# ALL KERALA BHAVAN'S SCHOLARSHIP EXAMINATION 2016-2017

Duration : 90 min

**CLASS : XI-SCIENCE**

Max. Marks: 100

## GENERAL INSTRUCTION S FOR XI & XII SCIENCE

### 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 the candidates. Section B is divided in to 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.
8. Each question carries 2 marks.
6. Use blue/black ball point pen to darken the bubble.

7. Darken only one bubble against each question.

8. There will be no negative marking.

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# SECTION A

### ENGLISH

1. Read the following sentences and fill in the blanks with the correct form of verbs given in the brackets.
   The wedding procession was get (a) _____ (start). It (b) _____ (wait) for us to reach.

2. Look at the newspaper headlines below and use the information to complete the sentences.
   a. Suspect arrested
      Delhi Police reports that the suspect_____ in Jaipur.
   b. Minister to inaugurate Hospital
      The health Minister will arrive at Lucknow next week. The new Hospital _____by him.

3. Combine the following sentences using clauses.
   a. I'm reading book at the moment. It is very interesting. The book_____
   b. The sweets are delicious. I bought them yesterday. The sweets_____

4. Edit the following passage. There is an error in each line. Write the incorrect word and its correction.

   Kut Kut was a hardworking squirrel.
   She lived on a tree-hole         (a) _____
   She was over the impression that (b) _____
   She has enough food in store for (c) _____
   bad days, until she find that     (d) _____

5. Rewrite the following sentences as instructed:
   (a) Sushma likes only this gift (Change into negative sentence without
   (b) John left no plan untried. (Change into affirmative sentence without changing the meaning).

6. Fill in the blanks using the correct forms of the verbs in the brackets:
   (a) I was not interested in joining the tour as I _____ (visit) the place last year.
   (b) She ___ (be) sixteen on her next birthday.

7. 7.Do as directed:

    a. The Japanese attacked wildly. (use adjective form of 'wildly' and rewrite)

    b. As soon as he had finished his paper, the bell rang. (use 'no sooner......than').

8. Change the following sentences into indirect speech:

    a. Jania's coach said, "If she practices a little more regularly, she can beat all her competitors".

    b. Mr. Dabar said, "One of the connecting flights has not arrived yet"

## Physics

9. Which of the following is dimensionless?

    (a) $v^2/rg$        (b) $v^2g/r$     (c) $vg/r$     (d) $v^2rg$

10. A ball whose kinetic energy is E, is projected at an angle of 45o to the horizontal. The kinetic energy of the ball at the highest point of flight will be

    (a) E            (b) $E/\sqrt{2}$        (c) E/2       (d) Zero

11. If $|\vec{A} + \vec{B}| = |\vec{A} - \vec{B}|$ then angle between $\vec{A}$ and $\vec{B}$ is

    (a) $0^0$         (b) $30^0$        (c) $60^0$        (d) $90^0$

12. A Diwali rocket ejects 0.05kg of gases per second at a velocity of 400m/s. The force on the rocket is

    (a) 20dyn         (b) 20N         (c) 22N        (d) 400N

13. A weight w rests on a rough horizontal plane. If the angle of friction be $\theta$, the least force that will move the body along the plane will be

    (a) $w\cos\theta$        (b) $w\tan\theta$      (c) $w\cot\theta$       (d) $w\sin\theta$

14. The height at which acceleration due gravity becomes g/9 in terms of R, the radius of earth is

(a) 2R  (b) $R/\sqrt{2}$  (c) R/2  (d) $\sqrt{2}R$

15. A few droplets merge with each other to form a large droplet. In this process

(a) energy is absorbed
(b) energy is liberated
(c) some mass converted into energy
(d) energy is neither absorbed nor liberated

16. Two liquid drops have diameters of 1cm and 1.5cm. the ratio of excess pressure inside them is

(a) 1:1  (b) 2:3  (c) 3:2  (d) 5:3

## CHEMISTRY

17. A compound of aluminium and chlorine is composed of 9 gm of Al for every 35.5 gm of chlorine. The empirical formula of the compound is :

(a) Al Cl  (b) $Al\ Cl_2$  (c) $Al\ Cl_3$  (d) $Al\ Cl_4$

18. When 22.4 litres of $H_2(g)$ is mixed with 11.2 litres of $Cl_2(g)$, each at STP, the HCL(g) formed is equal to:

(a) 1.5 mol of HCl(g)    (b) 1mol of HCl(g)

(c) 2 mol of HCl(g)    (d) .5 mol of HCl(g)

19. T-type shape is exhibited by the molecule:

(a) $ClF_3$  (b) $ClHCl_3$  (c) $CCl_4$  (d) $PCl_5$

20. Which of the following species has the highest electron gain enthalpy?

(a) F-  (b) O  (c) O-  (d) Na+

**21.**.A molecule possessing dipole moment is :

(a)$CH_4$  (b)$H_2O$  (c)$BF_3$  (d)$BeCl_2$

**22.**.BondDissociation enthalpy H2,Cl2 and HCl are 434'242and 431 KJ/mol respectively. Enthalpy of formation of HCl is:

(a)-93 kJ/mol    (b) 245 kJ/mol    (c) 93 kJ/mol    ( d) -245 kJ/mol

**23.**The density of a gas at 27°Cand 1 atm is d,Pressure remaining constant ,at which of the following Temperatures will its density become 0.75d?

(a)$20^0C$   (b)$30^oC$    (c)400K         (d)300K

**24.**.Oxidation number of N in $NaNO_2$ is:

(a)+3    (b)+5    (c)-3    (d)-5

## GENERAL KNOWLEDGE

**25.**India has largest deposit of ----------------------- in the world.
   a. Gold              b. Copper
   c. Mica              d. None of the above

**26.**Kiran Bedi received Magsaysay Award for Government service in
   a.1992              b.1993
   c.1994              d.1995

**27.**With which sport is the Jules Rimet Trophy associated?
   a. basket ball      b. football
   c. hockey           d. golf

**28.** The Enron project is a
   a.hydro electric project      b. thermal power project
   c. atomic power project       d. gas fired power

**29.**The Indian Air Force celebrated its golden jubilee in
   a.1962              b. 1972
   c.1982              d.1992

I.Q

30.. At a conference, 12 members shook hands with each other before and after the meeting. How many hand shakes occurred in total?

a. 100          b.132

c.145           d.144

31..The day after the day after tomorrow is four days before Monday.What day is it today?

a. Monday          b.Tuesday

c.Wednesday        d.Thursday

32.6121135 is to flame as 21215120 is to

a. voice          b.bald

c.bloat           d.castle

33..What number should appear next in the sequence: 2,6,14,30,62,126,-------

a. 154          b.254

c.256           d.260

34.John needs 13 bottles of water from the store. He can carry only 3 at a time. What is the minimum number of trips John needs to make to the store.

a.3              b.4

c.4 ½            d.5

## SECTION B

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

Answer <u>any TWO Parts</u> only of section B

### PART I--MATHEMATICS

1. The range of the function  5 - |x+1|

a) $[0, \infty)$  b) $[5,\infty)$  c) $(-\infty, 5]$  d) $(-\infty,-5]$

2.  The value of $\cos(24^0) + \cos(55^0) + \cos(125^0) + \cos(204^0) + \cos(300^0)$

    a) 1     b) 0     c) ½     d) -1

3.  The square root of the complex number $-5 - 12i$ is

    a) ±(2-3i)  b) ±(2+3i)  c) ±(3+2i)  d) ±(3-2i)

4.  There are 15 points in a plane , no three of which are in the same straight line except 4 which are collinear, then the number of straight lines is

    a) 50        b) 90        c) 100        d) 80

5.  The number of terms in an A.P is even , the sum of odd terms is 24 and the sum even terms is 30 . If the last term exceeds the first term by $\frac{21}{2}$ , then the number of terms in the A.P is

    a) 10  b) 9  c) 6  d) 8

6.  The area of an equilateral triangle inscribed in the circle

    $x^2 + y^2 - 6x + 2y - 28 = 0$ is

    a) $\frac{46\sqrt{3}}{2}$   b) ) $\frac{57\sqrt{3}}{2}$   c) ) $\frac{56\sqrt{3}}{2}$   d) ) $\frac{47\sqrt{3}}{2}$

7.  The value of $\lim_{x \to 0} \frac{\tan 2x - \sin 2x}{x^3}$ is

    a) ¼  b) 4  c) ½  d) 2

8.  The orthocentre of the triangle whose vertices are (0,0) , (2, -1 ) , (-1,3) is

    a) (-4,3)  b) (4,-3)  c) (-4,-3)  d) (4,3)

## PART II--BIOLOGY

1.  Largest unicellular organism:

    a) Yeast  b) Planaria  c) Acetabularia  d) Volvox

2.  Genetically dwarf plants can be made to grow to all by:

    a) Gibberellin  b) Auxin  c) Cytokinin  d) Phycobilin

3. A succulent plant like Opuntia shows a respiratory quotient of :

   a) Less than one   b) One   c) Infinity   d) More than one.

4. Net requirement of assimilatory power for the formation of six molecules of hexose sugar in a maze plant is :

   a) 72 ATP + 48 NADPH      b) 90 ATP + 60 NADPH

   c) 108 ATP + 72 NADPH    d) 180 ATP + 72 NADPH

5. Which of the following lacks the protein tubulin:

   a) Cilia    b) Flagella    c) Microtubule    d) Plasma mebrine

6. Nuclear membrane is absent in :

   a) Nostoc    b) Vorticella    c) Agaricus    d) Penicillium

7. Fructose is absorbed into the blood through mucosa cells of intestine by the process called:
   a) Active transport          b) Simple diffusion
   c) Facilitated diffusion     d) Co- transport mechanism.

8. Which one of the following does not act as a neuro - transmitter:

   a) Cortisone   b) Epinephrine   c) Acetyl choline   d) Norepinephrine

## PART III--COMPUTER SCIENCE

1. Find the valid identifier from the following.
   a) Sum 2   b) $sum   c) _sum   d) long

2. Write the name of the header file to which the abs() belong to,

   a) iostream.h   b) math.h   c) stdio.h   d) conio.h

3. Which character coding system includes all the languages in the world.

   a) ASCII   b) EBCDIC   c) ISCii   d) UNICODE

4. Determine the output from the following program segment.

   int x=4,y;

   y=x++;

   cout<<++y<<','<<x++;

   a) 5,5    b)4,4    c)5,4   d)6,5

5. $(288)_{10} = ($   $)_{16}$

   a) 120    b)CO    c)021    d)102

6. Which among the following is used to take the control from a function back to the calling function.

   a)break    b) continue   c)exit(0)    d) return

7. Division by 0 is an error in C++ program. This error is considered in which type of error.

   a)semantic error   b) run time error   c) logical error   d) syntax error

8. Find the total number of elements and total size of the following array

   float A[4][5].

   a)20,80    b) 9, 36   c) 9,18    d) 20,40

## PART IV--INFORMATICS PRACTICES

1. Two engineers in the same room have connected their palm tops using Bluetooth for working on a group presentation. Out of the following what kind of network have they formed?

   a. LAN                b. MAN

   c.PAN                 d.WAN

2. In Java language which type of character encoding is used?

   a. UNICODE            b. ASCII

   c. ISCII              d.BCD

3. Write the value of z after execution of the following code.

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int j=4,z;
z=(4*++j)%3;
```

a.2       b.1

c.3       d.6

4. Which function in MYSQL is used find the position of occurrence of a substring in a given string?

a. mid()       b. substr()

c. instr()       d. truncate()

5. Which one is the aggregate function in sql?

a.avg()       b. round()

c.pow()       d. concat()

6. Implicit type conversion is

a. automatic       b. type casting

c. explicit       d. none of the above

7. CDMA stands for

a. command division mutual access       b. command division multiple access

c. code division multiple access       d. none of the above.

8. Who is responsible to get notified regarding the occurrences of events and responds to them in Java?

a. source of event       b. event listener

c. listner interface       d. none of the above.

## TIE BREAKER

1. 5 moles of a gas in a closed vessel was heated from 300K to 600k. The pressure of the gas is doubled    The number of the moles of the gas will be:

    a)5        b)2.5        c)10        d)20

2. When charge is given to a soap bubble, it shows :

    a)a decrease in size        b)no change in size

    c)an increase in size        d)sometimes an increase and sometimes a decrease in size

3. First USA space craft launched by NASA to reach the surface of moon on 23$^{rd}$ April 1962

    a) Ranger 4        b) Luna 2

    c) Luna 9        d) Apollo 11

4. A person who does not believe in the existence of the almighty

    a) Atheist        b) illiterate

    b) Effeminate        d) non believer

5. Two major works of RAVI VARMA ---------------- on 7$^{th}$ last year.

    a)was put up for auction        b)has to be put up for auction

    c)should be put up for auction        d) must be put up for auction

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