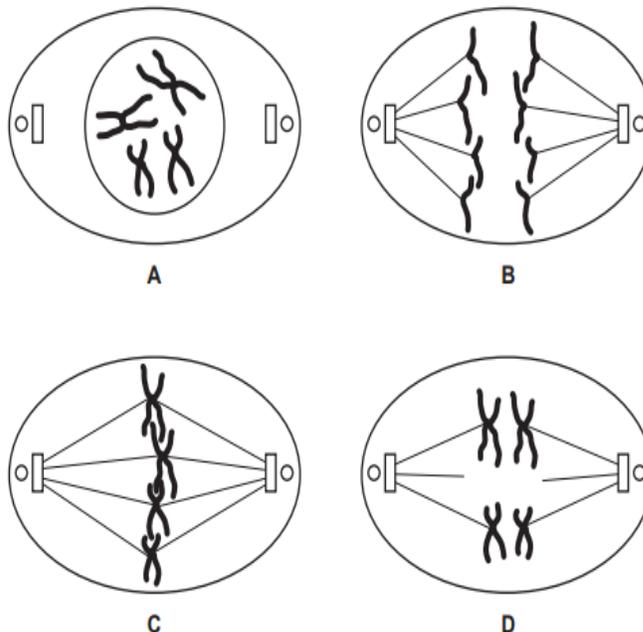


## Sample Questions for Entrance Examination, Grade XI

CIRCLE THE BEST ANSWER.

Biology

1. Which is not an intracellular compartment in the cell?
  - a. Nucleus
  - b. Mitochondria
  - c. Chloroplast
  - d. Centrioles
  
2. Site of formation of ribosomal precursors in cell is
  - a. Nucleus
  - b. Nucleolus
  - c. Golgibody
  - d. Stroma
  
3. Law of segregation of Mendel is actually occurring during
  - a. Diplotene
  - b. Anaphase I
  - c. Anaphase II
  - d. Fertilization
  
4. Which diagram represents a cell undergoing metaphase of mitosis?



5. Heredity lies within
  - a. Species
  - b. Genus
  - c. Class
  - d. Kingdom
  
6. Mendel's dihybrid cross ratio is
  - a. 1:2:1
  - b. 9:3:3:1
  - c. 3:1
  - d. 1:2:1:4:3:2
  
7. What is present in RNA instead of thymine?
  - a. Uracil
  - b. Adenine
  - c. Guanine
  - d. Cytosine
  
8. Reserve food material in plant is
  - a. Glycogen
  - b. Manitol
  - c. Starch
  - d. All
  
9. Plant cell differ from animal cell in having
  - a. Plastids
  - b. Mitochondria
  - c. Plastids and mitochondria
  - d. Plastids and cell wall
  
10. Who is regarded as father of Botany:
  - a. Aristotle
  - b. Theophrastus

- c. Lamarck
- d. Linnaeus

11. Which branch of biology deals about development of organism from simpler complex?

- a. Molecular biology
- b. Paleontology
- c. Evolution
- d. Histology

12. Which gland release growth hormone

- a. Pituitary
- b. Thyroid
- c. Pancreas
- d. Gonads

13. Thigmotaxis is related to

- a. Centre of gravity
- b. Water current
- c. Temperature
- d. Touch

14. Identify the kingdom: WITHIN SINGLE CELL ALL LIFE PROCESSES ARE COMPLETED

- a. Porifera
- b. Protozoa
- c. Arthropoda
- d. Chordata

15. Which of the following is not sterile in honeybee, except

- a. Drone
- b. Worker
- c. Larva

d. Queen

16. Which of the following is connecting link between Reptiles and birds?

a. *Archaeopteryx*

b. Tadpole

c. Peripatus

d. Leech

17. What is the functional unit of nervous system?

a. Nephron

b. Neurone

c. Brain

d. Capillaries

18. The lowermost atmospheric surface of the earth is called

a. Troposphere

b. Stratosphere

c. Mesosphere

d. Thermosphere

19. Which of the following is arthropod?

a. Earthworm

b. Silver fish

c. Liver fluke

d. Snail

20. In mammalian heart mitral valve guards the opening between

a. Right auricle and right ventricle

b. Left auricle and left ventricle

c. Pulmonary vein and left auricle

d. At the opening of aorta

## Chemistry

1. The atomic number of Gold is

- a. 47
- b. 79
- c. 89
- d. 77

2. Which of the following is an ionic compound?

- a.  $\text{CH}_4$
- b.  $\text{H}_2\text{O}$
- c.  $\text{NH}_3$
- d.  $\text{MgO}$

3. The isotope which contains equal number of protons, electrons and neutrons is

- a. Protium
- b. Deuterium
- c. Tritium
- d. None

4. The laughing gas is

- a. Nitrous oxide
- b. Nitric oxide
- c. Nitrogen trioxide
- d. Nitrogen pent oxide

5. A solution having  $\text{pH}=0$  is

- a. acidic

b. basic

c. Neutral

d. alkaline

6. The monomer of P.V.C is

a. Glycol

b. vinyl chloride

c. succinic acid

d. polystyrene

7. Which one is the molecular formula of washing soda?

a.  $\text{Na}_2\text{CO}_3$

b.  $\text{NaHCO}_3$

c.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

d.  $\text{Na}_2\text{CO}_3 \cdot 5\text{H}_2\text{O}$

8. In an exothermic reaction

a. heat is evolved

b. heat is absorbed

c. heat is trapped

d. heat is not involved

9. The compounds having general formula  $\text{C}_n\text{H}_{2n-2}$  represent

a. alcohol

b. alkane

c) alkene

d) alkyne

10) ..... is also known as Marsh gas

a) ethane

b) methane

c) propane

d) ethane

11) Bauxite is an Ore of

a) Cu

b) Ag

c) Au

d) Al

12) The general electronic configuration  $ns^2np^4$  represents group

a) VA

b) IIA

c) VIA

d) VIII

13) Which one of the given elements is the most reactive?

a) Fluorine

b) Chlorine

c) Bromine

d) Iodine

14) Which one of the following is a metalloid?

a) C

b) P

c) Ge

d) Pb

15) When few drops of phenolphthalein are added to caustic soda solution, the color changes to

a) yellow

b) pink

c) orange

d) colorless

16) The first organic compound synthesized in laboratory is

a) Methane

b) acetic acid

c) ethylene

d) urea

17) Compounds which have the same molecular formula but different structural formula are called

a) isotopes

b) isobars

c) isomers

d) polymers

18) A mole of a gas represents

a) its molecular mass in g

b) 22.4 L volume at NTP

c)  $6.023 \times 10^{23}$  molecules

d) All of these

19) Which of the following changes lime water to milky color?

a) Carbon monoxide

b) carbon dioxide

c) ammonia

d) Nitrogen

20) Which of the following is not a green house gas?

- a) CO<sub>2</sub>
- b) CH<sub>4</sub>
- c) O<sub>2</sub>
- d) water vapour

**Mathematics**

1. If A and B are two non empty sets and  $n(A) = 70$ ,  $n(B) = 100$ , then what is the possible minimum value of  $n(A \cup B)$ ?
  - a. 100      b. 70      c. 30      d. 170
2. In an a GP, the product of first three terms is 64. What is the second term?
  - a. 2      b. 4      c. 6      d. 8
3. Hrishikesh lives in Dhulikhel. His friend Purusttom and Chaitanya are 4km north and 3km east respectively far from his house. One day, Purusttom meets Chaitanya through the shortest distance in his morning walk and they go to meet Hrishikesh. Find, how much distance do they walk in this morning walk.
  - a. 8.      b. 12      c. 16      d. 20
4. What is the trigonometric ratio of 750 degree?
  - a. 1.      b. 0      c. 0.5      d. 0.87
5. What is the value of the product of  $\tan(45 - 1)^\circ \cdot \tan(45 - 2)^\circ \tan(45 - 3)^\circ \dots \tan(45 - 100)^\circ$ .
  - a. 5      b. 3      c. 2      d. 0
6. Nityananda has  $\frac{1}{4}$  chance of solving a problem and Gadadhar has  $\frac{1}{3}$  chance of solving the same problem. What is the probability that the problem won't be solved?
  - a.  $\frac{1}{2}$       b.  $\frac{2}{3}$       c.  $\frac{3}{4}$       d.  $\frac{4}{5}$
7. Parasuram was making a research of scores of the SEE toppers of 2076 in a district. He obtained the following data;

Scores( in %)	Below 40	40 – 60	60 -80	Above 80
frequency	250	3000	5000	100

Which of the following is the most appropriate measure of central tendency?

- a. Median      b. Mode      c. Mean      d. All of them
8. What is the value of m, if  $f(x)$  is continuous at  $x = 3$ , where

$$f(x) = \begin{cases} \frac{x^2 - 5x + 6}{x - 3} & \text{for } x \neq 3 \\ m & \text{for } x = 3 \end{cases}$$

- a. 1      b. 2      c. 3      d. 4

9. Which of the following is a non-singular matrix?

a.  $\begin{bmatrix} 2 & 1 \\ 6 & 3 \end{bmatrix}$       b.  $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$       c.  $\begin{bmatrix} 3 & -3 \\ 3 & 3 \end{bmatrix}$       d.  $\begin{bmatrix} \sin A & 1 \\ 1 & \operatorname{cosec} A \end{bmatrix}$

10. What is the equation of the circle passing through origin and making equal intercepts 3 units on

both the axes?

a.  $x^2 + y^2 - 6x - 6y + 18 = 0$       b.  $x^2 + y^2 - 6x - 6y - 3\sqrt{2} = 0$   
 c.  $x^2 + y^2 - 6x - 6y + 3\sqrt{2} = 0$       d.  $x^2 + y^2 - 6x - 6y - 18 = 0$

11. What is the value of b if  $2 + \sqrt{5} + \frac{1}{2 - \sqrt{5}} = a + b\sqrt{5}$ ?

- a. 0      b. 1      c. 2      d. 3

12. In a ground, few goats and ducks are kept. There are 30 heads and 100 legs of them all together, how many ducks are there?

- a. 20      b. 30      c. 40      d. 50

13. what is the sum of the odd numbers from 1 to 50?

- a. 600      b. 715      c. 625      d. 750

14. What comes next in the following sequence?

0, 1, 3, 6, 10, 15, ...

- a. 21      b. 20      c. 22      d. 19

15. The derivative of  $x^5$  is  $5x^4$ , what is the derivative of  $5x^2$ ?

- a. 5x      b. 2x      c.  $10x^2$       d. 10x

16. For  $x \in \mathbb{R}$ , what is the range of  $f(x) = \sqrt{x - 3}$ ?

- a.  $x > 0$       b.  $x \geq 0$       c.  $x < 0$       d.  $x \leq 0$

17. Which of the following is false statement?

- a.  $n_o(A) = n(A \cup B) - n(B)$       b.  $n_o(A) = n(A) + n(A \cap B)$   
 c.  $n(A - B) = n(A \cup B) - n(B)$       d.  $n_o(A) + n(A \cap B) = n(A)$

18.  $(\cos A + \cos B)^2 + (\sin A + \sin B)^2$  equals ...

- a.  $4\cos^2\left(\frac{A+B}{2}\right)$       b.  $4\cos^2\left(\frac{A+B}{2}\right)$       c.  $4\sin^2\left(\frac{A+B}{2}\right)$       d.  $4\cos^2\left(\frac{A+B}{2}\right)$

19. What is equation of the line intercepting x-axis at (5,0) and y- intercept is 3 units?

- a.  $3x - 5y + 15 = 0$       b.  $3x + 5y + 15 = 0$       c.  $3x - 5y + 15 = 0$       d.  $3x + 5y - 15 = 0$

20. For what value of p the pair of lines represented by  $4x^2 + pxy + y^2 = 0$  are coincident?

- a. 0      b. 1      c. 2      d. 3

## Physics

1. CGS unit of specific heat capacity is

- a)  $\text{Jkg}^{-1}\text{C}^{-1}$
  - b)  $\text{Jgm}^{-1}\text{C}^{-1}$
  - c)  $\text{cal gm}^{-1}\text{C}^{-1}$
  - d)  $\text{erg kg}^{-1}\text{C}^{-1}$
2. Density of a substance in CGS system is  $20 \text{ g/m}^3$ . Its density in SI system is
- a)  $20\text{kg/m}^3$
  - b)  $200\text{kg/m}^3$
  - c)  $20000\text{kg/m}^3$
  - d)  $2000\text{kg/m}^3$
3. Newton first law of motion gives the
- a) Definition of force
  - b) Definition of velocity
  - c) inertia
  - d) All of above
4. A body is moving with a constant speed in a straight line path. A force is not required to:
- a) Increase its speed
  - b) decrease the movement
  - c) Change the direction
  - d) keeps it moving with uniform velocity
5. The weight of a stone of mass 2 kg at the center of earth is:
- a) 19.6 N
  - b) 2 N
  - c) 0 N
  - d) 9.8 N
6. A force of 100N acting on a body gives it a speed of 200m/s in 2 sec. what is the mass of the body?
- a) 1 kg
  - b) 5 kg
  - c) 10 kg
  - d) 15 kg
7. When the distance between two masses is doubled , the force of attraction then becomes
- a) double

- b) half
  - c) four times
  - d) one-fourth
8. If a person stand carrying 5 kg weight bucket on his head, how much work is done by him.
- a) 50J
  - b) 5J
  - c) 0J
  - d) 10J
9. If a stone is thrown vertically upward , the energy of stone at the top most height is known as
- a) Kinetic energy
  - b) potential energy
  - c) heat energy
  - d) both a and b
10. A particle moves along a circular path under the action of a force. The work done by the force is
- a) Negative
  - b) positive
  - c) zero
  - d) none of the above
11. The critical angle for a ray of light coming from a medium to air is  $30^\circ$ . The velocity of light in the medium is:
- a)  $3 \times 10^8$  m/s
  - b)  $2.5 \times 10^8$  m/s
  - c)  $6 \times 10^8$  m/s
  - d)  $1.5 \times 10^8$  m/s
12. What remains unchanged for light during its refraction from one medium to another medium?
- a) wavelength
  - b) frequency
  - c) speed
  - d) none
13. When convex lenses form a virtual, erect and magnified image of the object?
- a) When placed between  $2F$  and  $F$
  - b) When placed between  $F$  and  $O$
  - c) When placed at  $F$

d) When placed at 2F

14. Which one is the formula to calculate upthrust.

a)  $U = hdg$

b)  $U = mgh$

c)  $U = Vdg$

d)  $U = Adg$

15. Which of the following does not affect the speed of sound?

a) Density

b) temperature

c) humidity

d) pressure

16. Heat given off by 200g of water which cools from  $100^{\circ}\text{C}$  to  $20^{\circ}\text{C}$  is

a) 16 kilo cal

b) 120 kilo cal

c) 40 kilo cal

d) 160 kilo cal

17. A man would feel iron and wooden block equally cold or hot at

a)  $98.6^{\circ}\text{C}$

b)  $98.6^{\circ}\text{R}$

c)  $98.6^{\circ}\text{F}$

d)  $98.6^{\circ}\text{K}$

18. Two resistors each of resistance 2 ohm are connected parallel then what equivalent resistance is

a) 1 ohm

b) 2 ohm

c) 1.5 ohm

d) 4 ohm

19. Transformers are based on the principle of

- a) motor effect
- b) heating effect
- c) mutual induction
- d) none

20. The capacity of fuse required to heat a 1000W heater in 220V line is

- a) 5A
- b) 2.5A
- c) 10A
- d) no need of fuse

**English**

1. Two and Two .....four.
  - A. make
  - B. makes
  - C. is making
  - D. made
2. No sooner .....I reached there than he stood up.
  - A. Do
  - B. did
  - C. has
  - D. had
3. He has not met me .....he came from India.
  - A. For
  - B. after
  - C. to
  - D. since
4. To express intention one might use .....
  - A. Are you coming ?
  - B. Will you be there?
  - C. I think I'll join the class
  - D. I should start a business
5. Which of the following expressions expresses warning?
  - A. I'm sorry I cannot.....

- B. No way!
  - C. Watch out!
  - D. Don't be silly
6. What are the components of a good paragraph?
- A. Topic sentence, body and conclusion
  - B. thesis statement, conclusion, examples
  - C. topic sentence, body, examples
  - D. topic sentence, introduction, conclusion
7. 'Love is as strong as death but jealousy is as cruel as death' is an example of ..
- A. Prosody
  - B. parody
  - C. simile
  - D. pun
8. The word that is outdated or out of use is .....
- A. Ancient
  - B. stable
  - C. obsolete
  - D. absolute
9. Which prefix is used with the following words: Behave, Guide, Use?
- A. In
  - B. mis
  - C. dis
  - D. re
10. Pick out the word which is correctly spelt
- A. Bureaucracy
  - B. bureocracy
  - C. buraucracy
  - D. burocracy
11. We should abide .....the advice of our teacher.
- A. With
  - B. of
  - C. for
  - D. by
12. To smell rat means
- A. Get bad smell of the dead rat
  - B. To be in a bad mood
  - C. To suspect foul dealings
  - D. To listen eagerly
13. She is .....clever, but his boss is rather stupid.
- A. Fairly

- B. almost
- C. nearly
- D. rather

14. Forty kilometers .....a long distance.

- A. is
- B. are
- C. have
- D. has

15. We agree .....your proposal.

- A. of
- B. to
- C. by
- D. with

16. A pair of trousers .....(buy) yesterday.

- A. was bought
- B. bought
- C. were bought
- D. had been bought

17. I helped him .....(clean) the house.

- A. clean
- B. cleaned
- C. to clean
- D. cleaning

18. By the end of this month, I (plant) trees for three hours.

- A. will plant
- B. will have planted

C. will have been planting

D. will be planting

19. Are they really threatening to go on .....strike?

A. a

B. an

C. the

D. nothing

20. When we use the term 'passes away' instead of 'dies' to express emotion, it is called.....

A. style

B. precision

C. euphemism

D. connotation