and 18 cm respectively. If BC = 9 cm then EF = ? a) 4.5 cm b) 6.3 cm c) 7.2 cm d) 5.4 cm	1
15	The line segments joining the midpoints of the sides of a triangle form four triangles, each of which is a) an isosceles triangle b) an equilateral triangle c) similar to the original triangle d) congruent to the original triangle	1
16	If $P(\frac{a}{3}, 4)$ is the mid - point of the line segment joining the points	1

	Q (- 6, 5) and R (- 2, 3), then the value of a is a) 12 b) - 12 c) - 4 d) - 6	
17	In what ratio does x - axis divide the line segment joining the points A(2, - 3)and B(5, 6)? a) 1 : 2 b) 3 : 5 c) 2 : 1 d) 2 : 3	1
18	$\frac{1-\tan^2 45^\circ}{1+\tan^2 45^\circ}$ a) $\tan 90^o$ b) 1 c) $\sin 45^o$ d) 0	1
19	If $\sin\theta = \frac{\sqrt{3}}{2}$ then (cosec θ + cot θ) = ? a) $\sqrt{2}$ b) $(2+\sqrt{3})$ c) $2\sqrt{3}$ d) $\sqrt{3}$	1
20	If sin A = $\frac{1}{2}$, then the value of cot A is a) $\sqrt{3}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{1}{\sqrt{3}}$ d) 1	1
21	If$\sin\theta - \cos\theta = 0$ then the value of $(\sin^4\theta + \cos^4\theta)$ is a) $\frac{1}{2}$ b) 1 c) $\frac{3}{4}$ d) $\frac{1}{4}$	1
22	If a chord of a circle of radius 28 cm makes an angle of 90^o at the centre, then the area of the major segment is a) 1456 cm^2 b) 1848 cm^2 c) 392 cm^2 d) 2240 cm^2	1
23	Area of a sector of angle p (in degrees) of a circle with radius R is a) $\frac{p}{360} \times 2\pi R$ b) $\frac{p}{180} \times \pi R^2$ c) $\frac{p}{180} \times 2\pi R$ d) $\frac{p}{720} \times 2\pi R^2$	1
24	The length of a minute hand of a wall clock is 7 cm. What is the area swept by it in 30 minutes is a) 35 cm^2 b) 63 cm^2 c) 50 cm^2 d) 77 cm^2	1
25	The length of an arc that subtends an angle of 24^o at the centre of a circle with 5 cm radius is	1

	a) $\frac{3\pi}{2}$ cm b) $\frac{5\pi}{3}$ cm c) $\frac{\pi}{3}$ cm d) $\frac{2\pi}{3}$ cm	
26	A cylindrical vessel 32 cm high and 18 cm as the radius of the base, is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24 cm, the radius of its base is a) 36 cm b) 24 cm c) 12 cm d) 48 cm	1
27	If a marble of radius 2.1 cm is put into a cylindrical cup full of water of radius 5cm and height 6 cm, then how much water flows out of the cylindrical cup? a) 38.8 cm^3 b) 471.4 cm^3 c) 19.4 cm^3 d) 55.4 cm^3	1
28	The shape of a gilli in the gilli - danda game is a combination of  a) two cylinders b) a cone and a cylinder c) two cylinders and a cone d) two cones and a cylinder	1
29	The radii of the base of a cylinder and a cone are in the ratio 3 :4. If they have their heights in the ratio 2 : 3, the ratio between their volumes is a) 9 : 8 b) 3 : 4 c) 8 : 9 d) 4 : 3	1
30	A sphere of radius 6 cm is dropped into a cylindrical vessel partly filled with water. The radius of the vessel is 8 cm. If the sphere is submerged completely, then the surface of the water rises by a) 4.5 cm b) 4 cm c) 2 cm d) 3 cm	1
31	The mean of 'n' observations is $\overline{x}$. If the first item is increased by 1, second by 2 and so on, then the new mean is: a) $\overline{x} - \frac{n-1}{2}$ b) $\overline{x} - \frac{n+1}{2}$ c) $\overline{x} + \frac{n+1}{2}$ d) $\overline{x}$	1
32	Consider the following table:	1

Class interval	10-14	14-18	18-22	22-26	26-30
Frequency	5	11	16	25	19

The mode of the above data is

a) 25 b) 23.5 c) 24.4 d) 24

33 | Mode of a data is given by | 1

a) $l-\left(\frac{f_1-f_0}{2f_1-f_0-f_2}\right)\times h$ b) $l+\left(\frac{f_0-f_1}{2f_1-f_0-f_2}\right)\times h$

c) $l+\left(\frac{f_1-f_0}{2f_1-f_0-f_2}\right)\times h$ d) $h+\left(\frac{f_1-f_0}{2f_1-f_0-f_2}\right)\times l$

34 | In the given data if n = 44, l = 400, cf = 8, h = 100, f = 20, then its median is | 1

a) 400 b) 480 c) 470 d) 460

35 | A box contains 90 discs, numbered from 1 to 90. If one discis drawn at random from the box, the probability that it bears a prime number less than 23,is | 1

a) $\frac{10}{90}$ b) $\frac{7}{90}$ c) $\frac{9}{89}$ d) $\frac{4}{45}$

36 | In a single throw of a pair of dice, the probability of getting the sum a perfect square is | 1

a) $\frac{1}{6}$ b) $\frac{2}{9}$ c) $\frac{1}{18}$ d) $\frac{7}{36}$

37 | If the angle between two radii of a circle is 130^0, then the angle between the tangents at the end points of radii at their point of intersection is : | 1

(a) 90^0 (b) 50^0 (c) 70^0 (d) 40^0

38 | Two circles of radii 10 cm and 8 cm intersect each other and the length of common chord is 12 cm. The distance between their centres is _____. | 1

a) $(8+2\sqrt{7})$ cm b) $4\sqrt{7}$ cm c) $\sqrt{7}$ cm d) $3\sqrt{7}$ cm

39 | The angle of depression of a car, standing on the ground, from the top of a 75 m tower, is 30°. The distance of the car from the base of the | 1

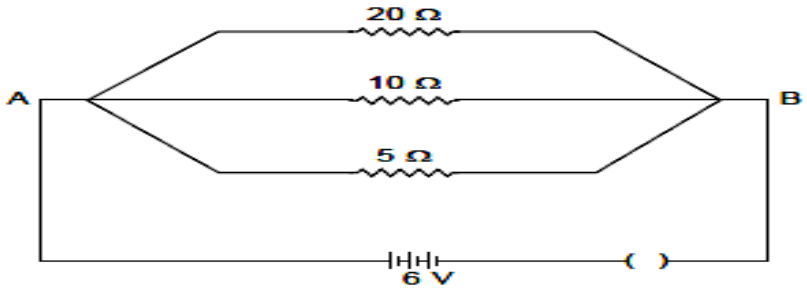
	tower (in metres) is a) $25\sqrt{3}$ b) $75\sqrt{3}$ c) 150 d) $50\sqrt{3}$	
40	The angle of elevation of a plane from a point P on the ground is 60°. After a flight of 15 seconds, the angle of elevation changes to 30°. If the plane is flying at a constant height of $1500\sqrt{3}$ m, then the speed of the plane is a) 800 km/hr b) 500 km/hr c) 720 km/hr d) 640 km/hr	1
41	Copper displaces which of the following metals from its salt solution: a) $NiSO_4$ b) $ZnSO_4$ c) $FeSO_4$ d) $AgNO_3$	1
42	Select endothermic reaction from the following: a) Burning of a candle. b) Process of respiration. c) Decomposition of vegetable matter into compost. d) Decomposition of calcium carbonate to form quick lime and carbon dioxide.	1
43	In order to balance the following chemical equation, the values of the coefficients x and y respectively are: $x\ Pb(NO_3)_2 \xrightarrow{Heat} 2\ PbO + y\ NO_2 + O_2$ a) 2, 4 b) 2, 3 c) 2, 2 d) 4, 2	1
44	A student added zinc granules to copper sulphate solution taken in a test tube. Out of the following, the correct observations made by the student will be 1. Zinc granules have no regular shape. 2. Zinc granules have silvery grey colour. 3. The colour of zinc granules changed to brownish - black. a) 3 only b) 2 only c) 1 only d) All of these	1
45	NaOH is an example of a a) base b) alkali c) salt d) compound	1

46	There are four solutions A, B, C, and D with pH values as follows: <table><tr><td>**Solution**</td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>**pH**</td><td>2.0</td><td>7.0</td><td>8.0</td><td>12.0</td></tr></table> Which solution(s) would liberate hydrogen gas with zinc? a) D only b) A and D c) A only d) B and C	1
47	During the preparation of hydrogen chloride gas on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to a) Absorb moisture from the gas b) Absorb the evolved gas c) Absorb Cl - ions from the evolved gas d) Moisten the gas	1
48	What happens when two drops of phenolphthalein are added to a dilute solution of NaOH? a) solution turns colourless b) solution turns red c) solution turns orange d) solution turns pink	1
49	Which one of the following is metal? a) C b) N c) Na d) O	1
50	Although metals form basic oxides, which of the following metals form an amphoteric oxide? a) Al b) Cu c) Na d) Ca	1
51	Which of the following metals are obtained by electrolysis of their chlorides in molten state i)Na ii) Ca iii) Fe iv) Cu a) (i) and (iv) b) (iii) and (iv) c)(i) and (iii) d) (i) and (ii)	1
52	Latin name for royal water is X. It is a mixture of Y and Z in the ratio 3 : 1 . Some of the properties of X are different from Y and Z. What are X, Y and Z respectively? a) H_2SO_4 , H_2S, SO_3 b) Aqua regia, HCl, HNO_3	1

	c) Aqua regia, HNO_3 , HCl d) H_2 SO_4 ,H_2 O,SO_2	
53	When iron nail is placed in copper sulphate solution for a few hours the blue colour of solution will a) Remain blue b) Change to colourless c) Change to pink d) Change to green	1
54	Temporary mount of a leaf peel is prepared in: a) Dilute glycerine b)70% alcohol c)Nail polish d) Canada Balsam	1
55	The process of photosynthesis occurs in: a) Dark b) Infrared radiation c) UV radiation d) Visible light	1
56	The inner lining of stomach is protected by one of the following from hydrochloric acid. Choose the correct one a) Salivary amylase b) Pepsin c) Mucus d) Bile	1
57	Which part of the brain is concerned with muscular coordination in the body? a) Temporal lobe b) Cerebellum c) Pons d) Parietal lobe	1
58	Diabetes mellitus is caused by a deficiency of: a) Glucagon b) Insulin c) Thyroxin d) Adrenaline	1
59	In plants the role of cytokinin is: a) Wilting of leaves. b) Promote the opening of stomatal pore. c) Help in the growth of stem. d) Promote cell division.	1
60	Characters transmitted from parents to offspring are present in a) Cytoplasm b) Genes c) Ribosome d) Golgi bodies	1
61	In the list of organisms given below, those that reproduce by the asexual method are i)Banana ii) Dog iii) Yeast iv) Amoeba a)(i) and (iv) b)(ii),(iii) and(iv) c)(ii) and (iv) d)(i), (iii) and (iv)	1

62	The number of chromosomes in parents and offsprings of a particular species undergoing sexual reproduction remain constant due to: a) halving of chromosomes after zygote formation. b) doubling of chromosomes after zygote formation. c) halving of chromosomes at the time of gamete formation. d) doubling of chromosomes before gamete formation.	1
63	A Yeast cell in which budding occurs, it can have a) One bud cell b) Two bud cell c) A chain of bud cells d) Three bud cell	1
64	A cross between a tall plant (TT) and short pea plant (tt) resulted in progeny that were all tall plants because a) height of pea plant is not governed by gene 'T' or 't' b) tallness is the recessive trait c) shortness is the dominant trait d) tallness is the dominant trait	1
65	Which of the following was not the outcome of Mendel's experiments? a) Factors reside in chromosomes b) Segregation of factors c) Dominant trait d) Independent assortment	1
66	Who is called the father of genetics? a) Stanley and miller b) Gregor Mendel c) Lamarck d) Darwin	1
67	A cross between pea plant with white flowers (vv) and pea plant with violet flowers (VV) resulted in F_2 progeny in which ratio of violet (VV) and white (vv) flowers will be: a) 1 : 1 b) 1 : 3 c) 2 : 1 d) 3 : 1	1
68	What is not a characteristic of a rearview mirror in a car?	1

	a) They give a virtual image b) Convex in nature c) Concave in nature d) They have wider field of coverage	
69	On covering a portion of a lens with a black sheet: a) size depending on the coverage area b) a full image is formed c) full image of reduced brightness is formed d) full image of increased brightness is formed	1
70	An object is placed in front of a convex mirror at infinity. According to the New Cartesian Sign Convention, the sign of the focal length and the sign of the image distance in this case are respectively: a) +, - b) +, + c) - , - d) - , +	1
71	Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset? a) Scattering of light b) Total internal reflection of light c) Dispersion of light d) Reflection of light from the earth	1
72	The light - sensitive cell present on the retina and is sensitive to the intensity of light is: a) Cones b) Rods c) Both rods and cones d) None of these	1
73	Which one of the following is the correct reason for twinkling of stars? a) Scattering of starlight b) Atmospheric reflection of starlight c) Dispersion of starlight d) Atmospheric refraction of starlight	1
74	The SI unit of energy is: a) Ohm - meter b) Joule c) Watt d) Coulomb	1
75	If R1 and R2 be the resistance of the filament of 40 W and 60 W respectively operating 220 V, then (a) $R1 < R2$ (b) $R2 < R1$ (c) $R1 = R2$ (d) $R1 \geq R2$	1
76	The current flowing through the 10 Ω resistor in the following circuit	1

	is  (a) 1.2 A (b) 0.6 A (c) 0.2 A (d) 2.0 A	
77	The unit for measuring potential difference is: a) kWh b) Volt c) Ohm d) Watt	1
78	An electron beam is moving vertically upwards if it passes through a magnetic field which is directed from south to north in a horizontal plane then in which direction will the beam be deflected? a) towards south b) towards north c) towards west d) towards east	1
79	The magnetic field strength of a solenoid can be increased by inserting: a) A wooden piece into it b) An iron piece into it c) A glass piece into it d) Paper roll into it	1
80	The magnetic field lines due to straight wire carrying a current are a) Parabolic b) Straight c) Circular d) Elliptical	1
81	Which one of the following countries adopted multi - party system? a) United Kingdom b) China c) India d) USA	1
82	Which party believes in Marxism - Leninism, secularism, and democracy? a) Bharatiya Janata Party (BJP) b) Indian National Congress (INC) c)Nationalist Congress Party,NCP d)Communist Party of India (CPI)	1
83	Which of the following is not a component of political party? a)common man b)followers c) leaders d) active members	1

84	Which one of the following countries has two party system? a) America b) India c) China d) Russia	1
85	More than 750 parties are registered with the _____. a) Electrol Commission of India b) Indian Election Commission c) Election Commissioner of India d) Election Commission of India	1
86	Which South Asian country has a democratic government since independence? a) India b) Pakistan c) Bangladesh d) Nepal	1
87	It is the dilemma we are facing regarding democracy: a) It is not understandable by many of the people b) In principle, democracy looks good but in practical it's not so good c) It creates confusion among us d) It never appreciates the efforts rightly	1
88	What was the rate of economic growth for poor countries under democracy in 1950 - 2000? a) 4.34% b) 4.28% c) 3.95% d) 4.42%	1
89	Which one of the following is the most popular form of government in the contemporary world? a) Military Government b) Dictatorial Government c) Constitutional Monarchy d) Democratic Government	1
90	The multi-party system often appears very a) messy b) easy c) both (a) and (b) d) none of these	1
91	Poor are unable to get bank loans because of: a) high rates of interest b) lack of trust on banks c) absence of collateral d) complex procedure	1
92	What is the debt trap?	1

	a) A situation from which recovery is not possible b) Everyone constantly needs loans c) The bank is unable to collect the loan amount d) Everyone is able to repay their debts	
93	Banks in India hold about 15% of deposits as cash as the provision: a) to maintain ATM'S b) to distribute the money as charity c) to pay depositors who come to withdraw their money d) to pay the staff's salaries	1
94	What is a cheque? a) Paper making payment b) A term of credit c) Paper instructing the bank to pay a specific amount d) Collateral	1
95	What is a demand deposit? a) The customer never demands for the deposit in a bank b) The bank demands for the deposit c) The bank doesn't demand fordeposit d) Deposit in the bank account can be withdrawn on demand	1
96	Globalisation has made India a: a) open market b) Sellers market c) Buyers market d) Monopoly market	1
97	Improvement in transport has helped in promotion of a) globalisation b) liberalisation c) privatisation d) none of these	1
98	Globalization has led to improvement in living conditions: a) of workers in the developing countries b) None of these c) of people in the developed countries d) of all the people	1

99	In which one of the following ways has **information and communication technology** stimulated the **globalisation** process the most? a) Access information instantly across countries b) Access foods across countries c) Access services across countries d) Access raw material across countries	1
100	MNCs are also known as: a) Indigenous companies b) Foreign Corporations c) Public limited companies d) Transitional corporations	1
101	Which of the following is not the cause of the great depression? a) Agricultural Overproduction b) Increase in Inflation c)Withdrawal of US Loans/Overseas Loans d)Hike in USImport Duty	1
102	_____ is popularly known as the World Bank. a) Sustainable Development Fund b) International Monetary Fund c) Consumer Welfare Fund d) International Bank for Reconstruction and Development	1
103	What was the unique feature of the US economy during the 1920s? a) Quantitative Production b) Mass Production c) Quality Production d) Production by masses	1
104	Which conference was held in July 1944 at Bretton Woods? a) Earth Conference b) United Nations Monetary and Financial Conference c) United Nation Development Programme Conference	1

	d) United Nations Financial and Monetary Conference	
105	Which of the following country was not exporting food grain to Britain? a) Russia b) China c) America d) Australia	1
106	Over 50 percent of workers in the Bombay cotton industries in 1911 came from which neighbouring district? a) Ratlam b) Andher c) Thane d) Ratnagiri	1
107	What is Bourgeoisie? a) middle class b) Nobles c) Lower middle class d) Labourers	1
108	After the first world war which country could never recapture its old position in the Indian market? a) USA b) Japan c) Germany d) Manchester	1
109	_____ means an Indian soldier in the service of the British. a) Sepoy b) Dasas c) Slaves d) Peons	1
110	_____ was accumulated through various trade networks. a) Capital b) Machines c) Land d) Labourers	1
111	Why is Natural gas considered as an environment friendly fuel? a) because of low carbon dioxide emissions b) because of high carbon dioxide emissions c) because of low Oxygen emissions d) because of low hydrogen emissions	1
112	Which one of the following is an example of the Ferrous Metal? a) Copper b) Nickel c) Tin d) Bauxite	1
113	How many major iron belts are in India? a) four b) five c) three d) six	1
114	_____is the finest iron ore with a very high content of iron up to	1

	70 percent. a) Anthracite b) Magnetite c) Hematite d) Lignite	
115	In which of the following States is Kalpakkam Nuclear Power Plant located? a) Kerala b) Tamil Nadu c) Odisha d) Gujarat	1
116	Which of the following group of factors is a prime group for the location of the aluminum smelting plant? a) Labour and Raw material b) Raw material and Electricity c) Capital and Market d) Capital and Transport	1
117	Choose the correct option: 1. Chandrapur thermal power plant - Odisha 2. Mayurbhanj iron ore mines - Amarkantak 3. Kalol oil fields - Gujarat 4. Bauxite mines - Assam a) Both 1 and 3 b) Only 2 c) Only 3 d) All of these	1
118	Which of the following is an electronics industry? a) BHEL, Hyderabad b) TISCO, Jamshedpur c) BALCO, Korba d) HMT, Bengaluru	1
119	Which one of the following agencies markets steel for the public sector plants? a) MNCC b) SAIL c) TATA Steel d) HAIL	1
120	Where was the first textile mill established? a) Mumbai b) Kolkata c) Lucknow d) Gujarat	1