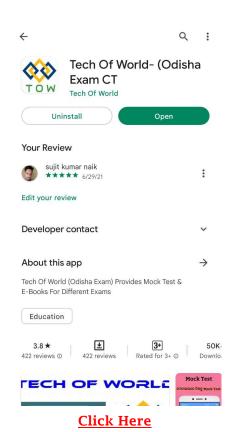




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#### Section 1 - Paperl-English Language

#### Passage Questions (1-5)

#### Read the passage and answer the questions that follow:

No one can say 'He jests at scars who never felt a wound', for I have never for one moment been in a state of mind to which even the imagination of serious pain was less than intolerable. If any man is safe from the danger of underestimating this adversary, I am that man. I must add, too, that the only purpose of the book is to solve the intellectual problem raised by suffering; for the far higher task of teaching fortitude and patience I was never fool enough to suppose myself qualified, nor have I anything to offer my readers except my conviction that when pain is to be borne, a little courage helps more than much knowledge, a little human sympathy more than much courage, and the least tincture of the love of God more than all.

- 1) According to the passage, which of the following along with some other aspects helps when pain is to be borne?
- A) Suffering
- B) Bearing
- C) Courage.
- D) Calmness
- 2) What is the purpose of the book?

- A) To encourage you to fight better and with greater grit.
- B) To solve the intellectual problem raised by suffering.
- C) To alleviate the problem of pain by adding new ideas.
- D) To alleviate the suffering of those who feel a lot of pain.
- 3) What does the writer feel unqualified to write about?
- A) Problem of pain
- B) Fortitude and patience.
- C) Courage and love.
- D) Friendship.
- 4) Which is the best tincture in pain?
- A) Patience and fortitude
- B) Sympathy and love
- C) Courage and sympathy
- D) Love of God

5) The narrator has never for one moment been in a state of mind to imagine that
A) even the imagination of serious pain was less than intolerable
B) even the truth of imaginerys pain was less than tolerable
C) even courage can make serious pain less than tolerable
D) even the loss of serious pain would be less than intolerable
6) Fill in the blank with the correct option:
Out of is out of mind. I have purchased a big for construction of my bungalow.
A) sight, site
B) cite, sight
C) site, cite
D) cite, site
b) site, site
7) A person who gets up, arrives, or acts before the usual or expected time is called a/an  A) early bird B) yearly bird C) seasonal bird D) sunny bird
8) Fill in the blank with correct prefix or suffix:
Soon after entering the hall, sheposed herself between the guests.
A) extra
B) under
C) inter
D) intra
b) initia
9) Which of the following words is correctly spelt?
A) eczeema
B) eczema
C) eczeama
D) eczima







- 10) Which of the following idiom means a misleadingly hopeful sign?
- A) a necessary evil
- B) break your neck to do something
- C) win by a neck
- D) a false dawn



#### Section 2 - Paperl-Education and General Awareness

- 11) Which of the following factors determine the sensitivity of an astronomical telescope?
- A) Focal length of the objective lens
- B) Diameter of the objective lens
- C) Focal length of the eyepiece
- D) Diameter of the eyepiece
- 12) Under which of the following conditions term of loksbha sabha can be extented by one year?
- A) Proclamation of Emergency
- B) Proclamation of the amendment of the constitution
- C) Proclamation of Presdent rule in the state
- D) None of the above
- 13) One of the major activities of the State Councils of Education Research and Training is-
- A) teacher education
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- B) sanctioning aid to schools
- C) centralising teacher education
- D) monitoring school infrastructure
- 14) In the year 1902, which commission was appointed to enquire into the condition and prospects of the universities established in British India?
- A) The Education Commission
- B) The Indian Universities Commission
- C) The University Grants Commission
- D) The Universities Act
- 15) The India Early Childhood Education Impact Study (2017) was carried out by
- A) Aligarh University
- B) Asoka University
- C) Delhi University
- D) Ambedkar University

#### Section 3 - Paperl-Reasoning

- 16) Two tickets from city C to D and three tickets from city C to E cost ₹77 but three tickets from city C to D and two tickets from C to E cost ₹73. What are the ticket charges for cities D and E respectively from city C?
- A) ₹15 and ₹17
- B) ₹14 and ₹15
- C) ₹16 and ₹15
- D) ₹13 and ₹17
- 17) In a certain code language, LETTER is coded as 36 and SUBLETTER is coded as 81. How will LETTERS be coded in that code language?
- echofworld.In A) 25
- B) 36
- C) 49
- D) 64
- 18) In the following questions, mark:
- 1, if statement I alone is sufficient to answer the problem.
- 2, if statement II alone is sufficient to answer the problem.
- 3, if statements I and II both taken together are sufficient to answer the problem.
- 4, if statements I and II taken together are NOT sufficient to answer the problem.

What day is the fifteenth of a given month?

- I. The last day of the month is a Wednesday.
- II. The third Saturday of the month is 18th.
- A) 1
- B) 2
- C) 3
- D) 4

- 19) In the following questions, mark:
- 1, if statement I alone is sufficient to answer the problem.
- 2, if statement II alone is sufficient to answer the problem.
- 3, if statements I and II both taken together are sufficient to answer the problem.
- 4, if statements I and II taken together are NOT sufficient to answer the problem.

Who is the youngest among A, B and C?

- I. A is neither youngest nor eldest among the three.
- II. B is eldest among the three.

- B) 2
- C) 3
- D) 4
- 20) Santprasad walked 50 m towards North. Then she turned left and walked 25 m, then again she turned left and walked 40 m. Finally she turned right and continued to walk. In which direction was she walking finally?
- A) East
- B) West
- C) North
- D) South

#### Section 4 - Paperl-Teaching Aptitude

- 21) Which of the following is an important goal of MOOC?
- A) Conduct student assessments
- B) Ensure placements
- C) Cater to diverse learners
- D) Provide secondary education
- 22) Which of the following are the principles of classical conditioning theory proposed by Ivan Pavlov?
- A) Principle of acquisition, extinction, archimedes and generalisation
- B) Principle of acquisition, archimedes, spontaneous recovery and generalisation
- C) Principle of archimedes, extinction, spontaneous recovery and generalisation
- D) Principle of acquisition, extinction, spontaneous recovery and generalisation
- 23) Non-formal education does NOT include
- A) Adult basic education
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- B) Gurukula pathashala education
- C) Home education
- D) Adult literacy education or school equivalency preparation
- 24) According to Piaget, what is the goal of the preoperational stage?
- A) Child is able to think about hypothesis verification
- B) Child is able to think symbolically
- C) Child is able to think logically
- D) Child is able to think about abstract concepts
- 25) What does SOLO stand for?
- A) Structure of Operational Learning Outlet
- B) Structure of Observed Learning Outcome
- C) Secondary Operational Learning Outcome
- D) Symmetrical Observed Learning Outcome

26	ZPD	stands	for	

- A) Zone of Personal Difficulty
- B) Zone of Proximal Development
- C) Zone of Primary Disturbance
- D) Zone of Primary Development
- 27) Which of the following instruments is used to measure Attention Span?
- A) Periscope

- B) Tachistoscope
- C) Teliscope
- D) Kaliedoscope
- 28) Gender Schema Theory says that \_\_\_\_\_\_
- A) gender schemas are biological and so cannot be changed by culture
- B) gender schemas are culturally formed through cognitive construction
- C) gender schemas are a political construct which have been developed for lobbying
- D) gender schemas are created by class divides so are controlled by society
- 29) Community is an agency of which of the following forms of education?
- A) Formal education
- B) Government
- C) Non formal education
- D) Informal education
- 30) Which of the following is a higher order mental process?
- A) Thinking, Reasoning and Decision Making
- B) Thinking, Generalisation and Memorisation
- C) Thinking, Reasoning and Memorisation
- D) Reasoning, Generalisation and Decision Making

#### Section 5 - PaperII-Physical Science

- 31) Which among the following is the CORRECT electronic configuration of Pd atom?
- A) [Kr]<sup>36</sup>4d<sup>9</sup>5s<sup>1</sup>
- B) [Kr]<sup>36</sup>4d<sup>8</sup>5s<sup>2</sup>
- C) [Kr]364d105s0
- D) [Kr]364d105s1
- 32) When Silver lodide is heated with sunlight, it forms silver and lodine, the colour of the iodine is
- A) purple
- B) green
- C) red
- D) blue
- 33) The resistance of a wire can be determined with greater accuracy using:
- A) Ω's law
- B) Series resistance method
- C) Bridge method
- D) Kirchhoff's voltage law
- 34) A person hears the sound of the explosion of a bomb after 5 s and another person hears the sound after 6 s. The ratio of minimum and maximum possible distance between the person is
- A) 1:2
- B) 1:4
- C) 1:11
- D) 5:6
- 35) Tyres are circular in shape because
- A) they are easy to design
- B) they require less material
- C) rolling friction is less than sliding friction
- D) it is easy to inflate circular tyres





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- 36) Which among the following will be the ground state terms for a d<sup>6</sup> and d<sup>3</sup> atoms respectively?
- A)  ${}^{4}F_{3/2}$  and  ${}^{5}D_{4}$
- B) 5D<sub>4</sub> and 4F<sub>3/2</sub>
- C) <sup>5</sup>D<sub>0</sub> and <sup>4</sup>F<sub>9/2</sub>
- D) 4F9/2 and 5D0
- 37) Which among the following is the basicity order of different N containing molecules A, B & C? Given: CH₃NH₂ (A), pyridine (B) and CH<sub>3</sub>CN (C).
- A) A > B > C
- B) B > A > C
- C) C > B > A
- D) A > C > B
- 38) The reaction  $Fe_2O_3 + 2AI \rightarrow AI_2O_3 + 2Fe$  is an example for
- A) Combination reaction
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- B) Double displacement reaction
- C) Decomposition reaction
- D) Displacement reaction
- 39) Which among the following product is formed when hydrogen burns in presence of oxygen?
- A) Hydrogen gas is released
- B) Water is released
- C) H<sub>2</sub>S is released
- D) Both oxygen and water is released
- 40) The resistance of a hot tungsten filament is about 20 times the cold resistance. What will be the resistance of 200 W/200 V lamp when not in use?
- A) 200 Ω
- B) 20 Ω
- C) 10 Q
- D) 100 Ω





- 41) An electron moving in a circular orbit of radius r makes n rotations per second. The magnetic field produced at the centre has magnitude
- A) zero
- B) µne/2πr
- C) µne/2r
- D) µn^2e/2r
- 42) A ray of light is incident at an angle of 60° on the face of a prism having refracting angle 30°. The ray emerging out of the prism makes an angle 30° with the incident ray. The emergent ray is then
- A) Perpendicular to the incident face
- B) Perpendicular to the emergent face
- C) Parallel to the incident face
- D) Parallel to the emergent face
- 43) The image formed by a concave mirror is twice the size of the object. The focal length of the mirror is 20 cm. The distance of the object from the mirror is
- A) 10 cm
- B) 30 cm
- C) 25 cm
- D) 15 cm
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- 44) When a boulder of mass 240 kg is placed on a iceberg floating in sea water, it is found that the iceberg just sinks. If the relative density of ice is 0.9 and that of sea water is 1.02, the mass of the iceberg is
- A) 1800 kg
- B) 120 kg
- C) 240 kg
- D) 480 kg
- 45) A piece of brass (alloy of copper and zinc) weighs 12.9 gm in air. When completely immersed in water, it weights 11.3 g. The specific gravity of copper and zinc are 8.9 and 7.1 respectively. The mass of copper contained in the alloy is
- A) 1.6 g
- B) 3.2 g
- C) 7.6 g
- D) 5.1 g

- 46) For a particle in a one dimensional box the ground state energy was found to be 4.72 x10<sup>-57</sup> J. What will the energy difference between the 3<sup>rd</sup> and 4<sup>th</sup> energy levels?
- A) 33.04 x 10<sup>-57</sup> J
- B) 42.48 x 10<sup>-57</sup> J
- C) 75.52 x 10<sup>-57</sup> J
- D) 52.41 x 10<sup>-57</sup> J
- 47) The electrolytic decomposition of water gives H2 and O2 in the ratio of
- A) 1:2 by volume
- B) 2:1 by volume
- C) 8:1 by mass
- D) 1:2 by mass
- 48) A coil in the shape of an equilateral triangle of side 0.02 m is suspended from a vertex such that it is hanging in a vertical plane between the pole pieces of a permanent magnet producing a horizontal magnetic field of 50 mT. The couple acting on the coil when a current of 0.1 ampere is passed through it and the magnetic field is parallel to its plane will be
- A) √3 x 10^-7 Nm
- B) 5√3 x 10^-7 Nm
- C) 0 Nm
- D) 5√3 x 10^-6 Nm
- 49) Two identical coherent sources placed on a diameter of a circle of radius R at a separation d(<<R) symmetrically about the centre of the circle. The sources emit identical wavelength  $\lambda$  each. The number of points on the circle with the maximum intensity is :
- A)  $(2d/\lambda) + 1$
- B)  $(4d/\lambda) + 2$
- C)  $(2d/\lambda) 1$
- D)  $(4d/\lambda) 2$
- 50) A block moving up an inclined plane of inclination 30 degrees with a velocity of 5 m/s stops after 0.5 s. If g = 10 m/s<sup>2</sup>, then the approximate value of coefficient of friction is
- A) 0.2
- B) 0.4
- C) 0.6
- D) 0.8

#### Section 6 - PaperII-Biological Science

- 51) Which among the following blood group is called as an universal donor?
- A) A
- B) B
- C) AB
- D) O
- 52) Which of the following organisms lack mitochondria?
- A) Green algae
- B) Blue-green algae
- C) Yeast
- D) Paramoecium
- 53) Which superclass of subphylum vertebrata do jawless vertebrates belong to?
- A) Gnathostomata

- B) Agnatha
- C) Marsupials
- D) Aves
- 54) Pyramids of energy is always upright because the flow of energy is
- A) Unidirectional
- B) Bidirectional
- C) Multidirectional
- D) Random
- 55) Which option refers to the depletion of top fertile soil because of water or wind?
- A) Soil erosion
- B) Leaching
- C) Weathering of rocks
- D) Siltation









- 56) The glomerular filtration rate of healthy individual is approximately
- A) 75 ml/minute
- B) 125 ml/minute
- C) 175 ml/minute
- D) 225 ml/minute
- 57) Asexual reproduction through gemmules is the characteristic feature of
- A) Paramecium
- B) Yeast
- C) Chlamydomonas
- D) Sponge
- 58) Read the following statements and choose the CORRECT option.
- (i) Mitochondria is a semi-autonomous cell organelle.
- (ii) Mitochondria has its own DNA and ribosomes.

- A) (i) is TRUE and (ii) is TRUE
- B) (i) is TRUE and (ii) is FALSE
- C) (i) is FALSE and (ii) is TRUE
- D) (i) is FALSE and (ii) is FALSE
- 59) The systematic arrangement of the chromosomes according to their size and shape is known as
- A) Chromatography
- B) ELISA
- C) Karyotyping
- D) Cloning
- 60) The scientific names for plants are based on certain standard principles and criteria which are provided in ICBN. What is the full form of ICBN?
- A) International Collection for Botanical Nomenclature
- B) International Council for Botanical Nomenclature
- C) International Code for Botanical Nomenclature
- D) International Code for Biological Nomenclature







- 61) The term gymnosperm is derived from two Greek words, gymnos and sperma. What do these words mean respectively?
- A) Naked and seed
- B) Seed and spores
- C) Covered and seed
- D) Flower and seed
- 62) The amount of dissolved oxygen needed by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period is called
- A) Chemical Oxygen demand
- B) Biochemical Oxygen demand
- C) Electrochemical demand
- D) Aero Hydrological demand
- 63) Thinning of egg shell is a effect in many species of predatory birds. This is due to
- A) Increase in CO2
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- B) Increase in BOD
- C) Biomagnification
- D) Toxicity of lead
- 64) The lower layer of the oceanic zone, where the penetration of light is NOT possible is usually known as
- A) Photic Zone
- B) Aphotic Zone
- C) Disphotic Zone
- D) Euphotic Zone
- 65) Ozone layer is a protective shield for Earth absorbing ultraviolet radiation from the sun and it is found in the upper part of atmosphere called "Stratosphere". Ozone thickness is usually measured in
- A) Dobson Units
- B) Femto Units
- C) Nano Units
- D) Pico Units

- 66) Select the odd one with respect to bundle sheath cell characteristic of C<sub>4</sub> plant as per Kranz anatomy.
- A) Large number of chloroplast
- B) Thick wall impervious to gaseous exchange
- C) More intercellular space
- D) Cell form several layers around the vascular bundles
- 67) Match the following organelles in List I with their corresponding uses/functions in List II.

List I	List II		
(a) Cilia	(i) Motility		
(b) Centriole	(ii) Intracellular digestion		
(c) Pili	(iii) Mating process		
(d) Lysosomes	(iv) Spindle fibre formation		

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- A) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
- B) (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)
- C) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
- D) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
- 68) Given below are some statements related to plants and their classification:
- a. Gymnosperms are considered as cryptogamae.
- b. Angiospermae are phanerogamae.
- c. Pteridophytes are non vascular plants.
- d. Algae reproduce usually by asexual mode.

Choose the option with all CORRECT statements:

- A) a and b are correct
- B) b and d are correct
- C) c and d are correct
- D) a and c are correct

69) Salinity of sea water in parts per thousand is

- A) less than 5
- B) between 30-35
- C) between 10-15
- D) more than 100
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- 70) The main objectives of The Earth Summit which was held in 1992 at Rio de Janeiro for convention on biodiversity were:
- A) Conservation of biological diversity and sustainable use of its components
- B) Conservation of biological diversity and protection as well as maintenance of ozone layer
- C) Control of green house gases and sustainable use of biodiversity
- D) Control the use of hazardous chemicals as well as conservation of biological diversity

#### Section 7 - PaperII-Mathematics

71) If the ratio of the length of the edges of two cubes X and Y is 3:1, then what is the ratio of the volumes of the cubes X and Y?

- A) 3:1
- B) 6:1
- C) 9:1
- D) 27:1

72) What are the roots of the quadratic equation  $3x^2 - 14x + 15 = 0$ ?

- A) 9 and 5
- B) 3 and 5
- C) 5/3 and 3
- D) 2/3 and 5/3

73) The polynomial  $f(x) = a_0 + a_1 x + \dots + a_n x^n$ , where  $a_0, a_1, \dots a_n$  are integers, is primitive polynomial if

- A)  $gcd(a_0, \dots a_n) = 0$
- B)  $gcd(a_0,...a_n) = 1$
- C)  $gcd(a_0,...a_n) = 2$
- D)  $gcd(a_0, ... a_n) = prime$

74) If A = {a,b,c,d,e,f,1,2,3,4,5,6} and B = {2,4,6,8,10,12,b,d,f,h}, then A  $\cap$  B =

- A) {2,4,6,b,d,f}
- B) {2,4,6,8,10}
- C) {2,3,4,5,6,8}
- D)  $\{2,4,a,b,d,f\}$

If  $\log_2 8 = x$ , then x =

- A) 1
- B) 2
- C) 3
- D) 4

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76) The angle of elevation of a ladder leaning against a wall is 60 degrees and the foot of the ladder is 12.2 m away from the wall. What is the length of the ladder?

- A) 6.1 m
- B) 12.4 m
- C) 24.4 m
- D) 26.6 m

77) If the length of any 2 sides of a triangle are 3 and 8, then which of the following can be the length of the third side of the triangle?

i) 5

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- ii) 8 iii) 11
- A) i only
- B) ii only
- C) i and ii only
- D) ii and iii only

 $x^2 - 5x + k$  such that a - b = 1, then what is the value of k? 78) If a and b are the roots of the polynomial

- A) 5
- B) 12
- C) 6
- D) 10

79) Which os the following statement is correct?

- A) A number is rational if and only if its square is rational.
- B) An integer n is odd if and only if
- C) A number is irrational if and only if its square is irrational.
- D) An integer n is odd if and only if n(n + 1) is even.







80) In a class of 180 students, 100 students have registered for JAVA and 120 students have registered for C++. If every student in the class has registered for atleast one of the two courses, then what is the number of students who have registered for both the courses?

- A) 20
- B) 30
- C) 40
- D) 50

81) The value of  $\log_{1/3} 9\sqrt{3}$  is

- A) 5/2
- B) 2/5
- C) -5/2
- D) -2/5

82) What is the value of  $\log 10 + \log 30 + \log 100$  given that  $\log 3 = 0.4771$ ?

A) 3.4771

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- B) 2.9771
- C) 2.4771
- D) 4.4771

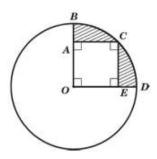
83) The angle of elevation of the top of a lighthouse of height 60 m, from two points on the ground on its opposite sides are 45 degrees and 60 degrees respectively. What is the distance between these two points? ( $\sqrt{3}$ =1.732)

- A) 92.32 m
- B) 94.64 m
- C) 98.42 m
- D) 108.64 m

84) A balloon leaves the earth at point A and rises vertically at uniform speed. At the end of 2 minutes, sabari finds the angular elevation of the balloon as 45 degrees. If the point at which sabari is standing is 150 m away from point A, then what is the speed of the balloon?

- A) 1.25 m/s
- B) 1.33 m/s
- C) 1.5 m/s
- D) 1.6 m/s

85) In the given figure, O is the centre of the circle. Length of arc BCD is  $5\pi$  units and length of segment ED is 4 units. What is the area of the shaded region?



- A)  $25\pi 36 \text{ sq. cm}$
- B)  $25\pi 48 \text{ sq. cm}$
- C)  $25\pi 60 \text{ sq. cm}$
- D)  $25\pi 72 \text{ sq. cm}$

86) If  $\alpha$  and  $\beta$  are the roots of the equation  $x^2 - 3x - 18 = 0$ , then what is the value of  $\alpha^2 + \beta^2$ ?

- A) 15
- B) 30
- C) 45
- D) 60
- 87) What is the number of factors of 1200 which are perfect square?
- A) 6
- B) 8
- C) 10
- D) 12
- 88) A total of 55 athletes participated in an athletic meet. 24 won bronze medals, 36 won silver medals and 12 won gold medals. 10 won gold and silver, 15 won silver and bronze, 8 won gold and bronze. If 6 athletes won all the three medals, then how many of them won only gold medals?
- A) 0
- B) 2
- C) 4
- D) 8





89) If 
$$\log_{10} 2 = 0.3010$$
 , then what is the value of  $\log_{10} 1\,600$  ?

- A) 2.204
- B) 5.204
- C) 1.204
- D) 3.204

90) The angle of elevation of the top of a tower from the eye of an observer is 30 degrees. If the observer moves 40 m towards the tower, the angle of elevation of the top of the tower increases by 15 degrees. What is the height of the tower? (Assume  $\sqrt{3}$ =1.732)

- A) 54.6 m
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- B) 52.2 m
- C) 46.4 m
- D) 42.6 m







Set Id: 62222\_24

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Question Paper No: 62222\_24 Answer Key

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1	C	31	C	61	A
2	В	32	A	62	В
3	В	33	С	63	С
4	D	34	С	64	В
5	A	35	С	65	A
6	A	36	В	66	С
7	A	37	A	67	В
8	C	38	D	68	В
9	В	39	В	69	В
10	D	40	С	70	A
11	В	41	C	71	D
12	A	42	В	72	С
13	A	43	A	73	В
14	В	44	A	74	A
15	D	45	С	75	С
16	D	46	A	76	С
17	C	47	В	77	В
18	В	48	В	78	С
19	С	49	D	79	В
20	В	50	С	80	С
21	C	51	D	81	С
22	D	52	В	82	D
23	В	53	В	83	В
24	В	54	A	84	A
25	В	55	A	85	В
26	В	56	В	86	С
27	В	57	D	87	A
28	В	58	A	88	A
29	D	59	С	89	D
30	A	60	С	90	A

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