

**Directorate of Public Instructions M. P. Bhopal**  
**National Achievement Survey – 2021**  
**Practice Paper**  
**Subject - Science**  
**Class – 10<sup>th</sup>**

**Instructions for Students:-**

- 1. This Booklet has 60 questions.**
- 2. Students have 2 hours to answer these items.**
- 3. Each questions have four options 1,2,3,4. Only one of them is correct.**
- 4. You may do rough work on this Booklet.**

**Q.1 A very toxic gas ozone is considered essential because it**

1. protects us from UV radiations at higher level of atmosphere
2. breaks down to give oxygen for respiration
3. helps in photosynthesis by plants
4. is used in refrigerators

**Q.2 Rehman took freshly prepared limewater into two test tubes and labeled them as 'A' and 'B'. He used a straw to blow air from his mouth into 'A' for 3 to 4 minutes and left 'B' undisturbed. After few minutes the lime water in 'A' turned milky.**

**Through this activity Rehman demonstrates that**

1. exhaled air does not contain oxygen
2. lime water does not contain oxygen
3. exhaled air contains oxygen
4. exhaled air contains carbon dioxide

**Q.3 Select the set of organisms that breaks down the food material outside its body and then absorbs it.**

1. Bread mould, Yeast, Mushroom
2. Yeast, Tapeworm, Amoeba
3. Cycas, Mushroom, Grass
4. Bread mould, Deer, Bacteria

**Q.4 Now-a-days organic farming is promoted all over the world. Suggest the statement that best defines the practice.**

1. The farming system with minimum or no use of chemical fertilizers, herbicides, insecticides etc.
2. Many crops are grown simultaneously in farms.
3. Where only those crops that are not susceptible to pests and pathogens are grown.
4. Use only blue green algae as fertilizers.

- Q.5 Find out the correct statements about fertilizer**
- (i) Fertilizers are commercially produced plant nutrients that supply nitrogen, phosphorus and potassium.
  - (ii) Fertilizers contain large quantities of organic matter and small quantities of nutrients.
  - (iii) It increases the water-holding capacity of sandy soil.
  - (iv) It ensures good vegetative growth, giving rise to healthy plants
- 1. (i) and (ii)
  - 2. (ii) and (iii)
  - 3. (i) and (iv)
  - 4. (ii) and (iv)
- Q.6 Which of the following tissue transports food, gases and waste material in our body?**
- 1. muscular tissue
  - 2. connective tissue
  - 3. nervous tissue
  - 4. skeletal tissue
- Q.7 A multicore rupee project that was initiated in 1985 to combat harmful effects of pollution of river Ganga is**
- 1. Ganga Cleaning Programme (GCP)
  - 2. Ganga Action Plan (GAP)
  - 3. Ganga Swachhh Plan (GSP)
  - 4. Ganga Pollution Control board (GPCB)
- Q.8 A person is suffering from malfunctioning of kidneys, In such a patient urea can be removed by a process called**
- 1. peristalsis
  - 2. homeostasis
  - 3. haemodialysis
  - 4. glycolysis

**Q.9** Apart from the primary products, the other product of the process of photosynthesis is

1. oxygen
2. carbon dioxide
3. lipid
4. amino acids

**Q.10** Vegetative propagation occurs in

(a) Potato, (b) Sugarcane, (c) Bengal gram (Chana), (d) Wheat

1. (a) and (b)
2. (a), (b) and (c)
3. (a) and (d)
4. (c) and (d)

**Q.11** The most effective method for conservation of forests and wild life is

1. supervision by forest department officials and workers
2. making strict laws to prevent cutting down of trees
3. participation of local community
4. monitoring by state government

**Q.12** Following are the negative consequences of building large dams:

- (i) displacement of large number of people
- (ii) deforestation and loss of biodiversity
- (iii) water is not available for irrigation
- (iv) large areas of agriculture land is lost

**Which of the above statements are correct**

1. (i), (ii) and (iii)
2. (i), (ii) and (iv)
3. (ii), (iii) and (iv)
4. (i), (iii) and (iv)

**Q.13** A plant tissue consisting of narrow thick walled, dead cells is called as

1. collenchyma
2. sclerenchyma
3. aerenchyma
4. chlorenchyma

**Q.14** In a village there is scarcity of safe drinking water. Which one of the following diseases is most likely to spread in this village?

1. chikungunya
2. malaria
3. influenza
4. cholera

**Q.15** Maximum harmful effect of ozone depletion is being felt over

1. Antarctic region
2. Africa
3. Canada
4. India

**Q.16** What will happen when xylem vessels and tracheids of a plant are blocked due to microbial infection?

1. Translocation of food from leaves to root will not occur.
2. Translocation of food from root to leaves will not occur.
3. Upward movement of water from root to leaves will not occur.
4. Movement of water will remain unaffected.

**Q.17** Attempts have been made to increase the height of several existing dams like Tehri and Almati Choose the correct statements among the following that are a consequence of raising the height of dams.

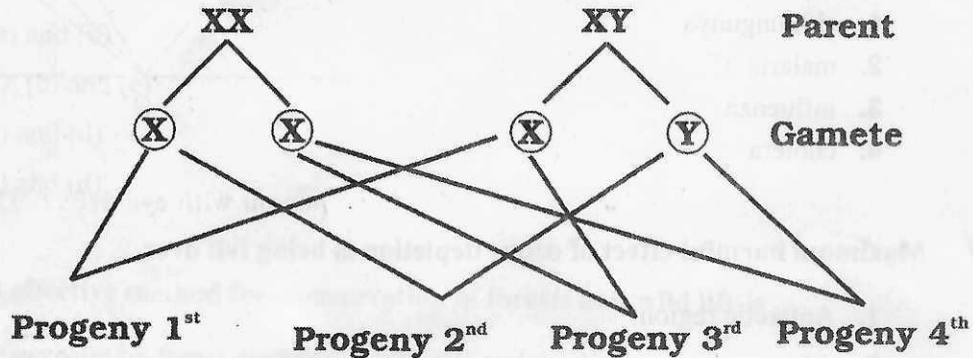
- (i) Terrestrial flora and fauna of the area is destroyed.
- (ii) Dislocation of people and domestic animals living in the area.
- (iii) Deforestation.
- (iv) Area may get polluted.

1. (i) and (ii)
2. (i), (ii) and (iii)
3. (ii) and (iv)
4. (ii), (iii) and (iv)

**Q.18** The important message conveyed by the 'chipko movement' is

1. to involve the community in forest conservation efforts.
2. to ignore the community in forest conservation efforts.
3. to cut down forest trees for developmental activities.
4. government agencies have the unquestionable right to order destruction of trees in the forests.

**Q.19** Following diagram shows pattern of sex determination in human beings.

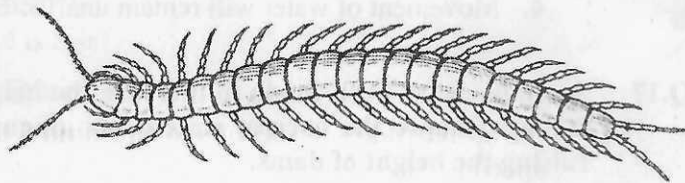


The sex of progeny no 1<sup>st</sup> and 4<sup>th</sup> would be

1. both boys
2. both girls
3. 1<sup>st</sup> boy & 4<sup>th</sup> girl
4. 1<sup>st</sup> girl & 4<sup>th</sup> boy

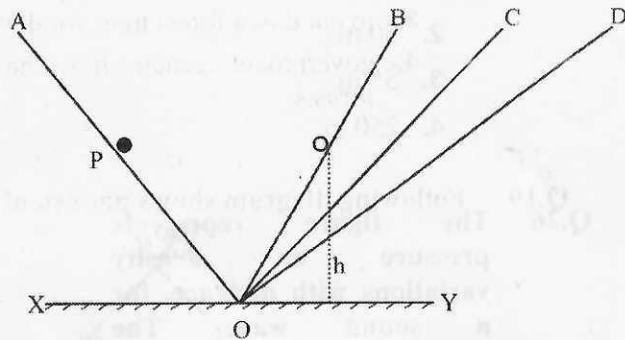
**Q.20** Select the group of animal by observing its characters shown in the diagram?

1. Echinodermata
2. Annelida
3. Arthropoda
4. Porifera



**Q.21** Consider a frictionless double-inclined plane AOB placed on a horizontal surface XY as shown in figure. A glass marble is released from point P on plane OA. It reaches height  $h$  on plane OB. Now, the plane OB is first tilted to OC and then to OD and the marble is released from the same height  $h$ . The height reached by the ball is the

1. maximum in position OB
2. maximum in position OC
3. maximum in position OD
4. same in all the positions of the plane



**Q.22** A doctor prescribes a lens of  $-2.5$  D for a person with eye defect. The type of lens and its focal length are respectively

1. concave lens,  $-40$  cm
2. concave lens,  $-25$  cm
3. convex lens,  $+40$  cm
4. convex lens,  $+25$  cm

**Q.23** A cylindrical conductor of uniform cross-section has a resistance  $18 \Omega$ . It is cut into three equal parts. If the three parts are connected in parallel, the effective resistance of the combination is

1.  $2 \Omega$
2.  $6 \Omega$
3.  $12 \Omega$
4.  $18 \Omega$

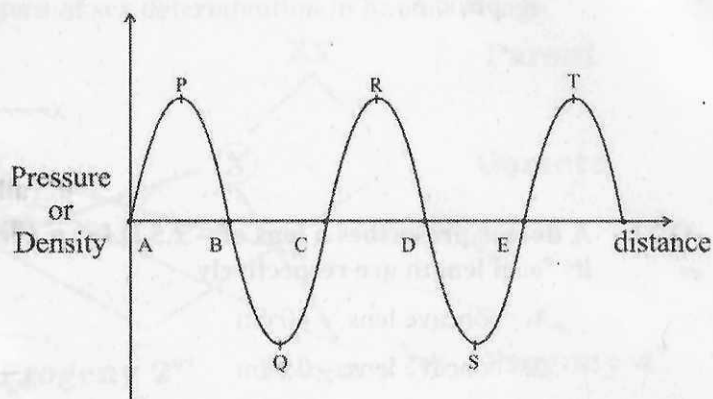
**Q.24** An athlete takes  $t$  seconds to go round 5 times a circular path of radius  $r$ . Athlete's speed is

1.  $\frac{2\pi r}{t}$
2.  $\frac{10\pi r}{t}$
3. Zero
4.  $\frac{r}{T}$

**Q.25** An object is moving in a uniform motion. It travels a distance of 50m in first second. What will be the total distance travelled by it at the end of fifth second?

1. 10 m
2. 50 m
3. 55 m
4. 250 m

**Q.26** The figure represents pressure or density variations with distance, for a sound wave. The wavelength of this sound wave is the distance between points marked as



1. A and B
2. P and R
3. P and T
4. B and C

**Q.27** Which of the following quantity/quantities remains/remains constant, when light travels from one medium to another medium?

1. Wave length only
2. Velocity only
3. Frequency only
4. Wavelength and frequency both



**Q.28** Two resistors of resistances  $R_1$  and  $R_2$  are connected in parallel. The equivalent resistance  $R$  of the combination is given by

1.  $R = R_1 + R_2$

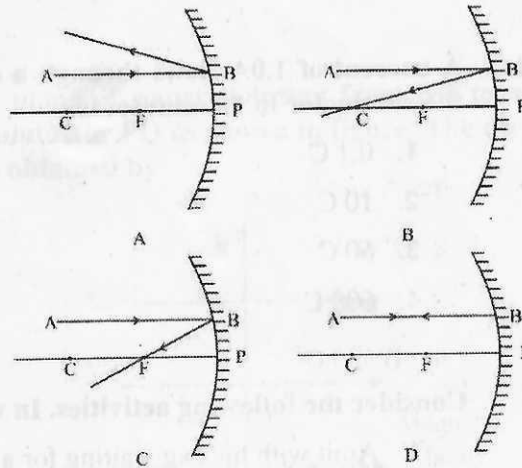
2.  $R = \frac{1}{R_1} + \frac{1}{R_2}$

3.  $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$

4.  $R = \frac{1}{(R_1 + R_2)}$

**Q.29** A ray AB is incident on a concave mirror parallel to its principal axis. Which one of the following diagrams represent the reflected ray correctly?

1. A
2. B
3. C
4. D



**Q.30** A wire of length  $l$  and resistance  $R$  is cut into two equal parts. These parts are then connected in parallel. The equivalent resistance of this combination is

1.  $R$
2.  $2R$
3.  $R/2$
4.  $R/4$

**Q.31** An object is placed in front of a convex lens. The size of the image formed is equal to the size of the object. The image is

1. inverted and virtual.
2. inverted and real.
3. erect and real.
4. erect and virtual.

**Q.32** A beam of sunlight is allowed to pass through a prism. The ray of colour which undergoes maximum deviation is

1. red.
2. violet.
3. yellow.
4. green.

**Q.33** A current of 1.0A flows through a conductor. The amount of charge flowing through the conductor in 10 minutes is

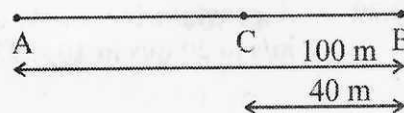
1. 0.1 C
2. 10 C
3. 60 C
4. 600 C

**Q.34** Consider the following activities. In which case work is done?

1. Amit with his bag waiting for a school bus.
2. Salma pulls a trolley through some distance.
3. Renu trying to lift a bucket of water, but bucket is not moving.
4. David is trying to push a heavy stone but the stone does not move.

**Q.35** A car travels from A to B in 8 s. It returns from B to C in next 2 s. Which of the following statements about its motion is correct?

1. Magnitude of average velocity = average speed
2. Magnitude of average velocity > average speed
3. Magnitude of average velocity < average speed
4. Magnitude of displacement = distance



**Q.36** The acceleration due to gravity on Earth having mass  $M$  and radius  $R$  is  $g$ . Its value on a planet of mass  $M$  and radius  $R/2$  will be

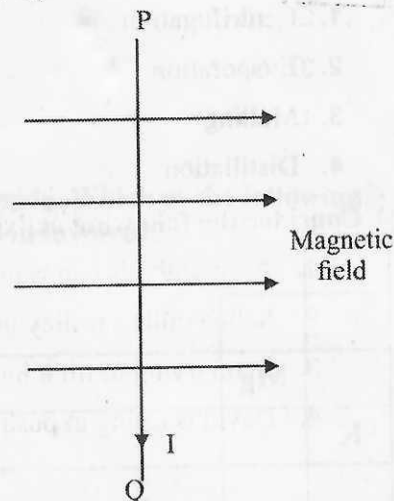
1.  $\frac{g}{4}$
2.  $\frac{g}{2}$
3.  $2g$
4.  $4g$

**Q.37** A force changes the speed of an object of mass  $2\text{kg}$  from rest to  $10\text{m/s}$ . The work done in this process is

1.  $10\text{ J}$
2.  $20\text{ J}$
3.  $100\text{ J}$
4.  $200\text{ J}$

**Q.38** A uniform magnetic field exists in the plane of paper pointing from left to right. An electric current  $I$  is flowing through a conductor  $PQ$  as shown in figure. The direction of the force acting on the conductor can be obtained by

1. Fleming's left hand rule
2. Fleming's right hand rule
3. left hand thumb rule
4. right hand thumb rule

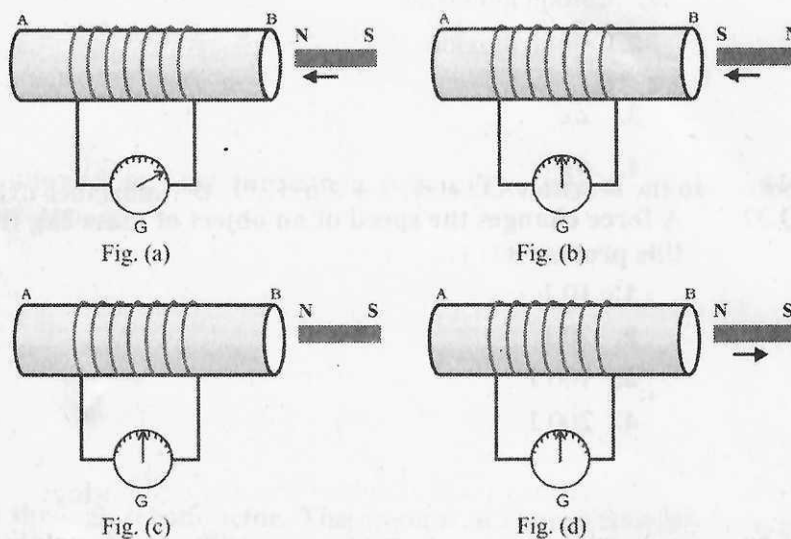


**Q.39** A constant force acts on an object of  $2\text{ kg}$ . The velocity of the object increases from  $10\text{ m/s}$  to  $20\text{ m/s}$  in  $10\text{ s}$ . The magnitude of the force is

1.  $0.5\text{ N}$
2.  $1.0\text{ N}$
3.  $2.0\text{ N}$
4.  $6.0\text{ N}$

**Q.40** Observe the direction of deflection in the galvanometer in Fig. (a). On basis of this observation, predict the direction of deflection in the galvanometer needle of Fig. (b), (c) and (d), when the state of motion of the magnet are as shown in the figures.

1. Left, zero, right
2. Left, zero, left
3. Right, zero, left
4. Left, right, zero



**Q.41** Name the process in which a solid substance changes to a liquid on heating.

1. Centrifugation
2. Evaporation
3. Melting
4. Distillation

**Q.42**

				<b>B</b>					
	<b>Mg</b>			<b>Al</b>					
<b>K</b>									

The correct order of the metallic character of the elements shown in the above periodic table is

1.  $K > Mg > Al > B$
2.  $B > Al > Mg > K$
3.  $Al > Mg > B > K$
4.  $Mg > Al > K > B$

- Q.43** Sodium hydrogen carbonate is used in soda-acid fire extinguisher, because when it comes in contact with an acid it produces
1. Hydrogen
  2. Carbon monoxide
  3. Carbon dioxide
  4. Oxygen
- Q.44** In the reaction  $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$  the substance oxidised and reduced respectively are
1. CuO and  $\text{H}_2\text{O}$
  2.  $\text{H}_2$  and CuO
  3. CuO and  $\text{H}_2$
  4. Cu and  $\text{H}_2$
- Q.45** Identify the synthetic indicators from the following:
- a) Litmus      b) Methyl orange      c) Phenolphthalein      d) Hydrangea
1. (a) and (d)
  2. (b) and (c)
  3. (c) and (d)
  4. (a) and (b)
- Q.46** Carbon combines with oxygen to form carbon dioxide. Which of the following represent(s) the most appropriate type(s) of reaction involved?
1. Combination
  2. Oxidation
  3. Combustion
  4. All the above
- Q.47** Arrange the given compounds in increasing order of their molecular masses.
- $\text{O}_3$ , HCl,  $\text{HNO}_3$ ,  $\text{C}_2\text{H}_2$
- Given atomic masses : H = 1 $\mu$ , N = 14,  $\mu$ , O = 16 $\mu$ , C = 12 $\mu$ , Cl = 35.5 $\mu$
1.  $\text{C}_2\text{H}_2 < \text{HCl} < \text{O}_3 < \text{HNO}_3$
  2.  $\text{C}_2\text{H}_2 < \text{O}_3 < \text{HCl} < \text{HNO}_3$
  3.  $\text{HCl} < \text{O}_3 < \text{C}_2\text{H}_2 < \text{HNO}_3$
  4.  $\text{HCl} < \text{O}_3 < \text{HNO}_3 < \text{C}_2\text{H}_2$

- Q.48** You have a salt of highly reactive metal. Which state of salt is the most suitable for the extraction of the metal by electrolysis process?
1. Solid
  2. Molten state
  3. Gaseous state
  4. All the above
- Q.49** Which of the following is isomeric with a saturated straight chain aldehyde?
1. (-COOH)
  2.  $\text{>C=O}$
  3.  $\text{>C=C<}$
  4.  $\begin{array}{c} | \\ -\text{C}- \\ | \end{array}$
- Q.50** Electrolysis of an acidified water produces hydrogen and oxygen gases. It is an example of
1. Displacement reaction
  2. Decomposition reaction
  3. Double displacement reaction
  4. Combustion
- Q.51** Which of the following are the five basic elements that can be used to classify matter according to the ancient Indian philosophy?
1. Air, metal, earth, sky and water.
  2. Air, metal, smoke, water and fire.
  3. Air, earth, sky, water and fire.
  4. Metal, earth, sky, smoke and fire.
- Q.52** Which of the following is an example of photochemical decomposition reaction?
1.  $\text{ZnCO}_3 \xrightarrow{\text{heat}} \text{ZnO(s)} + \text{CO}_2(\text{g})$
  2.  $2\text{AgCl(s)} \xrightarrow{\text{Light}} 2\text{Ag(s)} + \text{Cl}_2(\text{g})$
  3.  $2\text{FeSO}_4(\text{s}) \xrightarrow{\text{heat}} \text{Fe}_2\text{O}_3(\text{s}) + \text{SO}_2(\text{s}) + \text{SO}_3(\text{g})$
  4.  $2\text{H}_2\text{O(l)} \xrightarrow{\text{Electricity}} 2\text{H}_2(\text{g}) + \text{O}_2(\text{g})$

**Q.53** A carbon compound **X** produces a compound **Y** on oxidation with acidified potassium permanganate. On reaction with sodium carbonate, **Y** produces a gas which turns lime water milky. Identify **X** and **Y**.

1. X = Alcohol, Y = Aldehyde
2. X = Alcohol, Y = Ketone
3. X = Aldehyde, Y = Alcohol
4. X = Alcohol, Y = Carboxylic acid

**Q.54** Which of the following elements in the above periodic table will have similar chemical properties?

1. D and F
2. C and E
3. A and C
4. B and E

	1								
	2			13	14	15	16	17	18
A							C		
					D				F
	B						E		

**Q.55** Which one of the following properties generally increases along a period?

1. Atomic radius
2. Metallic character
3. Number of shells
4. Non-metallic character

**Q.56** A milkman adds a small amount of baking soda to the fresh milk. The resulting milk

- a) will take long time to set as curd
- b) will be less acidic
- c) will be more acidic
- d) immediately set as curd

Correct statements are

1. (a) and (b)
2. (b) and (c)
3. (a) and (c)
4. (b) and (d)

- Q.57** Four substances A, B, C and D are at the temperatures as indicated in the brackets below.
- (300 K)
  - (250°C)
  - (100°C)
  - (573 K)
- Which of the following correctly gives their arrangement in increasing temperature in absolute temperature scale?
- A<B<C<D
  - A<C<B<D
  - A<C<D<B
  - B<C<D<A
- Q.58** One mole of carbon atom weighs 12g. What is the mass (in grams) of one atom of carbon? (Avogadro number =  $6.022 \times 10^{23}$ )
- $12 \times 10^{23}$ g
  - $12 \times 10^{-23}$ g
  - $1.99 \times 10^{-23}$ g
  - $1.99 \times 10^{23}$ g
- Q.59** 'R', a white solid is often used in baking cake. On heating 'R' gives carbon dioxide gas, water vapours and a white solid 'S', which is basic in nature. Identify 'R' and 'S'.
- R is  $\text{Na}_2\text{CO}_3$  and S is  $\text{NaHCO}_3$
  - R is  $\text{NaHCO}_3$  and S is  $\text{Na}_2\text{CO}_3$
  - R is  $\text{CaCO}_3$  and S is CaO
  - R is CaO and S is  $\text{CaCO}_3$
- Q.60** In Rutherford Experiment,  $\alpha$ -particles, which are positively charged, passed straight through the atom without being stopped by the electrons. This is because
- They are very light as compared to the mass of electrons
  - Most of the space inside the atom is empty
  - They are repelled by electrons
  - They have high energy
- (iii) & (iv)
  - (ii) & (iv)
  - (i) & (iii)
  - (i) & (ii)



National achievement survey

Practice Paper -1 ENGLISH MEDIUM

Class-10

Subject - Science ( Answer key )

Question No. - Answer No	Question No. - Answer No	Question No. - Answer No
1 - 1	21 - 4	41 - 1
2 - 4	22 - 1	42 - 1
3 - 1	23 - 1	43 - 3
4 - 1	24 - 2	44 - 2
5 - 3	25 - 4	45 - 2
6 - 2	26 - 2	46 - 1
7 - 2	27 - 4	47 - 1
8 - 3	28 - 3	48 - 2
9 - 1	29 - 3	49 - 2
10 - 1	30 - 4	50 - 2
11 - 3	31 - 2	51 - 3
12 - 2	32 - 2	52 - 2
13 - 2	33 - 4	53 - 4
14 - 4	34 - 2	54 - 2
15 - 1	35 - 3	55 - 4
16 - 3	36 - 4	56 - 1
17 - 2	37 - 3	57 - 2
18 - 1	38 - 1	58 - 3
19 - 4	39 - 3	59 - 2
20 - 3	40 - 2	60 - 2