ALL KERALA BHAVAN'S SCHOLARSHIP EXAMINATION 2017-2018

Class :XI SCIENCE　　　　　　　　　　　　　　　　**Duration:1 ½ Hrs**
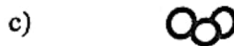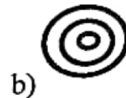
Max Marks: 100

GENERAL INSTRUCTIONS

READ THE INSTRUCTIONS CAREFULLY BEFORE ANSWERING THE QUESTIONS

1. Please fill up your Roll No. and class in the box provided on the answer sheet.

2. This question booklet has 2 sections: Section A and Section B.

3. Section A has 34 questions and is mandatory for candidates .

   Section B is divided into 4 parts: Part I – Maths,Part –II Biology ,

   Part-III Computer Science, Part – IV Informatics Practices.

4. Candidates should answer any two parts from Section B.

5. Total number of Questions to be answered is 50(34+8+8) and 5 Tie Breaker

   questions.Tie Breaker questions would be evaluated only in case of a tie.

6. The choice of subjects must be indicated in the boxes provided under section B

   in the Answer sheet.

7. Each question has 4 options a,b,c,d.

8. For each question, select the best/correct option and darken the bubble

   completely against the corresponding question in the answer sheet provided.

9. Each question carries 2 marks.

10. Use blue/Black ball point pen to darken the bubble.

11. Darken only one bubble against each question.

12. There will be no negative marking

1. Find the antonym of 'decimated' among the given options :
   a) fortified   b) weakened   c) deteriorate   d) authorise

2. My uncle was afflicted _____ a serious illness and was almost confined _____ bed _____ more than two months.

   a)by, on, since   b)to, to, since   c)by, on, for   d)with, to, for

3. The poetic device used in the line " The trees laughed in the wind" is...
   a)Personification   b)Metaphor   c)Oxymoron   d)Simile

4. A person who believes that war and violence are wrong and will not fight in a war :

   a)nihilist   b) pacifist   c) purist   d) perfectionist

5. One of my brothers _____ in England.

   a) living   b) live   c) have lived   d) lives

6. A tall grass-like plant growing in a marshy area is...

   a) weed   b) reed   c) seed   d) bead

7. How does the former King of the Melon City meet with his end ?

   a) He is killed by the unruly mob

   b) The ministers conspire against him and assassinate him

   c) He is hanged by his own royal decree

   d) An idiot who passes by the gate kills him

8. Identify the literary device employed in the following line of the poem

   'The Voice of the Rain' by Walt Whitman:"I am the poem of Earth"

   a)alliteration   b) simile   c) personification   d) Oxymoron

9. A particle accelerates from rest at a constant rate 'a' for same time after which it decelerates at a constant rate 'b' and comes to rest. If the total time elapsed is 't', the maximum speed acquired by the particle is
   a)$[a^2+b^2/ab]t$ b) $[a^2-b^2/ab]t$ c)$[a+b/ab]t$ d)$[ab/a+b]t$

10. A child is standing with folded hands at the centre of a platform rotating about its central axis. The kinetic energy of the system is K. The child now stretches his arms so that the moment of inertia of the system doubles. The kinetic energy of the system now is
    a)2K   b) K/2   c)K/4   d)4K

11. A ball of mass 0.2kg is thrown vertically upwards by applying a force by hand. If the hand moves 0.2m while applying the force and the ball goes 2m height further, find the magnitude of force. Take $g=10m/s^2$
    a)20N   b) 22N   c)4N   d) 16N

12. The acceleration of a body performing uniform circular motion is
    a) v^2/r b)zero   c)v^2r d) ωr

13. The ratio of dimension of Planck's constant and that of moment of inertia is the dimension of
    a)Time   b) frequency   c) Angular momentum   d) velocity

14. A satellite with kinetic energy E is revolving round the earth in a circular orbit. The minimum additional kinetic energy required for it to escape into the outer orbit is.
    a) E   b) 2E   c) E/2   d) $(2E)^{1/2}$

15. A ball is thrown vertically upward. It has a speed of 10m/s when it has reached one half of its maximum height. How high does the ball rise? Take g= 10m/s^2
    a)10m   b) 5m   c) 15m   d) 20m

16. Which of the following is not an inelastic collision?
    a)A man jump on a cart   b)A bullet embedded in a block
    c)Collision of two glass balls   d)Collision of a car and a truck

17. Hydrogen bond is maximum in
    a) Ethanol   b) Diethylether   c) Ethyl chloride   d)Triethyl amine

18. Air at sea level is dense. This is the practical application of
    a) Avogadro's law   b) Charles law   c) Boyle's law   d)Dalton's law

19.In which one of the following processes ,the process is always non feasible
    a)$\Delta S>0$, $\Delta H >0$ b) $\Delta S>0$, $\Delta H<0$ c) $\Delta S <0$, $\Delta H>0$ d)$\Delta S <0$, $\Delta H<0$

20. Partial pressure of O_2 in the reaction $2 Ag_2O_{(s)} \leftrightarrow 4Ag_{(s)} + O_{2(s)}$
    a) k_p b)$k_p^{1/2}$ c)$k_p^{1/3}$ d)$2k_p$

21. Which one of the following is not a Lewis acid ?
    a)$AlCl_3 .6H_2O$ b)$AlCl_3$ c)$SnCl_4$ d)$FeCl_3$

22. What products are expected from the disproportionation of hypochlorous acid
    a)HCl &Cl_2O b)HCl &$HClO_3$ c)$HClO_3$ &Cl_2O d)$HClO_2$ &$HClO_4$

23. Element with atomic number 56 belongs to this block
    a)s   b)p   c)d   d)f

24. Which among the following is the heaviest ?
    a)One mole of oxygen   b)100 amu of uranium
    c)44g of CO_2 d)ten moles of hydrogen

25. Where is the headquarters of "SAARC" situated ?
    a) Manila   b) Hong Kong   c)New Delhi   d)Kathmandu

26. Who received Nobel Prize for Literature in the year 2017?
    a)Kazuo Ishiguro   b)Bob Dylan   c)Doris Lessing   d)J M Coetzee

27. Name the renowed Indian scientist who passed away recently,who was credited for his contributions in the field of science and his weekly TV programme "Turning Point"

   a) C N R Rao   b)Prof. Yash Pal Singh

   c)Raja Ramanna   d)Dr.A P J Abdul Kalam

28. Who is the author of the book "I Do What I Do"-on Reform , Rhetoric and Resolve ?

   a) Sudha Murthy   b) Chetan Bhagath   c) Raghuram V Rajan   d) SashiTharoor

29. This is the only Country in the world having two National Anthems

   a) Canada   b)Switzerland   c) South Africa   d) New Zealand

30. Find out which of the diagrams given in the alternatives correctly represents the relationship stated in the question.

   Sharks, whales, Turtles

31. In a certain code FROM is written as #$52 and BASE is written as %7? @. How is SOME written in that code?

   a) 5? 2@   b)?5@2   c)? 52%   d)? 52@

32. K is a place which is located 2km away in the north –west direction from the capital P.R is another place that is located 2km away in the south –west direction from K . M is another place and that is located 2km away in the north-west direction from R .T is yet another place that is located 2km away in the south-west direction from M.In which direction is T located in relation to P?

   a) South- west   b) North-west   c) West   d) North

33. In a certain language FASHION is coded as FOIHSAN.How is PROBLEM coded in that code?

   a) PELBORM   b) RPBOELM   c) PRBOELM   d) ROBLEMP

34. From a point P, Raman started walking towards the south and walked 40 meters. He then turned towards his left and walked 30 meters to reach at the point R. The point R is at what minimum distance and in what general direction from the point P?

   a)35 meters south-east

   b) 35 meters south -west

   c)50 meters south - west

   d) 50 meters south-east

SECTION B

Section B comprises of 4 parts –part 1, part II part III, part IV

Answer any **two parts** only of Section B

PART I –MATHEMATICS

1. Two finite sets have m and n elements. The total number of subsets of the first set is 48 more than the total number of subsets of the second set. The values of m and n are
   (a) 7 , 6   (b) 6, 3   (c) 6 , 4   (d) 7 , 4

2. Let $f(x + \frac{1}{x}) = x^2 + \frac{1}{x^2}$, $x \neq 0$ then $f(x) =$
   (a) X^2 (b) $x^2 - 1$ (c) $x^2 - 2$ (d) None of these

3. If $\tan^2 \square = 2 \tan^2 \emptyset + 1$ then $\cos 2\square = \sin^2 \emptyset$ is equal to
   (a) 1   (b) 2   (c) -1   (d) 0

4. $7^{2n} + 3^{n-1} . 2^{3n-3}$ is divisible by
   (a) 24   (b) 25   (c) 9   (d) 13

5. There are 25 points on a plane of which 7 are collinear. How many straight lines can be formed?
   (a) 7   (b) 300   (c) 280   (d) 21.

6. The sum of all the numbers of the form n^3 which lie between 100 and 10000 is
   (a) 43261   (b) 53261   (c) 63261   (d) 100

7. The angle between the hour hand and the minute hand in circular measure of half past 4 is
   (a) П/3   (b) П/4   (c) П/2   (d) П/6

8. If $i^2 = -1$, then the sum $1 + i^2 + i^3 + \ldots$ Up to 1000 terms is equal to
   (a) -1/2   (b) 0   (c) 1   (d) -1

PART II-- BIOLOGY

1. The second heart sound is associated with the closure of
   (a) Tricuspid valve   (b) Semilunar valves
   (c)Bicuspid valve   (d) Tricuspid and Bicuspid valves

2. Which of the following belongs to phylum Arthropoda
   1.Gold fish. 2. Cockroach. 3. Cuttlefish   4. Silver fish
   (a) 1,2 & 3   (b) 2 & 3   (c) 2 & 4   (d) 3 & 4

3.Stratified epithelium is found in
   (a) Seminiferous tubules   (b) Fallopian tube   (c)Nasal cavity   (d) Kidney tubule

4. Cristae are associated with (b)Mitochondria (c) Cytoplasm (d) Protoplasm
   (a) Endoplasmic reticulum

5. A cell divides every one minute .At this rate of division, it can fill a 100 ml of beaker in one hour. How much time does it take to fill a 50 ml beaker?
   (a)30mts (b) 60mts (c) 59 mts (d) 32mts

6. Algae which grow on animals & also occur on shells of molluscs or other invertebrates are called
   (a)Parasites (b) epizoic (c) epiphytic (d) coenobia

7. The cell wall of bacterium is made up of
   (a)Cellulose (b) glycogen (c) hemicellulose (d) peptidoglycan

8. Dendrochronology is
   a) Secondary growth
   b) seasonal variation
   c) determination of age tree
   d) apical growth

PART III—INFORMATICS PRACTICES

1. Find the output of the program code :

   ```
   int x=10,y=20;
   x=x++ + ++y;
   y=++x+ y++;
   System.out.println(" "+x+y);
   ```
   a)85 b)3253 c)1222 d)43

2. How many times the following loop executes?
   ```
   int x=10;
   int sum=0;
   do
   { x++;
   sum=sum+x;
   --x;
   }while(x<=10) ;
   ```
   a)infinite times b)1 time c) 0 time d)10 times

3. What will be the value of m after the execution of the code fragment?
   ```
   int m,n;

   for( m=10,n=0;!(m>20 || n>5);m+=n, n+=4);
   ```
   a)8 b)14 c)25 d)5

4. The data stored in this file is used for authentication ,session tracking etc.
   a) Firewall b)Trojan Horse c)Spam d)Cookies

5. What will the content of str1 after the execution of the following code:

    String str1="Go";

    String str2= str1.concat("\tGreen".concat("\tIndia"));

    System.out.println(str1=str2);

    a)Go   Green   India   b)false   c)Go   d) Error

6. In java if an exception is generated in try block, it is caught in _____ block.

    a) Final   b) caught   c)catch   d)trial

7. Identify the valid nested if else statement out of the following   :

a) int a,b,c,d;	b) int a,b,c,d;	c) int a,b,c,d;	d) int a,b,c,d;

if(a>b)
    d=a;
if(b>c)
    d=b;
else
    d=c;
	If(a>b)
	    d=a;
	else
	    d=b;
	if(d>a && d>c)
	    d=c;
		if(a>b)
		if(a>c)
		d=a;
		else
		if(b>c)
		    d=b;
			if(a>b);
			if(a>c);
			if(b>c)
			    d=c;

8. The default value of the selectionMode property of List control is_____.

    a)SINGLE   b)SINGLE_INTERVAL   c)MULTIPLE   d)MULTIPLE_INTERVAL

PART IV—COMPUTER SCIENCE

1. Constant variables can be created using _____ .
    a) const   b) #define   c) All of these   d) None of these

2. Predict the output :
    int x = 786 ;
    cout << setfill ('*') << setw (6) << x;

    a) 786***   b) **786   c) ***786   d) ******

3. Default values for a function are specified when ____ .
    a) function is defined   b) function is declared

    c) Both a and b   d) None of these

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4. Predict the output :

```
int n=3 , x = 0;
n / 2 < 2 ? x=10 : x=20 ;
cout << x ;
```

a) 20   b) 10   c) 0   d) None of these

5. Predict the output :

```
int n [ 3 ] = {10 , 20 } , &p=n[2];
for( int i=2; i>=0 ; i--) p+= n[i] + i;
for( i = 0 ; i <3 ; i++) cout<< n[ i ] <<' ';
```

a) 10 20 0   b) 10 20 JunkValue   c) 10 20 33   d) 10 20 10

6. Which of the following are valid function prototypes?

    i)   void get_Array (int n [r] [c] , int r , in c) ;

    ii)   void get_Array (int n [10] [ ] , int , int);

    iii)   void get_Array (int n [10] [10] , int , int);

    iv)   void get_Array (int n [ ] [10] , int , int);

a) i & iii   b) iii   c) iii & iv   d) i, iii & iv

7. Statement A : User defined header files cannot have extension .h

Statement B : User defined header files are included in a program as "filename.extension"

Which of these statements are True ?

a) Only A   b) Only B   c) Both A & B   d) None of these

8. Which of the following is used to typecast a variable of double datatype   to int.

    i)   (double) variablename;

    ii)   (int) variablename;

    iii)   double (variablename) ;

    iv)   int (variablename) ;

a) i & iii   b) ii & iv   c) ii   d) iv

TIE BREAKER

1. A bulb emits light of wave length 4500A.The bulb is rated as 150 watt and 8% of the energy is emitted as light.How many photons are emitted by the bulb per second.

   a) 4.42×10^{-19} S^{-1} b)44.2×10^{-34} S^{-1}

   c) 2.71×10^{-19} S^{-1} d) 271×10^{-34} S^{-1}

2. One projectile moving with velocity v in space gets burst into 2 parts of masses in the ratio of 1:2 .The smaller part becomes stationary , the velocity of other part is

   a)uv   b)3v/2   c)4v/3   d)2v/3

3. At the reverse side of newly arrived Rs.2000 notes , a peculiar achievement of India has been depicted.What is that?

   a) Mangalyaan   b) Chandrayaan   c)IRNSS   d)South Asian Satellite

4. Who has been appointed as the new chairman of the Film and Television Institute of India(FTII)?

   a)Anupam Kher   b)Ragini Sharma   c)Jagdish Bhagwati   d)Rishi Kapoor

5. Complete the sentence using the appropriate form of the word in the bracket.

   If I _____(tell) in time ,I would have helped you with the work.

   a)had been told   b)have been told   c)am being told   d)has been told

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