

# +2 A.M.U. Science/Dip. Engg.

## 2009-2010

1. Anaconda spends most of its time in a river, name it:  
(a) Murray (b) Parana  
(c) Amazon (d) Mississippi
2. Name of the Prime Minister of England who gave Independence to India:  
(a) Neville Chamberlain  
(b) Sir Anthony Eden  
(c) Sir Clement Attlee  
(d) Sir Winston Churchill
3. Name of the mammal that lays eggs:  
(a) Platypus  
(b) Whale  
(c) Western grey Kangaroos  
(d) Anteaters
4. Which country's flag has no prints but is only in one colour?  
(a) Sudan (b) Libya  
(c) Turkey (d) Egypt
5. Recently launched Nano by Tata Motors has been termed as:  
(a) Drive your passion (b) Sunshine car  
(c) People's car (d) Dream car
6. Pandit Jawaharlal Nehru has two sisters who were famous in the Indian Politics, they were:  
(a) Vijay Lakshmi, Sucheta  
(b) Sucheta, Aruna  
(c) Aruna, Krishna  
(d) Krishna, Vijay Lakshmi
7. Name the first person who was awarded Bharat Ratna:  
(a) C.V. Raman (b) Rabindranath Tagore  
(c) Sarojini Naidu (d) Homi Jahangir Bhabha
8. The space shuttle Discovery which has recently returned to earth had number of crew:  
(a) Three (b) Five  
(c) Seven (d) Nine
9. Standard width of a cricket bat is:  
(a)  $4\frac{1}{4}$ " (b)  $4\frac{1}{3}$ "  
(c)  $5\frac{1}{4}$ " (d)  $5\frac{3}{4}$ "
10. Bees, wasps, ants and sawflies are:  
(a) Beetle (b) Bugs  
(c) Lepidopterans (d) Hymenopterids
11. After the death of Emperor Jehangir one of his sons succeeded to the throne with the title of Shahjahan, name him  
(a) Shahryar (b) Khurram  
(c) Asfandiyar (d) Hindal
12. What is the distance between parallel lines of Broad Gauge?  
(a) 1656cm (b) 1666cm  
(c) 1676cm (d) 1686cm
13. The author of the book 'Mutaliya Sir Syed' is  
(a) Al Ahmed Saroor  
(b) Khalique Ahmed Nizami  
(c) Abdul Haque  
(d) Nurul Hasan Naqvi
14. English team played a cricket match at cricket ground of Aligarh against Aligarh College team in 1891. Four runs were needed for the win of Aligarh College team. One ball was left and last batsman was in, who hit a six, name him:  
(a) Maulana Mohammad Ali Jauhar  
(b) Maulana Shaukat Ali  
(c) Mr. Raja Mahendra Pratap  
(d) Mr. C.K. Naidu
15. The name of grandfather (paternal) of Sir Syed Ahmad Khan was:  
(Syed Hadi was paternal grandfather while Khwaja Fareeduddin was maternal grandfather of Sir Syed Ahmad Khan)  
(a) Shah Rafiuddin (b) Shah Ghulam Ali  
(c) Syed Mir Muttaqui (d) Mir Syed Mohammad
16. The person who laid the foundation stone of Mohammedan Anglo Oriental College at Aligarh was:  
(a) Lord Lytton (b) Lord Lawrence  
(c) Sir Williams Muir (d) Sir Syed Ahmad Khan
17. Sir Syed Ahmad Khan in 1860 published a magazine "Loya Mohammadan's of India" in English and "Risala Khair-e-Khahan of Muslims" in Urdu. Name the town from which these were published:  
(a) Muradabad (b) Fatehpur Sikri  
(c) Bijnaur (d) Aligarh
18. The longitude on which Aligarh Muslim University, Aligarh is situated:  
(a)  $79^{\circ}10'$  (b)  $79^{\circ}40'$   
(c)  $80^{\circ}10'$  (d)  $80^{\circ}40'$
19. Name of the mother of Hazrat Ibrahim, the son of the Prophet Mohammad (P.B.U.)  
(a) Hazrat Maimun

- (b) Hazrat Maira Qubutiya  
 (c) Hazrat Umm Habiba  
 (d) Hazrat Jawaria
20. The Prophet Mohammad (P.B.U.) stayed in the house of a sahabi for seven months after migration from Mecca to Yathrib (Medina), name him:  
 (a) Utban Ibn Malik Ansari  
 (b) Kharajah Ibn Zaid Ansari  
 (c) Abu Ibn Ayub Ansari  
 (d) Sayeed Ibn Ibadah Ansari
21. A dealer sells an article for Rs. 75.0 and gains as much per cent as the cost price of the article. Find the cost price of the article:  
 (a) Rs. 40 (b) Rs. 45  
 (c) Rs. 50 (d) Rs. 55
22. A bag contains Rs. 102.00 in the form of rupee, fifty paise and ten coins in the ratio 3:4:10. Find the number of 10 paise coins:  
 (a) 17 (b) 60  
 (c) 120 (d) 170
23. Average temperature of Monday, Tuesday and Wednesday was  $40^{\circ}\text{C}$  and the average temperature for Tuesday, Wednesday and Thursday was  $41^{\circ}\text{C}$ . If the temperature for Thursday be  $42^{\circ}\text{C}$ , then what was the temperature on Monday?  
 (a)  $38^{\circ}\text{C}$  (b)  $39^{\circ}$   
 (c)  $40^{\circ}$  (d)  $41^{\circ}$
24. Some students planned for a picnic. Budget for food was Rs. 480.00. But eight of them failed to attend and the cost of food there by increased by Rs. 10.00 per head. How many actually attended the picnic?  
 (a) 12 (b) 14  
 (c) 16 (d) 8
25. Find the fraction which bears the same ratio to  $\frac{1}{27}$  that  $\frac{3}{7}$  has with  $\frac{5}{9}$ :  
 (a)  $\frac{1}{35}$  (b)  $\frac{1}{42}$   
 (c)  $\frac{1}{49}$  (d)  $\frac{1}{52}$
26. Find the number of straight lines joining six non-collinear points:  
 (a) 10 (b) 15  
 (c) 20 (d) 25
27. 2 men and 3 women perform a work in 8 days, 6 women and 8 children perform the same work in 4 days and 1 man and 2 children perform the same work in 16 days. Find the number of days 2 men, 3 women and 8 children shall take to perform the same work:  
 (a) 2 (b) 3  
 (c) 4 (d) 6
28. A man starts from a given point. Each time he takes three steps forward, he must take two steps back, how many steps must he take in order to reach a point six steps ahead of the starting point.  
 (a) 23 (b) 25  
 (c) 17 (d) 18
29. For what value of p, the expression  $2x^2+2x+p$  be factorized into real linear factors:  
 (a)  $p > \frac{1}{2}$  (b)  $p \geq \frac{1}{2}$   
 (c)  $p \leq \frac{1}{2}$  (d)  $p < \frac{1}{2}$
30. The set of values of x satisfying  $x+2=\sqrt{2x+7}$ :  
 (a)  $\{-3\}$  (b)  $\{1\}$   
 (c)  $\{-3,1\}$  (d)  $\{2\}$
31. Solve  $2^{2x} - 3 \cdot 2^{x+2} + 32 = 0$ :  
 (a)  $\{2,3\}$  (b)  $\{1,3\}$   
 (c)  $\{1,2\}$  (d)  $\{3,4\}$
32. If  $a^3+b^3+15ab = 125$  find a+b:  
 (a) 3 (b) 5  
 (c) 7 (d) 9
33. The quadratic equation  $\frac{1}{x} + \frac{1}{x+b} = \frac{1}{m} + \frac{1}{m+b}$  has roots m and -m then:  
 (a)  $b^2 = m^2$  (b)  $b^2 = 2m^2$   
 (c)  $2b^2 = m^2$  (d)  $2b^2 = m$
34.  $\tan \alpha \cdot \tan \beta = a$  and  $\alpha + \beta = \frac{\pi}{6}$  then  $\tan \alpha$  and  $\tan \beta$  are roots of the quadratic equation:  
 (a)  $\sqrt{3}x^2 - (1-a)x + \sqrt{3}a = 0$   
 (b)  $\sqrt{3}x^2 - (1+a)x + \sqrt{3}a = 0$   
 (c)  $\sqrt{3}x^2 + (1-a)x - \sqrt{3}a = 0$   
 (d)  $\sqrt{3}x^2 + (1+a)x + \sqrt{3}a = 0$
35.  $\cos 1^{\circ} \cdot \cos 2^{\circ} \cdot \cos 3^{\circ} \dots \cos 178^{\circ} \cdot \cos 179^{\circ} = x+1$  then x is equal to:  
 (a) 1 (b) 0  
 (c) -1 (d) 2
36. Which of the following is not correct?  
 (a)  $\sin 1 > \sin 1^{\circ}$  (b)  $\cos 2 < \cos 1$   
 (c)  $\sin 2 > \sin 1$  (d)  $\tan 1 < \tan 2$

37. Evaluate  $\frac{1}{\sqrt{2}} \operatorname{cosec} (-675^\circ) + \sqrt{2} \sec(765^\circ) - \cot(1215^\circ)$ :

(a) 0

(b) 4

(c) -4

38. If  $\theta$  and  $\phi$  be acute angles and  $\sin \theta = \frac{1}{2}$  and  $\cos \phi = \frac{1}{3}$  then:

(a)  $\frac{\pi}{6} < \theta + \phi < \frac{\pi}{3}$

(b)  $\frac{\pi}{3} < \theta + \phi < \frac{\pi}{2}$

(c)  $\frac{\pi}{2} < \theta + \phi < \frac{2\pi}{3}$

(d)  $\frac{2\pi}{3} < \theta + \phi < \frac{5\pi}{6}$

39. The angles of elevation of a tower from two places in the line with the foot of tower are found to be  $60^\circ$  and  $30^\circ$ . If the places be 100 metres apart. Find the height of the tower:

(a)  $\frac{50\sqrt{3}}{3}$

(b) 50

(c)  $50\sqrt{3}$

(d)  $50\sqrt{6}$

40. If A lies in the 2<sup>nd</sup> quadrant and  $3 \tan A + 4 = 0$  the value of  $2 \cot A - 5 \cos A + \sin A$  is

(a)  $-\frac{53}{10}$

(b)  $\frac{23}{10}$

(c)  $\frac{37}{10}$

(d)  $\frac{7}{10}$

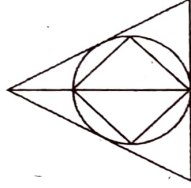
41. A circle is inscribed in an equilateral triangle whose side is 6 units. A square has its vertices on the circumference of the inscribed circle. Find the area of the square:

(a) 6

(b) 8

(c) 12

(d) 16



42. Two cones have their heights in the ratio 1:3 and radii of their bases in the ratio 3:1. Ratio of their volume:

(a)  $\frac{1}{3}$

(b)  $\frac{3}{1}$

(c)  $\frac{1}{9}$

(d)  $\frac{9}{1}$

43. Vertices of a triangle are (6,4), (0,3) and (0,8). Find the area of the triangle:

(a) 12

(b) 15

(c) 18

(d) 21

44. ABC is a right angled triangle where  $\angle B, 90^\circ$ . An incircle is inscribed in it which has a radius of 6 units then  $AB+BC+AC$  is:

(a) 6

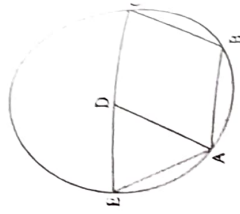
(b) 8

(c) 10

(d) 12

45. ABCD is a parallelogram.

A circle passes through points A, B and C and cuts the side CD produced in E then:



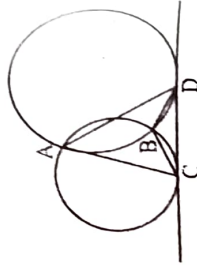
(a)  $AE > AD$

(b)  $AE = AD$

(c)  $AE < AD$

(d)  $AE = AB$

46. Two circles intersect in A and B. CD is a direct common tangent touching the circles at C and D if  $\angle CAD = 50^\circ$  then  $\angle CBD$  is:



(a)  $110^\circ$

(b)  $120^\circ$

(c)  $130^\circ$

(d)  $150^\circ$

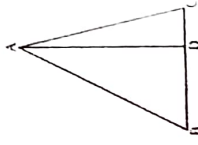
47. Angle B of  $\triangle ABC$  is acute. AD is perpendicular to BC. Find BD if  $AB=5, BC=7, AC=3\sqrt{2}$ :

(a)  $2\sqrt{2}$

(b) 3

(c) 4

(d) 5



48. Find the mode of 2,4,5,4,2:

(a) {2}

(b) {4}

(c) {2,4}

(d) {2,4,5}

49. The number of students of a class in a school is 40, 35, 45 and 42. The mean marks obtained in a subject are respectively 50, 60, 55, 45. Determine average marks of student:

(a) 52.2

(b) 52.4

(c) 52.6

(d) 52.8

50. From a pack of playing cards numbering 52 a card is drawn. Probability that it is a king:

(a)  $\frac{1}{4}$

(b)  $\frac{1}{13}$

(c)  $\frac{1}{26}$

(d)  $\frac{1}{52}$

51. If  $\vec{a} = 2\hat{i} - 3\hat{j}, \vec{b} = 4\hat{i} - 8\hat{j}$  value of  $\vec{a}\vec{b}$ :

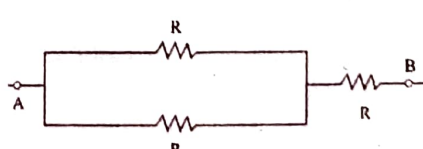
(a) 4

(b) -4

(c) 32

(d) -32

52. Visible region of the electromagnetic spectrum lies in:  
 (a)  $10^{-11} - 10^{-12}$  m (b)  $10^{-6} - 10^{-7}$  m  
 (c)  $10^{-9} - 10^{-10}$  m (d)  $10^{-3} - 10^{-4}$  m
53. An object is placed in front of a concave mirror of radius of curvature 40 cm at a distance of 10 cm, the position of the image could be at a distance of:  
 (a) -20 cm (b) -10 cm  
 (c) 10 cm (d) 20 cm
54. How many electrons would pass through a given cross section in 1 second to constitute a current of 1 Amp?  
 (a)  $1.6 \times 10^{-19}$  (b)  $6 \times 10^{-18}$   
 (c)  $1.6 \times 10^{19}$  (d)  $6 \times 10^{18}$
55. Freezing point of water is:  
 (a)  $0^\circ$  F (b)  $0^\circ$  C  
 (c)  $20^\circ$  C (d)  $212^\circ$  F
56. Which one of the following is true?  
 (a) speed of sound is less in Helium than in air at  $20^\circ$  C  
 (b) speed of sound is less in sea water than in water at  $0^\circ$  C  
 (c) speed of sound is less in Hydrogen than in air at  $0^\circ$  C  
 (d) speed of sound is less in sea water than in steel
57. Which of the following is true?  
 (a) Sound and light need medium to travel  
 (b) Only sound needs a medium to travel  
 (c) Only light needs a medium to travel  
 (d) Neither sound nor light need a medium to travel
58. Sometimes we find dogs chasing motorcycles and we usually do not account for it. The reason for this is:  
 (a) dogs are attracted by the colour of the motorcycle  
 (b) dogs are attracted by the light that falls onto them  
 (c) they listen to the sounds which we do not  
 (d) they have a tendency to chase anything that goes by them
59. If one unit of electricity cost Rs. 5, how much one would have to pay for using 1000 W bulb continuously for 30 days:  
 (a) Rs. 150 (b) Rs. 3600  
 (c) Rs. 5000 (d) Rs. 1,50,000
60. Two charges of the same magnitudes are separated by distance of 100 cm and the force acting between them is  $10^{-2}$  N, the charge on each one of them is:  
 (a)  $10^{-6}$   $\mu$ C (b)  $10^{-6}$  mC  
 (c)  $10^{-3}$  C (d)  $10^{-6}$  C
61. Drift speed of the conduction electrons in household wiring is typically:  
 (a)  $4 \times 10^{-5}$  m/sec (b) 100 m/sec  
 (c) 330 m/sec (d)  $3 \times 10^8$  m/sec
62. Big-Bang theory explains:  
 (a) evolution of the universe  
 (b) nuclear fusion reaction inside a star  
 (c) magnetic property of earth  
 (d) death of stars
63. In the following reaction, what is the missing particle:  

$${}_0^1n + {}_{92}^{235}U \rightarrow {}_{56}^{141}Ba + {}_{36}^{92}Kr + 3{}_0^1n + ?$$
  
 (a)  $\gamma$  (b)  ${}_0^1n$   
 (c)  ${}_1^1p$  (d)  $e^-$
64. What is approximately the mass of proton?  
 (a) 1 amu (b) 938 amu  
 (c)  $9.1 \times 10^{-31}$  amu (d)  $1.6 \times 10^{-27}$  amu
65. The equivalent resistance across AB is:  
 (a)  $\frac{2R}{3}$   
 (b) R  
 (c)  $\frac{3R}{2}$   
 (d) 2R
- 
66. Mohan could see clearly up to a distance of 2 mts, however, he wanted to see clearly up to 10 mts, what type of lens you would advise him?  
 (a) concave lens of power 0.4 dioptre  
 (b) convex lens of power 0.4 dioptre  
 (c) concave lens of power 0.6 dioptre  
 (d) convex lens of power 0.6 dioptre

67. A box of mass 400 kg rests on a carrier of truck that is moving at a speed of 120 km/hr. The driver applies brake and slows to a speed of 60 km/hr in 20 sec. The constant acceleration generated upon the box in  $m/s^2$
- (a) -0.0025                      (b) 0.8  
(c) 0.0025                      (d) -0.8
68. A 20 kg box is pulled up on a slope with a constant speed to a distance of 4 mts raising it to a height of 2mts above its starting point, the force  $\vec{F}$  that exerted on the box is:
- (a) 50N                              (b) 100N  
(c) 150N                            (d) 200N
69. Magnetic field in a long straight solenoid is:
- (a) Zero  
(b) Decreases as we move towards the ends  
(c) Increases as we move towards the ends  
(d) It is constant at every point
70. Which of the following is not a property of Amorphous solids?
- (a) Isotropic in nature          (b) Irregular shape  
(c) Super cooled liquids        (d) Long range order
71. In the reaction  $Fe + Ni_2O_3$  one gets:
- (a)  $FeO_2$                           (b)  $Fe_2O_3$   
(c)  $FeO$                             (d)  $Fe_3O_4$
72. In a redox reaction  $Cu + 2AgNO_3$  gives rise to:
- (a)  $NO_2$                             (b)  $Ag$   
(c)  $N_2O$                             (d)  $AgO_2$
73. A solution turns red litmus paper into blue. Its pH is:
- (a) 5                                  (b) 7  
(c) 10                                (d) 12
74. What is the structural formula of acetic acid?
- (a)  $\begin{array}{c} H & O \\ | & || \\ H-C & -C-OH \\ | \\ H \end{array}$                       (b)  $\begin{array}{c} H & O \\ | & | \\ H-C & -C-OH \\ | \\ H \end{array}$   
(c)  $\begin{array}{c} H & O \\ | & || \\ H-C & =C-OH \\ | \\ H \end{array}$                       (d)  $\begin{array}{c} H & O \\ | & || \\ H-C & =C=OH \\ | \\ H \end{array}$
75. Which one of the following is correct chemical equation?
- (a)  $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$
- (b)  $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + HCl$   
(c)  $HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + H_2O$   
(d)  $BaCl_2 + K_2SO_4 \rightarrow BaSO_4 + KCl$
76. Laughing gas is:
- (a)  $N_2O$                               (b)  $SO_2$   
(c)  $NH_3$                               (d)  $PH_3$
77. Blue colour of water in sea is due to:
- (a) refraction of blue light by impurities in sea water  
(b) scattering of light by water  
(c) reflection of blue sky in water  
(d) it is an illusion
78. Silver items when exposed to air becomes blackish; name the black compound:
- (a) silver nitrate                  (b) silver sulphide  
(c) silver oxide                      (d) silver dioxide
79.  $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$   
The above is an example of reaction
- (a) Combination reaction  
(b) Displacement reaction  
(c) Double displacement reaction  
(d) Decomposition reaction
80. What is the chemical formula of ammonium carbonate?
- (a)  $NH_4CO_3$                           (b)  $(NH_4)_2CO_3$   
(c)  $NH_4(CO_3)_2$                       (d)  $(NH_4)_2(CO_3)_2$
81. Molar mass of  $C_2H_6O_2$  is:
- (a) 15                                  (b) 28  
(c) 34                                (d) 62
82. Blood may be purified by:
- (a) dialysis                            (b) electro-osmosis  
(c) coagulation                      (d) filtration
83. A solution mixed with albumen of egg produces a gas which turns water into milky white, name the solution
- (a)  $NaCl$                               (b)  $KCl$   
(c)  $HCl$                                 (d)  $LiCl$
84. Which gas is emitted when tartaric acid is heated with sodium bicarbonate?
- (a)  $Cl_2$                                 (b)  $O_2$   
(c)  $CO_2$                                 (d)  $H_2$

85. Richest source of iron among the following is:  
 (a) Banana (b) Mango  
 (c) Dates (d) Grapes
86. Milk and egg makes a complete food which is one nutrient which milk lacks and egg completes it?  
 (a) Protein (b) Iron  
 (c) Calcium (d) Carbohydrate
87. Poliomyelitis is a disease of:  
 (a) Nervous system (b) Liver  
 (c) Kidney (d) Intestine
88. Robert Koch won the Nobel prize for the discovery of:  
 (a) Cholera (b) Malaria  
 (c) Tuberculosis (d) Typhoid
89. Which of the epithelium forms the lining of the small intestine?  
 (a) Cuboidal epithelium  
 (b) Squamous epithelium  
 (c) Ciliated epithelium  
 (d) Columnar epithelium
90. A white fibrous protein found in some connective tissue is called:  
 (a) Collagen (b) Plasma  
 (c) Ligament (d) Matrix
91. The function of parathormone hormone is:  
 (a) In the development of the immune system  
 (b) To regulate calcium and phosphate level  
 (c) To control the growth of human body  
 (d) To control the rate of metabolism of carbohydrate, protein and fat
92. Which region of the brain controls the reflex movement of the eye muscle?  
 (a) Midbrain (b) Cerebrum  
 (c) Cerebellum (d) Medulla
93. Common name of *Ancylostoma* is:  
 (a) Roundworm (b) Filarial worm  
 (c) Hookworm (d) Pinworm
94. *Equisetum* belongs to which group of plant kingdom:  
 (a) Pteridophyta (b) Gymnosperms  
 (c) Bryophyta (d) Thallophyta
95. Which division of the kingdom Plantae are without specialized vascular tissue?  
 (a) Bryophyta (b) Thallophyta  
 (c) Pteridophyta (d) Spermatophyta
96. Which among these tissue provides tensile strength, elasticity and mechanical strength to the plant?  
 (a) Chlorenchyma (b) Sclerenchyma  
 (c) Parenchyma (d) Collenchyma
97. The function of Ribosomes is:  
 (a) Synthesis of protein  
 (b) To destroy any foreign material that enter the cell  
 (c) To maintain osmotic pressure in a cell  
 (d) It forms supporting skeletal frame-work of the cell
98. *E.coli* and salmonella are examples of:  
 (a) Cynobacteria  
 (b) Enterobacteria  
 (c) Glidding and budding bacteria  
 (d) Actinomyces
99. Ligaments are elastic structures which connect:  
 (a) Bones to bones (b) Muscles to bone  
 (c) Nerve to muscle (d) Muscle to muscle
100. Monocot stems, roots and leaves do not have:  
 (a) Collenchyma (b) Sclerenchyma  
 (c) Parenchyma (d) Chlorenchyma

# Answers 2009-2010

1.	c
2.	c
3.	a
4.	b
5.	c
6.	d
7.	a
8.	c
9.	a
10.	d
11.	b
12.	b
13.	c
14.	b
15.	none
16.	a
17.	a
18.	a
19.	b
20.	c
21.	c
22.	b
23.	b
24.	c
25.	a

26.	b
27.	c
28.	d
29.	c
30.	c
31.	a
32.	b
33.	b
34.	a
35.	c
36.	a
37.	b
38.	c
39.	c
40.	b
41.	a
42.	b
43.	b
44.	d
45.	b
46.	c
47.	c
48.	c
49.	a
50.	b

51.	c
52.	b
53.	d
54.	d
55.	b
56.	d
57.	b
58.	c
59.	b
60.	d
61.	a
62.	a
63.	a
64.	d
65.	c
66.	a
67.	d
68.	b
69.	d
70.	a
71.	b
72.	b
73.	none
74.	a
75.	a

76.	a
77.	a
78.	b
79.	b
80.	b
81.	d
82.	a
83.	c
84.	c
85.	c
86.	b
87.	a
88.	c
89.	d
90.	a
91.	b
92.	b
93.	c
94.	a
95.	a
96.	d
97.	a
98.	b
99.	a
100.	a