**Class : IX**

# Holiday Homework

Dear Students ,

The difference between ordinary and extraordinary is practice and knowledge is of no value unless you put it into practice. Augment your learning skills and erudite the same through your holiday homework. It will undoubtedly boost your intellectual development and would be an add on in your self confidence. So enjoy your learning and make the best use of your valuable time.
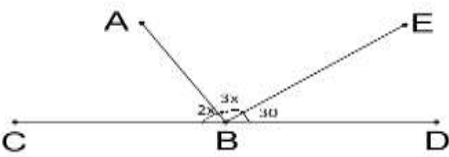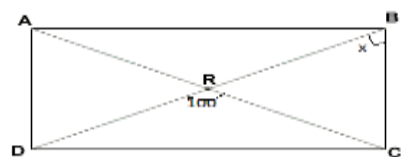
## GENERAL INSTRUCTIONS :

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- Candid efforts & originality of the work will be appreciated.
- The homework should be done on Class subject Note Books or A4 Size sheets if mentioned.
- Compile & put your holiday homework in an attractive folder.
- The home work must be submitted to the class teacher within three days (i.e. by 11th July, 2018) of reopening of school after summer vacation.
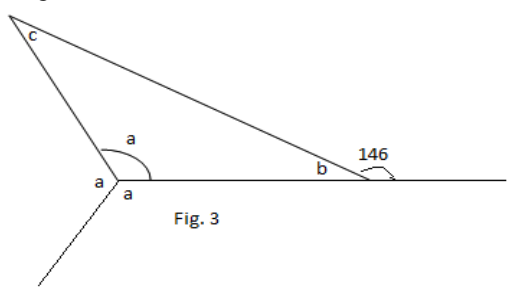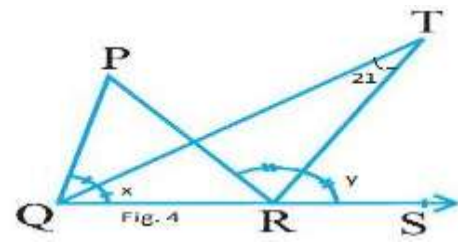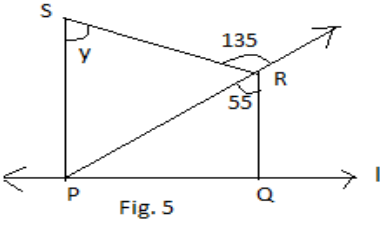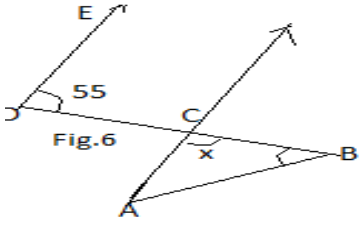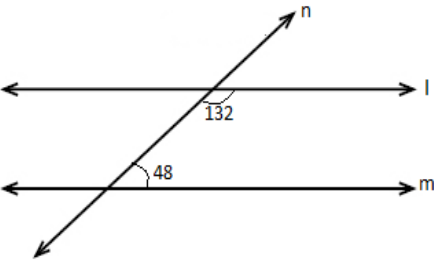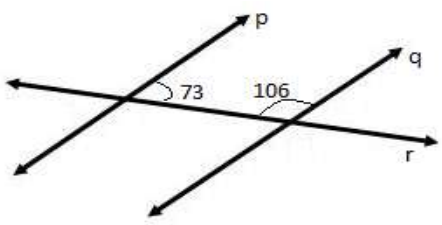
# SUBJECT : MATH

## CHAPTER – 6 ( LINES AND ANGLES)

## SECTION A: (1 MARK)

| 1. | An angle is 20° more than three times the other angle. If the two angles are supplementary, find the angles. | 40°, 140° |
|---|---|---|
| 2. | An exterior angle of a triangle is 105° and its two interior opposite angles are equal. Find each of these equal angles. | 52 ½ ° |
| 3. | If two times the measure of one angle is three times the other which is complement, find the angles. | 36°, 54° |
| 4. | In the given fig, find the value of x <br><br>  <br> Fig1.           Fig2. | 30° |
| 5. | In fig2, ABCD is a rectangle in which ∠DRC = 100°. Find x° | 50° |
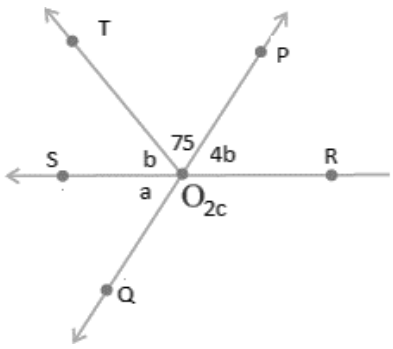
## SECTION B: (2 MARKS)

| 6. | The exterior angles obtained on producing the base of a triangle both ways are 100° and 120°. Find all the angles | 80°, 60°, 40° |
|---|---|---|
| 7. | In ∆ABC, ∠A − ∠B = 63°, ∠B − ∠C = 18°. Find the measure of all the angles | 108°, 45°, 27° |
| 8. | In fig. 3, find the value of c. <br>  <br> Fig. 3 <br><br> 9. In fig. 4, If ∠TRS = y and ∠TQS = x, the measure of ∠QPR. <br>  <br> Fig. 4 | C=26° <br><br> 9. 42° |

## SECTION C: (3 MARKS)

| | | | |
|---|---|---|---|
| **10.** | In fig.5, PS⊥l and RQ ⊥l, find y°  Fig. 5 | 11. In fig.6 AC ∥ DE, ∠CBA = 28° find the value of x and ∠CAB.  Fig.6 | 10. 80° |
| **12.** | In the given figure , which of the two lines are parallel and why?  |  | 11. 153°, 27° Yes , No |

## SECTION D: (4 MARKS)

| | | |
|---|---|---|
| **13.** | The sides BC, CA and AB of a ΔABC are produced in order,  forming  exterior angles ∠ACD, ∠BAE and ∠CBF.  Show that ∠ACD + ∠BAE + ∠CBF = 360° | |
| **14.** | If the bisectors of the angles B and C of  ΔABC meet at a point  O, then prove that ∠BOC =90° + ½ ∠A | |
| **15.** | In the given figure, lines PQ and RS intersect at O. If ∠POT = 75°, find a, b and c.  | **84°, 21°, 48°** |

## SECTION A: (1 MARK)

1. The area of an equilateral triangle $16\sqrt{3}$ cm$^2$. Find its perimeter.

   24 cm

2. Find the area of an isosceles triangle having base 2cm and the length of one of the equal sides 4cm.

   $\sqrt{15}$ cm$^2$

3. If the base of a triangle is doubled and the corresponding altitude is tripled. Find the ratio of the new area to the previous area.

   6:1

## SECTION B: (2 MARKS)

4. The base of a right triangle ABC is 16 cm and hypotenuse is 34 cm.  Find the area of the triangle.

   240 cm$^2$

5. Using Heron's formula, find the area of an equilateral triangle with side 4a units.

   $4a^2\sqrt{3}$

6. The edges of a triangular board are 6cm, 8cm and 10cm. Find the cost of painting it at the rate of Rs 90 per cm$^2$

   Rs. 2160

7. The semi-perimeter of a triangle is 132 cm. The product of the difference of semi-perimeter and its respective sides is 13200 cm. Find the area of the triangle.

   1320cm$^2$

## SECTION C: (3 MARKS)

8. Find the area of a rhombus whose one side is 20 m and one diagonal is 24 m.

   384m$^2$

9. If each side of any triangle is doubled, then find the percentage increase in its area.

   300%

10. If each side of an equilateral triangle is tripled, then find the percentage increase in its area.

    800%

11. A field is in the shape of a trapezium having parallel sides 90m and 30m.These sides meet the third side at right angles. The length of the fourth side is 100 m.  If it cost Rs 4 to plough 1m$^2$ of the field, find the total cost of ploughing the field.

    Rs 192

## SECTION D: (4 MARKS)

12. Calculate the area of the shaded region in the fig 1 given below

    54cm$^2$

13. In a rectangular field of dimensions 125 m x 80 m, a triangular park is constructed. If the dimensions of the park are 50 m, 78 m and 112 m. Find the area of the remaining field.

    8320m$^2$

14. The lengths of two adjacent sides of a parallelogram are 17 cm and 12 cm. One of its diagonal is 25 cm long. Find the area of the parallelogram. Also find the length of the altitude from vertex on the side of length 12 cm.

    A= 90cm$^2$
    h = 15cm

**15.** In the fig 2, ΔABC has sides AB = 41 cm, AC = 15 cm and BC = 28 cm. On BC, a parallelogram DBCE of the same area as that of ΔABC is constructed. Find the height of the parallelogram.

B

5 cm

12 cm

15 cm

A

14 cm

fig 1

C

A

D

E

h=4.5cm

B F C fig2
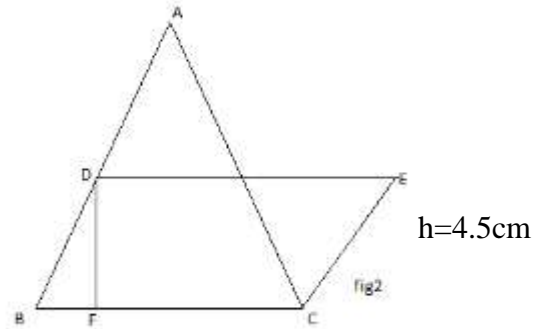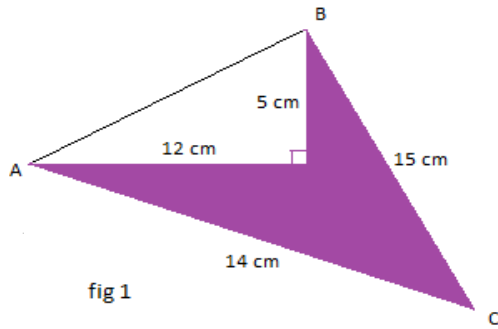
**CHAPTER – 7 ( TRIANGLES)**

## SECTION A: (1 MARK)

**1.** In ΔPQR if ∠QPR = 80° and PQ = PR, find ∠R and ∠Q

**2.** In the given fig 1, Mention the congruency rule used in proving ΔACB ≅ ΔACD

**3.** In the given figures, BD and YE are the medians.
Find the value of YZ.(State the reasons)

B

5cm

A 3.5cm C

Y

X Z

Fig1 A

B D

C
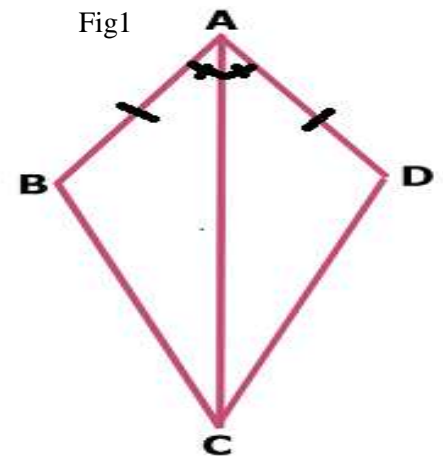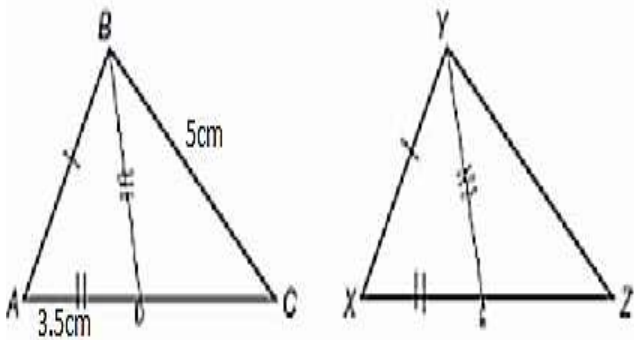
# SECTION – B ( 2 MARKS)

**4.** Line segments AB and CD intersect at M. If AC∥DB and M is midpoint of AB. Prove that M is midpoint of CD.

(Fig. 4)
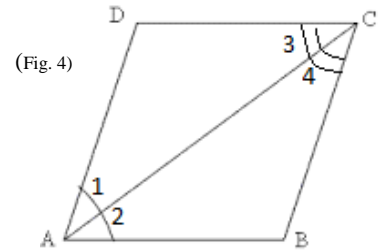
**5.** In the given figure, RV = VT, QV = VU, VR⊥SQ and VT⊥SU. Prove that SQ =SU.
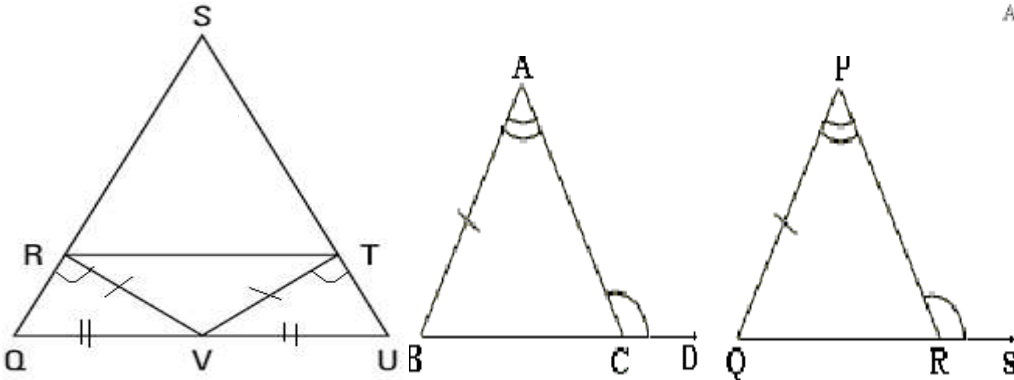
Fig 5.

**6.** In ΔPSR, Q is a point on SR such that PQ = PR, show that PS > PQ.

**7.** In fig5, AB =PQ, ∠A =∠P and ∠ACD = ∠PRS. Prove that

ABC  ≅  ΔPQR.

**8.** Prove     :

In ΔABC, AD is the bisector of ∠BAC. Prove that AB > BD.
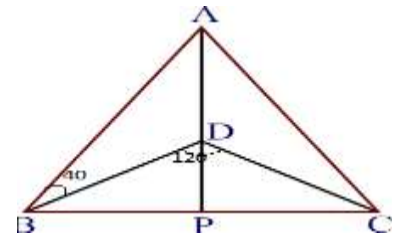
## SECTION C: (3 MARKS)

**9.** ABCD is a square. X and Y are points on the sides AD and BC such that AY = BX. Prove that ∠XAY = ∠ YBX.

**10.** In fig 2., AD = BC and BD = AC , prove that ∠DAB = ∠CBA

**11.** In fig3., l ∥ m and p ∥ q . Show that ABC   ≅   CDA

Fig. 2

Fig 3.
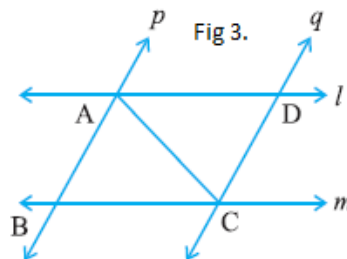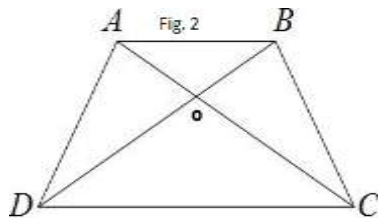
**12.** In the given fig, ΔABC and ΔDBC are two isosceles triangle on the same   base BC . If ∠BDC =120° and ∠ABD = 40°, then find ∠BAC and ∠ADC.

**GRADE IX H.H.W (6-10)**

**SECTION D: (4 MARKS)**

13. ABC is a triangle and D is the midpoint of BC. The perpendiculars from D to AB and AC are equal. Prove that triangle is isosceles.

14. Two sides AB and BC and median AM of ∆ABC are respectively equal to sides PQ, QR and median PN of ∆PQR, then prove that ∆ABC ≅ ∆PQR.

15. In the given figure, AD and CE are the bisectors of ∠A and ∠C respectively. If ∠ABC = 90°, find ∠ADC + ∠AEC.
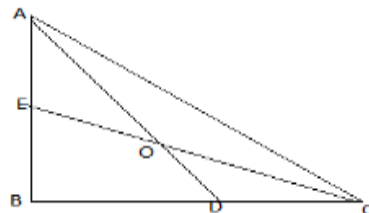


16. Show that in a triangle ABC , If AM is the median of triangle the AB + BC + AC >2AM.
17. Show that sum of three altitudes of triangle is less than the sum of three sides of triangle.
18. In the given figure, triangles PQC and PRC are such that QC = PR and PQ = CR. Prove that ∠PCQ = ∠CPR.
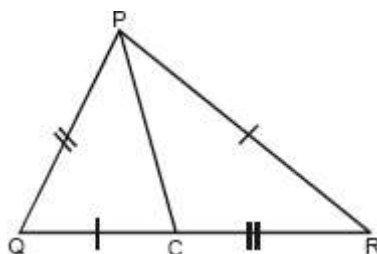


19. If ABC is a triangle and AD is median on BC, then prove that AB + AC > 2AD.
20. ∆PQR is given and the sides QP and RP have been produced to S and T such that PQ = PS and PR = PT. Prove that the segment QR ‖ ST.

# SUBJECT : HINDI

➤ 'शिक्षा में खेलों का महत्व' विषय पर एक 200 से 250 शब्दों का निबन्ध लिखें ।

➤ समास के प्रत्येक भेदों के पाँच पाँच शब्द लिखो ।

➤ प्रत्येक अलंकारों के दो दो उदाहरण लिखो ।

# SUBJECT: ENGLISH

Module 1(READING) of BBC: PA1 to PA10 (comprehension passages)

# SUBJECT: PUNJABI

- ਇਸ਼ਤਿਹਾਰ ਬਣਾਉ :-

  ਤੁਹਾਡਾ ਕੁੱਤਾ ਗੁਆਚ ਗਿਆ ਹੈ। ਉਸ ਗੁੰਮਸ਼ਦਾ ਕੁੱਤੇ ਦੀ ਤਲਾਸ਼ ਲਈ ਵਿਗਿਆਪਨ ਤਿਆਰ ਕਰੋ ।

  OR

  ਤੁਸੀਂ ਆਪਣਾ ਪੁਰਾਣਾ ਹੀਰੋ ਸਾਈਕਲ ਵੇਚ ਕੇ ਨਵਾਂ ਲੈਣਾ ਚਾਹੁੰਦੇ ਹੋ । ਪੁਰਾਣਾ ਸਾਈਕਲ ਵੇਚਣ ਲਈ ਇਸ਼ਤਿਹਾਰ ਬਣਾਉ ।

- 'ਮੋਬਾਇਲ ਦੀ ਵਰਤੋਂ ਜਾਂ ਦੁਰਵਰਤੋਂ" ਤੇ 150-200 ਸ਼ਬਦਾਂ ਵਿੱਚ ਆਪਣੇ ਵਿਚਾਰ ਲਿਖੋ ।

- ਇੱਕ ਅਜਿਹਾ ਪੈਰਾ ਲਿਖੋ ਜਿਸ ਵਿੱਚ ਘੱਟੋ -ਘੱਟ 7-8 ਮੁਹਾਵਰੇ ਹੋਣ ਅਤੇ 5-7 ਰੰਗਾਂ ਦੇ ਨਾਮ ਹੋਣ ।

# SUBJECT: SCIENCE

**Chemistry : Ch -2 (Is Matter around us pure)**

1.  How can we obtain different gases from air?
2.  Classify gold, air, marble, milk and sugar as element, compound or mixture.
3.  How can we obtain coloured component from blue/black ink?
4.  What happens when a saturated solution is heated?
5.  What happens when a hot saturated solution is cooled?
6.  If we contain 12 g of carbon with 32 g of oxygen, how much carbon dioxide will be formed?
7.  Name the most abundant element in the human body.
8.  Which of the two will scatter light: soap solution or salt solution?
9.  Salt can be recovered from its solution by evaporation. Can you suggest any other technique also?
10. Crystallization is a better technique than simple evaporation. Give one reason to justify the statement.
11. A solution contains 56 g of common salt in 500 g of water. Calculate its concentration in terms of mass by mass percentage of the solution.
12. The concentration of a salt solution in terms of mass by mass percentage is 20% and the mass of solution is 550 g. Determine the mass of solute present in solution.
13. While diluting a solution of salt in water, a student by mistake added acetone (boiling point 329 K). What technique can be employed to get back the acetone?
14. Why blood is a mixture and graphite is an element? Mention any one reason for each.
15. Identify solute and solvent in 'tincture of iodine'. Why tyndall effect is not seen in true solution?
16. How much water should be added to 15 g of salt to obtain 15% salt solution?
17. State the principle used in separation by centrifugation.
18. Identify the dispersed phase and dispersion medium in the following: fog, cheese and coloured gemstone.
19. What is fractional distillation? How is it different from simple distillation?
20. Differentiate between homogeneous and heterogeneous mixtures.

# Physics : Ch- Force And Laws Of Motion

1. In the following experimental set-up, a student gives the card a sharp, fast horizontal flick   with a finger.  What will happen to the coin?  State reason for your answer.
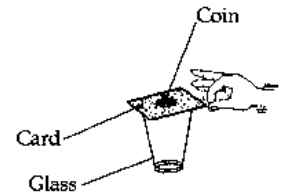
2. (a) State Newton's second law of motion.  Apply this law to obtain the unit of force .

   (b) State the Law of Conservation of Momentum.  Apply this law to explain the recoil of a gun, when a shell is fired from it.

3.  Which is having a higher value of momentum - A bullet of mass 10 g moving with a velocity of 400m/s or a cricket ball of mass 400g thrown with the speed of 90 km/h?

4. Two forces $F_1$ and $F_2$ are acting on an object as shown in the figure.

   (i) What is the net force acting in the object?
   (ii) What is the direction of the net force acting on the object?
   (iii) If the mass of body is 10 kg what will be the acceleration produced in it ?

5. (a) Mention any two examples which can be explained on the basis of third law of   motion.

   (b) A hammer of mass 500 g moving at 50m/s, strikes a nail.  The nail stops the hammer in  a very short time of 0.01s.  What is the force of the nail on the hammer ?

6. A boatman pushes the river bank with a bamboo pole to take his boat into the river." Explain his action with reason        .

7. (a) Name the property by virtue of which a body resists a change in its state of motion. Name the physical quantity which is a measure of this property.

8. A man throws a ball of mass 0.5 kg vertically upward with a velocity of 25 m/s.  Find :
   (a) The initial momentum of the ball
   (b) Momentum of the ball at the half way mark of the maximum height (given $g=10$ m/s$^2$)

9. (a) Define S.I. unit of force.                      (b) Mention any two effects of force.
(c) A body of mass 60 kg has a momentum of 300 kg m/s.  Calculate its velocity.

10. An object experiences a net zero external unbalanced force.  Is it possible for the object to  be moving with a non-zero velocity ? If yes, state the conditions that must be placed on the magnitude and direction of the velocity.  If no, provide a reason.

11.(a) In a high jump event the athletes are made to fall on a sand bed or on a cushioned  bed.  Why ?
   (b) Define momentum.  State its S.I. unit.
   (c) An object of mass 10 kg is accelerated uniformly from rest to a velocity of 8m/s in 6 s.
       Calculate the final momentum of the object

12 (a) If the mass of a body is doubled, what happens to its acceleration when acted upon by the same force? Justify your answer.
   (b) It is easier to stop a tennis ball than a cricket ball moving with the same speed. Why?

13.

   Look at the diagram above and answer the following questions:
   (a)  When a force is applied through the free end of the spring balance A, the reading on the spring balance A is 15 gwt. What will be the reading of spring balance B?
   (b) Write reasons for your answer.
   (c) Name the force which balance A exerts on balance B and the force of balance

14. For how much time should the force of 400N be exerted on a body of mass 8kg to increase its velocity from 150 m/s  to 300 m/s.

15. A steam engine of mass $3\times10^4$ kg pulls two wagons each of mass $2\times10^4$ kg with  an acceleration of 0.2m/s$^2$.

Neglecting frictional force, calculate the:
i) Force exerted by the engine.                    ii) Force experienced by each wagon.

### Biology : Ch- 6 —Tissues

1.  What is histology?
2.   Name the Parenchyma with chlorophyll which performs photosynthesis?
3.  Distinguish between ligament and tendon?
4.   Write short notes on Cardiac muscles?
5.  What is the role of epidermis in plants?
6.   How does the cork acts as a protective tissue?
7.   What is a synapse?
8.   What will happen if apical meristem is damaged?
9.   Give four differences between bone and cartilage.
10.   Give difference between xylem and pholem.
11.   Why does epidermal tissue have no intercellular space?
12.   Explain the structure, function and location of nervous tissue.
13.  What type of the tissue is most abundant in animals?
14.  Name the long and unbranched extension of a neuron.
15.  Identify the type of tissue in the bone and lining of kidney tubules.
16.  Which mineral is most abundantly found in bones?
17.  Which type of epithelium is present in the organs where exchange of substances takes place? Give one function of adipose tissue.
18.   Name the tissue which allows easy bending in various parts of a plant.
19.  Which structure protects the plant body against the invasion of parasites?
20.  Name the enucleate thin walled plant cells with perforated end walls.
21.  Based on ability to divide, how many types of plant tissues are found?
22.   Name the tissues which make up the husk of coconut
23.  What is lignin ?
24.  Meristematic tissue is responsible for the growth of the plant. Which type of meristematic tissue is responsible for the increase in girth of the plant?
25.   Which are the tubular structures present in xylem?
26.   Name the tissue which helps in transportation of oxygen that we inhale to various parts of our body. Write the composition of this tissue.
27.  State two functions of areolar tissue. Why are skeletal muscles known as striated muscles?
28.  How do the cardiac muscles resemble both striated and smooth muscle fibres?
29.  What are neurons?
30.  Explain the statement 'tissues exhibit division of labour'. Give examples.
31.  Which type of the muscles are found in the iris of the eye, smooth or striated? why are smooth muscles called involuntary muscles? In what way they are different from striated muscles with respect to number of nuclei?
32.  Explain why blood is called connective tissue. Give its parts and their functions.

➢ Complete your Practical file.
➢ Do the given assignment in your Class notebook.

# SUBJECT : SST

1. Do the projects assigned to you. Make the Project file.