

FBS ENTRANCE TEST

(FBSET) – 2020

FOR ADMISSION INTO CLASS-XI (SCIENCE) FOR THE SESSION 2020-22



SAMPLE QUESTION PAPER

FBSET – EXAM PATTERN

1. Questions are of MCQ type
2. Four marks will be awarded for each correct response and one mark will be deducted for each incorrect response.

PHYSICS	
1.	An electric lamp of 100Ω , a toaster of resistance 50Ω and a water filter of resistance 500Ω are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all the three appliances? (a) 31Ω (b) 31.25Ω (c) 650Ω (d) 220Ω
2.	The human eye can focus objects at different distances by adjusting the focal length of the eye lens. This is due to (a) far-sightedness (b) near-sightedness (c) accommodation (d) presbyopia
3.	Out of three bulbs 25 W , 60 W and 100 W , which bulb has least resistance? (a) 25 W bulb (b) 60 W bulb (c) 100 W bulb (d) all bulbs have equal resistance
4.	A water wave is travelling with a speed of 1.5 m/s . If the distance between two consecutive crests is 2.5 cm , calculate the frequency of the wave. (a) 50 Hz (b) 60 Hz (c) 80 Hz (d) 100 Hz
5.	What is the power used in the 2Ω resistor if a 6 V battery is in series with 1Ω and 2Ω resistor? (a) 10 J/s (b) 12 J/s (c) 11 J/s (d) 6 J/s
6.	A circular loop of radius R , carrying current I , lies in XY – plane with its center at origin. Total magnetic flux through XY – plane is (a) Directly proportional to I (b) directly proportional to R (c) inversely proportional to R (d) zero.
7.	N equal resistors are first connected in series and then connected in parallel. What is the ratio of the maximum to the minimum resistance? (a) N (b) $1/N^2$ (c) N^2 (d) $1/N$
8.	Kirchhoff's first law deals with the law of conservation of (a) Energy (b) angular momentum (c) linear momentum (d) charge
9.	Magnetic lines of force (a) Have more directions (b) Have no physical reality (c) Can be used to indicate the directions of the magnetic field of a point (d) All of the above
10.	When is the back emf of an electric motor the greatest? (a) When the motor is first switched on (b) when the motor is speeding up (c) when the motor is at maximum speed (d) when the motor is slowing down
11.	A neutrino is (a) Mass less and positively charged (b) Equal to mass of electron and negatively charged (c) Mass less and negatively charged (d) Mass less and having nil charge
12.	The first nuclear reactor set up in India was at (a) Rana Pratap Sagar (b) Kalpakkam (c) Tarapur (d) Trombay
13.	A tank of water appears to be less deep than it actually is due to (a) Reflection of light (b) Refraction of light (c) high refractive index of water (d) low refractive index of air
14.	A light bulb is placed between two plane mirrors inclined at an angle of 60° . The number of images formed are (a) 6 (b) 2 (c) 5 (d) 4
15.	Astigmatism occurs when the cornea does not have a truly spherical shape. This defect can be rectified by the use of a (a) Concave lens (b) convex lens (c) cylindrical lens (d) plano-convex lens

CHEMISTRY

1.	In the reaction $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$, Magnesium acts as (a) An oxidizing agent (c) Oxidizing as well as reducing agent	(b) A reducing agent (d) None of the above
2.	The acid used in batteries of cars and trucks is (a) Nitric acid (b) Sulphuric acid	(c) Hydrochloric acid (d) Tartaric acid
3.	Non –metal that exist in liquid state is (a)Mercury (b) Bromine	(c) Sodium (d) Chlorine
4.	The IUPAC name of $(\text{CH}_3)_3\text{C}-\text{CH}=\text{CH}_2$ is (a)hex-1-ene (c) 2,2-dimethyl-3-butene	(b) 3,3-dimethylbut-1-ene (d)pent-1-ene
5.	Ethene with the molecular formula C_2H_6 has. (a) 6 covalent bonds (c) 8 covalent bonds	(b) 7 covalent bonds (d) 9 covalent bonds
6.	The number of elements in 5 th period of periodic table (a) 8 (b)18	(c) 10 (d) 3
7.	Calcium hydroxide reacts slowly with the carbon dioxide in air to form a thin layer of (a)calcium bicarbonate (c)calcium carbonate	(b)calcium oxide (d)none of these
8.	Silver chloride turns grey in sunlight because of its decomposition into (a)silver oxide (b)silver and chlorine	(c)chlorine (d)none of these
9.	By dissolving metal oxide in water, we get (a) acid (b) salt	(c) base (d) none of these
10.	Which of the following salt is used as an antacid? (a) potassium nitrate (c) sodium bicarbonate	(b) copper sulphate (d) potash alum
11.	Element used in making barometer is (a) copper (b) iron	(c) mercury (d) tin
12.	Cinnabar is an ore of (a) magnesium (b) mercury	(c) lead (d) tin
13.	The ability of carbon to form long chain compounds is called (a) isomerization (b) tetravalency	(c) polymerization (d) catenation
14.	The element with atomic number 9,17,35,53 and 85 are all (a) noble gases (b) heavy metals	(c) light metals (d) halogen
15.	Eka –aluminium was replaced by which element later on (a) Silicon (b) Indium	(c) Gallium (d) Scandium

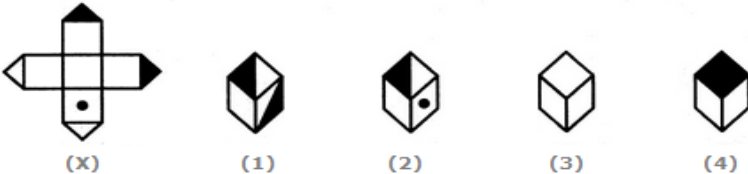

MATHEMATICS

1.	If the volume of a metal sphere is 38808 cm^3 then its radius and surface area are (a) 7 cm and 616 cm^2 (b) 21 cm and 5544 cm^2 (c) 14 cm and 2464 cm^2 (d) None of these
2.	What is the length of the longest rod which can be placed in a cube of total surface area of 1176 cm^2 ? a) 7 cm b) 14 cm c) $7\sqrt{3}$ cm d) $14\sqrt{3}$ cm
3.	Find the volume of the largest right circular cylinder which can be cut from a cube of side 7 cm. a) 260.5 cm^3 b) 269.5 cm^3 c) 272.5 cm^3 d) None of these
4.	How many cubes each of edges 6 cm can be cut from a cuboid of $42 \text{ cm} \times 36 \text{ cm} \times 24 \text{ cm}$? a) 124 b) 142 c) 168 d) 186
5.	If x , y and z are positive real numbers and a , b and c are rational numbers, then the value of $\frac{1}{1+x^{b-a}+x^{c-a}} + \frac{1}{1+x^{a-b}+x^{c-b}} + \frac{1}{1+x^{b-c}+x^{a-c}}$ is a) -1 b) 1 c) 0 d) none of these
6.	Mean of 11 observations is 17.5. If an observation 15 is deleted, find the mean of the remaining observations (a) 17.5 b) 17.25 c) 17.75 d) none of these
7.	The father's age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present ages in years, of the son and the father respectively (a) 4 and 24 b) 5 and 30 c) 6 and 36 d) 3 and 24
8.	For how many positive integer values of N is the expression $\frac{36}{N+2}$ an integer? (a) 7 (b) 8 (c) 9 (d) 10
9.	When 1999^{2000} is divided by 5 the remainder is (a) 4 (b) 3 (c) 2 (d) 1
10.	In $\triangle ABC$, we have $AB = 25$, $BC = 39$, and $AC = 42$. Points D and E are on AB and AC respectively, with $AD=19$ and $AE = 14$. What is the ratio of the area of the triangle ADE to the area of the quadrilateral $BECD$? (a) $\frac{266}{1521}$ (b) $\frac{19}{75}$ (c) $\frac{1}{3}$ (d) $\frac{19}{56}$
11.	Let x and y be two-digit integers such that y is obtained by reversing the digits of x . The integers x and y satisfy $x^2 - y^2 = m^2$ for some positive integer m . What is $x + y + m$? a) 154 b) 112 c) 116 d) 144
12.	What is the remainder when $x^{15} + 51$ is divided by $x + 1$? (a) 0 (b) 1 (c) 49 (d) 50
13.	Diameter of a sphere is decreased by 25%. Percentage decrease in its curved surface area will be: (a) 35.75% (b) 47.25% (c) 41.25% (d) 43.75%
14.	In three vessels of same volume the ratio of water and milk is 6:7, 5:9 and 8:7, respectively. If the mixture of the three vessels is mixed, then what will be ratio of the water and milk? (a) 2431:3781 (b) 3691:4499 (c) 4381:5469 (d) None of these
15.	If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is : (a) 25% (b) $33\frac{1}{3}\%$ (c) 50% (d) $66\frac{2}{3}\%$

BIOLOGY

1.	Photosynthesis is a a) catabolic process c) amphibolic process	b) parabolic process d) photochemical process		
2.	Which of these juices is secreted by pancreas? a) Trypsin	b) Pepsin	c) Bile juice	d) Both i)and ii)
3.	One cell thick vessel are called a) arteries	b) veins	c) capillaries	d) pulmonary artery
4.	Bile juice is secreted by a) stomach	b) Pancreas	c) small intestine	d) liver
5.	Opening and closing of pores is a function performed by a) stomata	b) chlorophyll	c) chloroplast	d) guard cell
6.	Main site of photosynthesis a) leaf	b) stem	c) chloroplast	d) guard cells
7.	In human each kidney has large numbers of filtration units called a) neuron	b) nephron	c) neutrons	d) Neptune
8.	Growth hormone is produced by a) adrenal	b) pituitary	c) thyroid	d) pancreas
9.	Which of the following is commonly known as “birth hormone”)? a) prolactin	b) oxytocin	c) ADH	d) FSH
10.	Which of the following gland is unpaired? a) Adrenal	b) testis	c) pituitary	d) ovary
11.	A person consuming sea food is least likely to develop a) diabetes	b) goiter	c)Both a)and b)	d) heart diseases
12.	Hormone associated with gonads a) testosterone	b) estrogen	c) auxin	d) both a) and b)
13.	_____ is responsible for maintaining biological clock of body. a) pineal	b) kidney	c) thyroid	d) adrenal
14.	In human beings ,sex is determined by a) cell	b) tissue	c) genes	d) organelles
15.	The human species has genetic roots in a) India	b) America	c) Africa	d) Australia

MENTAL ABILITY

1.	Complete the series: 1, 3, 10, 21, 64, 129, ?, 777. (a) 356 (b) 259 (c) 388 (d) 144
2.	It takes 2 minutes to boil a single a egg. How many minutes will it take to boil 5 eggs together? (a) 10 (b) 4 (c) 2 (d) 5
3.	If 5 th of the month falls two days after Monday, what day of the of the week will precede the 19 th of the month? (a) Friday Tuesday (b) Wednesday (c) Saturday (d)
4.	If $2 \times 3 = 812$, $4 \times 5 = 1620$ then $6 \times 7 = ?$ (a) 42 (b) 1214 (c) 2428 (d) 2442
5.	If Monday is to February, Friday is to? (a) July (b) June (c) May (d) August
6.	A lady is 5 years younger to her husband and he is 5 times as old as her daughter. If the daughter was 5 years old 3 years back, what is the present age of the lady? (a) 25 (b) 45 (c)35 (d) 30
7.	Happy is to Sad as Straight is to.....? (a) Drawing (b) Curved (c) Rounded (d) Vertical
8.	Point 'A' is located 8 miles South of B and C is located 6 miles West of A. What is the distance between C and B? (a) 8 miles (b) 9 miles (c) 11 miles (d) 10 miles
9.	Find out the pair which is different from other pairs: (a) Head and Cap (b) Pen and Pencil (c) Ink and Inkpot (d) Oil and Lamp
10.	Write the number of the two words which have the same relationships as Comb and Hair. (a) Toothpaste & Toothbrush (b) Paint & Wall (c) Boot & Brush (d) Engine & Petrol
11.	A man travels 2 miles, turns left and travels 3 miles, turn left again and travel 6 miles. How far is he from the starting point? (a) 4 miles (b) 7 miles (c) 5 miles (d) 9 miles
12.	If BAD is coded as YZW and FIGHT is coded as URTSG. How will you encode HIGH? (a) TRST (b) SRTS (c) STSR (d) TSRT
13.	I bought a watch for Rs. 60. What will it fetch if I sell at a gain of 25%? (a) Rs. 72 (b) Rs. 75 (c) Rs. 77.50 (d) Rs. 80
14.	Choose the box that is similar to the box formed from the given sheet of paper (X)  (a) 1 & 2 only (b) 2 & 4 only (c) 2 & 3 only (d) 1 & 4 only
15.	Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.  X (a) 1 (b) 2 (c) 3 (d) 4