

KRISHNAGAR ACADEMY
HALF YEARLY EXAMINATION, 2020
PHASE - II
CLASS - IX
SUBJECT - BIOLOGY

Full Marks : 50

Section - A (20 Marks)
(Attempt all questions)

Question No. 1

- A. Name the following ~** (5x1)
- i) The same kind of sepals and petals together form this.
 - ii) The first step in the process of reproduction.
 - iii) The other name for seed coat.
 - iv) The future stem is.
 - v) More energy is released in this respiration.
- B. Fill in the Blanks ~** (5x1)
- i) CO₂ turns.....milky, when passed through it.
 - ii) A seed is a fertilised.....
 - iii) The fused polar nuclei are termed as.....
 - iv) The.....flowers remain closed to ensure self pollination.
 - v) Flowers that are devoid of stalk are.....
- C. Draw a labeled diagram of pollen grain and embryo sac.** (2½+2 ½)
- D. Write True or False and correct the false statement ~** (5x1)
- i) In plants, the ovule is attached to the ovarian wall by funicle.
 - ii) A typical flower has 6 whorls.
 - iii) Cross pollination is a wasteful process.
 - iv) The cotyledon in monocot seed is grain.
 - v) Combustion does not produce heat.

Section - B (30 Marks)
(Attempt all questions)

Question No. 2

- A. Answer the following questions :** (5)
- i) What is glycolysis ? Why is it known as “common pathway”?
 - ii) What are lenticels ?
 - iii) What is artificial pollination ?
- B. Differentiate the followings ~** (5)
- i) Photosynthesis and Respiration.
 - ii) Protandry and Protogyny.
 - iii) Fruit and Grain.
 - iv) Stamen and Pistil.
- or
- Bisexual and Unisexual.
 - v) Dioecious and Monoecious.

Question No. 3

- A. Give reasons.** (5)
- i) The dry weight of plant decreases during respiration.
 - ii) Viviparous germination is necessary in mangrove plants.
 - iii) Sepals are necessary for growing buds.
 - iv) It is advised not to sleep under tree at night.
 - v) Seed is the carrier of a future offspring.
- B. Define the following :** (5)
- i) Perianth
 - ii) Compensation point
 - iii) Herkogamy
 - iv) Micropyle
 - v) Endosperm or Scutellum

Question No. 4

- A. State the functions of the following :** (5)
- i) Radicle.
 - ii) Stigma.
 - iii) Pyrogalllic Acid.
 - iv) Hypocotyl or Epicotyl.
 - v) Coleoptile or Coleorhiza.
- B. Observe the figure given below carefully and answer the following questions.** (5)



- i) Identify the germination and label the parts of the germinating seed.
- ii) Name the other type of germination observed in plants. Give one example.
- iii) Write two differences between the two types of germination.

Q1. Write the molecular formula:-

(1x10 = 10)

- a. Ammonium acetate
- b. Barium peroxide
- c. Cupric hydroxide
- d. Zinc nitrate
- e. Stannic sulphite
- e. Nickel silicate
- g. Plumbic Oxide
- h. Aluminium borate
- i. Manganese oxalate
- j. Calcium hypochlorite

Q2. Determine the molecular weight :-

(1x5 = 5)

- a. $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$
- b. $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$
- c. $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10 \text{H}_2\text{O}$
- d. $\text{C}_3\text{H}_7\text{COONa}$
- e. H_4SiO_4

[Given atomic masses: - N=14, H= 1, Cr= 52, o= 16, Si=28, Na= 23, Fe= 56, S= 32, B= 11]

3 i) Determine the percentage composition of all the elements present in urea, $\text{CO}(\text{NH}_2)_2$.

[Atomic masses:- C=12, N=14,H=1]

ii). Which acid has better hydrogen content between Sulphuric acid and phosphoric acid?

[Atomic masses:- H=1, S=32, O= 16, P=31] (3+2)

Q4. Balance the following chemical equations: -

(1X10=10)

- a. $\text{BF}_3 + \text{Li}_2\text{SO}_3 \rightarrow \text{B}_2(\text{SO}_3)_3 + \text{LiF}$
- b. $\text{C}_2\text{H}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- c. $\text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + \text{Cr}_2(\text{SO}_4)_3 + \text{H}_2\text{O} + \text{O}_2$
- d. $\text{FeS}_2 + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3 + \text{SO}_2$
- e. $\text{Cl}_2 + \text{SO}_2 + \text{H}_2\text{SO}_4 + \text{HCl}$
- f. $\text{Ca}(\text{OH})_2 + \text{H}_3\text{PO}_4 \rightarrow \text{Ca}(\text{PO}_4) + \text{H}_2\text{O}$
- g. $\text{S}_8 + \text{F}_2 \rightarrow \text{SF}_6$
- h. $\text{KMnO}_4 + \text{HCl} \rightarrow \text{KCl} + \text{MnCl}_2 + \text{H}_2\text{O} + \text{Cl}_2$
- i. $\text{NH}_3 + \text{Cl}_2 \rightarrow \text{N}_2 + \text{NH}_4\text{Cl}$
- j. $\text{PbO} + \text{NH}_3 \rightarrow \text{Pb} + \text{H}_2\text{O} + \text{N}_2$

5. Give balanced equations :-

(1X10 = 10)

- a. Electrochemical decomposition
- b. Photochemical decomposition
- c. Thermal dissolution
- d. Synthesis
- e. precipitation
- f. Neutralisation reaction
- g. Endothermic reaction
- h. Exothermic reaction
- i. Simple Displacement
- j. Decomposition reaction of carbonate salt.

6. Explain :-

(5X1=5)

- a. Boiled water tastes flat.
- b. Table salt gets sticky during rainy season.
- c. Solubility increases on boiling an aqueous solution.
- d. Distilled Water can't be kept in a sealed bottle for a long time.
- e. Water is known as a Universal solvent.

7. Define the following with suitable examples :-

(5X1=5)

- a. Deliquescent Salt
- b. Efflorescent Substance
- c. Hygroscopic Substance
- d. Dehydrating agent
- e. Water of Crystallisation.

KRISHNAGAR ACADEMY

Half Yearly Examinations Phase II

Class: IX

Subject: Commercial Applications

FM 50

Section – A

Answer the following Questions.

(2X5=10)

- Q1a) What is Genetic Industry?
- b) Define Non- Commercial Organisation.
- c) What is Partnership form of Organisation?
- d) Define the term Co- Operative Society.
- e) What is Private Sector Enterprise?

Answer the following Questions.

- Q2.a) Discuss the various types of Industry. (5)
- b) Discuss the features of Co Operative Society (5)
- c) Distinguish between Economic Activities and Non Economic Activities. (5)

- Q3.a) Discuss the features of Sole Proprietorship form of business. (5)
- b) Discuss the branches of Commerce. (5)
- c) Distinguish between Sole Proprietorship and Partnership form of business. (5)

- Q4.a) Discuss the features of Joint Stock Company (5)
- b) Distinguish between Trade, Industry and Commerce. (5)

OR

- a) Distinguish between Company and Partnership form of Business. (5)
- b) Distinguish between Company and Co-operative society. (5)

KRISHNAGAR ACADEMY

Half Yearly Examinations Phase II

Class: IX

Subject: Commercial Studies

FM 50

Section – A

Answer the following:-

(5x2=10)

- Q1.a) What is Organisation?
- b) Define the term Profession.
- c) What is Partnership form of Organisation?
- d) What is Joint Stock Company?
- e) Define One Person Company (OPC).

Section-B

Answer any four of the following.

(4x10=40)

- Q2.a) Discuss the characteristics of business activities
- b) Distinguish between Commercial Activities and Non-Activities.

- Q3.a) Discuss the features of Profession.
- b) Discuss the features of Joint Stock Company.

- Q4.a) Discuss the features of Sole Proprietorship form of business.
- b) Distinguish between Trade, Industry , and Commerce.

- Q5.a) Discuss the features of Partnership form of business.
- b) Discuss the features of One Person Company (OPC).

- Q6.a) Discuss any five aids to trade in business.
- b) Discuss any five types of Non-Profit Organisations.

KRISHNAGAR ACADEMY

Half Yearly Examinations Phase II

Class: IX

Subject: Economic Applications

FM 50

(Part-I is compulsory and attempt any two questions from Part-II)

Part – I

(Attempt all Questions)

Question-1

(10X2=20)

- How does preference of consumers determine the 'quantity of production' in two different countries?
- What is the 'problem of distribution'?
- Explain the concept of 'Invisible Hand'?
- How can we define 'PPC'?
- What are the two factors that determine the solution to the problem 'How to Produce'?
- How does pattern of human wants determine the 'What to produce' problem?
- Cite an example to show that 'quantity of production' differs in two countries based on their resource availability.
- How does market mechanism help to solve the problem 'For Whom to produce'?
- What is an 'underdeveloped economy'?
- Give 2 examples each of :
 - Developed Economy
 - Developing Economy.

Part-II

(Attempt any 2 Questions)

Question: 2:

(7+8=15)

- Elucidate the concept of 'efficient use of resources'
- With proper illustration, discuss the PPC

Question: 3

(7+8=15)

- Differentiate between Economic Growth and Economic Development.
- Enumerate the features of a developing economy.

Question: 4

(7+8=15)

- Mention the peculiarities of a capitalistic economy.
- List the features of a developed economy.

QUESTION- 1

WRITE A COMPOSITION (300 – 300 WORDS) ON ANY OF THE FOLLOWING. (15)

- (a) Write about a time when you were late for an important appointment. What lesson on punctuality did you learn from that experience.
- (b) Write an original short story that begins with the words : “It’s not my fault”, he shouted...”
- (c) Your room has been very untidy for long time and your parents have been urging you to make it tidy. Narrate your experience of cleaning and tidying your room.
- (d) Do you think that the role of electronic gadgets (such as mobile phones, laptops, tablets) have been changed in the past six months. Write your opinion about it.

QUESTION – 2

Select one of the following

- (a) You were taken to visit a historical place by your school. Write a letter to your cousin narrating your experience regarding the trip. (8)
- (b) Write a letter to the Principal of your school seeking permission for establishing a book club in your school, so that the students can grow an interest in reading more and more books.

QUESTION- 3

- (a) Your school is hosting an inter-school- music competition. Write a notice to be put up in your school informing students about the event and inviting them to participate in the inter-school-music competition. (3)
- (b) Write an e-mail to the president of a neighbouring school requesting him /her to send participants to participate in the event. (3)

QUESTION-4

Read The Following Passage Carefully And Answer The Questions That Follow:-

Richard Parker was so named because of a clerical error.

A panther was terrorizing the Khulna district of Bangladesh, just outside the Sunderbans. It had recently carried off a little girl. She was the seventh person killed by the animal. And it was growing bolder. The previous victim was a man who had been attacked in broad day light in his fields. The beast dragged him off into the forest and his **corpse** was later found hanging from a tree .The villagers kept a watch nearby that night, hoping to surprise the panther and kill it, but it never appeared.

The Forest Department hired a professional hunter. He set up a small, hidden platform in a tree near a river where two attacks had taken place. A goat was tied to a stake on the river’s bank. The hunter waited several nights .He assumed the panther would be an old ,wasted male with worn teeth, incapable of catching anything more difficult than a human. But it was a sleek tiger that stepped into the open one night: a female with a single cub. The goat belated .Oddly , the cub, who looked to be about three months old ,paid little attention to the goat .It raced to the water’s edge, where it drank eagerly. Its mother followed it. Of hunger and thirst is the greater urge. Only once the tiger had **quenched** her thirst did she turn to the goat to satisfy her hunger. The hunter had two rifles with him: One with real bullets, the other with Immobilizing darts. The animal was not the man-eater, but so close to human habitation she might pose a threat to the villagers, especially as she was with cub. He picked up the gun with a darts. He fired as the tiger was about to attack the goat . The tiger reared up and snarled and raced away. But immobilizing darts don’t bring an sleep gently they knock the creature out without warning .A burst of activity on the animal’s part makes it act on the faster. The hunter called his assistants on the radio. They found the tiger about two

hundred yards from the river .She was still conscious. Her back legs had given way and balance on her front legs was shakey . When the men got close, she tried to get away but could not manage it. She turned on them, lifting a paw that was meant to kill. It only made her lose her balance. She collapsed and the Pondicherry Zoo had two new tigers. The cub was found in a bush close by, meowing with fear.

The hunter, whose name was Richard Parker picked it up with his bare hands and, remembering how it had rushed to drink in the river named it Thirsty. But the shipping clerk at the Howrah train Station was evidently a man both confused and diligent. All the paper received with the cub clearly stated that its name was Richard Parker, that the hunter's first name was Thirsty and that his family name was None Given. Richard Parker's name stuck.

I don't know if the hunter was ever called Thirsty None Given.

(a) Give the meaning of each of the following words as used in the passage: (2X1/2=1)

(i) Corpse (line10)

(ii) Quenched (line28)

(b) Answer the following questions briefly in your own words-

(i) Why did the Forest Department hire a professional hunter? (2)

(ii) What name did the hunter give to the cub and Why? (2)

(c) In not more than 40 Words narrate how the hunter and his assistants captured the tiger and her cub. (5)

QUESTION:- 4

(a) Fill in each of the numbered blanks with correct form of the word given in the brackets. Do not copy the passage, but write in correct serial order the word or the phase appropriate to the blank space. (4X1/2=2)

He rubbed his fingers nervously against the small notebook in his pocket and _____ (1) (tell) himself to be patient. The Old man in the toy booth _____ (2) (argue) with the girl. She _____ (3) (be) about Hugo's age and he often saw her go into the booth and _____ (4) (disappear) behind the counter.

(b) Fill in the blanks with an appropriate word:- (4X1/2=2)

(i) We can visit her in the hostel _____ 3p.m. and 5 p.m. on Saturday.

(ii) The Sinhas have lived in New Delhi _____ 1943.

(iii) Sneha has applied _____ a scholarship.

(iv) She turned _____ the generous offer made by the manager.

(c) Join the following sentences to make one complete Sentence without using 'and' 'but' or 'so'. (3X1=3)

(i) The teacher arrived. The class started.

(ii) Ravi fractured his arm. He insisted playing the match.

(iii) Mona has been ill for a month. She stood first in the examination.

(d) Rewrite the following sentences according to the instructions given after each. Make other changes that may be necessary but do not change the meaning of each sentence. (4X1=4)

(i) As soon as we lit the candle, the power supply was restored. (Begin: No sooner.....)

(ii) The bee is more industrious than all other creatures. (Use: 'most industrious')

(iii) She found your keys in the garage. (Begin: The Keys.....)

(iv) Though Reema got an expensive gift she was not happy. (Begin: Inspite.....)

SECTION: A

DRAMA

QUESTION- 1

“ It is not unknown to you Antonio,
How much I have disabled mine estate
By something showing a more swelling part.
Than my faint means would grant continuance.....”

- (1) Where is Bassanio at the present moment? To whom does he speak? (2)
- (2) What light do the above speech of Bassanio throw on his character? (2)
- (3) Explain the meaning of the phrase ‘swelling part’. To whom is the phrase applicable?(2)
- (4) From the above mentioned speech What do you know about Antonio? (2)
- (5) What does the above mentioned speech tell us about the relation between Bassanio and Antonio? (2)

ANSWER THE FOLLOWING QUESTIONS FROM SEC-B AND SEC-C

SECTION-B (POEM)

QUESTION -2

“The waves beside them danced; but they
Out did the sparkling waves in glee
A poet could not but be gay,
In such a jocund company :
I gazed – and gazed – but little thought
What wealth the show to me had brought:”

- (i) How do the daffodils out do the waves? (3)
- (ii) What is meant by ‘jocund company’? Which jocund company is the poet referring to? (3)
- (iii) What according to the poet distinguishes the daffodils from the natural surroundings? (3)
- (iv) How did the ‘show’ that brought him ‘wealth’ serve the poet when he ‘lie in vacant or pensive mood’? (4)

SECTION-C(PROSE)

QUESTION -3

ANSWER THE FOLLOWING QUESTIONS.

“ The foreigner followed his look and decided that it would be a sound policy to show an interest in the old man’s pets. He went up casually to them and stroked their backs with every show of courteous attention. Now the truth dawned on Muni. His dream of a lifetime was about to be realized.”

- (i) What does the author mean by ‘truth dawned on Muni’? (3)
- (ii) What did Muni often dream of? (3)
- (iii) How was the foreigner dressed? Why did Muni feel the urge to run when he first laid eyes on him? What stopped him from doing so? (3)
- (iv) Why did the offer amuse Muni? – Write in detail. (4)

QUESTION-4

“He slightly raised his right hand, bound at the wrist by the shining ‘bracelet’ to the left one of his companion. The glad look in the girl’s eyes slowly changed to bewildered horror.”

- (i) What does the author refer to as ‘shining bracelet’? Who were wearing the shining bracelet? Where did they catch the train from? (3)
- (ii) Who is referred to here as his companion? Give a brief description of his appearance. (3)
- (iii) Why there was a ‘glad look’ in the girl’s eyes? (3)
- (iv) How the companion, ‘the glum-faced man’, observe the girl and what did he say to the girl? (4)

Q1. Mark the following on the outline map of the world: (10X1= 10)

- a) R. Colorado
- b) R. Niger
- c) R. Mekong
- d) R. Hwangho
- e) Hudson Bay
- f) Strait of Malacca
- g) Brazilian Highland
- h) Iranian Plateau
- i) Caribbean Sea
- j) Mediterranean Sea

Q2.a) i) What is the amount of solar radiation received by the earth surface per square centimeter / min?

ii) Define Solar radiation. (2)

b) Define advection? (2)

c) What is ITCZ? (2)

d) What is Frictional force?

(2)

e) State the difference between Relative humidity and absolute humidity. (2)

Q3. a) Write two necessary conditions for occurrence of rain. (2)

b) State two characteristics of convectional rain. (2)

c) State the necessary condition for the occurrence of Orographic rainfall. (2)

d) Convectional rain is very common in the Equatorial region. – Why? (2)

e) Name some popular tropical cyclone. Which heat zone is mostly associated with cyclonic rain? (2)

Q4. a) State two difference between sub- tropical high-pressure belt and sub polar low pressure belt. (2)

b) The atmospheric pressure varies from place to place. – Why? (2)

c) State two difference between summer monsoon and winter monsoon. (2)

d) Write two characteristics of Temperate Cyclone. (2)

e) The Westerlies are very strong in the southern hemisphere. Give reason. (2)

Q5. a) Why the temperature decreases with increasing altitude? (2)

b) The atmosphere is heated by the terrestrial radiation not by the insolation. – Give reason. (2)

c) State two difference between conduction and convection. (2)

d) Mention the processes through which 47% solar radiation is lost in the atmosphere. (2)

e) The coastal areas of North Western Europe have high temperature in spite of high latitudinal location. – Give reason. (2)

KRISHNAGAR ACADEMY

Half Yearly Examinations Phase II

Class: IX

Subject: History & Civics

FM 50

Question 1.

- i. What is an election commission?
- ii. In which year the first and second General election was held?
- iii. Who appoints the election commissioners?
- iv. What was the change made in the structure of election commission in 1989?
- v. What is by-election?

5X2=10

Question 2

- i. What was the main aim of Lord Krishna when he descended to the Earth in human form?
- ii. Give two features of the family system of Vedic society.
- iii. How the people of Vedic period passed their leisure time?
- iv. Why Brahmanical system became unpopular?
- v. How it become possible for Mahavira and Buddha to reach to common people easily?

5X2=10

Question 3

With reference to the election, answer the following:

- i. Composition and appointment of the election commission.
- ii. Direct election.
- iii. Indirect election.

4+3+3=10

Question 4

In the context of the Vedic Age , discuss the following:

- i. Status of the women.
- ii. Four Ashramas.
- iii. Education System.

3+4+3=10

Question 5

With special reference to Jainism and Buddhism, explain the following:

- i. Any two causes for the rise of Jainism and Buddhism.
- ii. Doctrines of Jainism.
- iii. Doctrines of Buddhism.

2+4+4=10

KRISHNAGAR ACADEMY

Half Yearly Examinations Phase II

Class: IX

Subject: Mathematics

FM 50

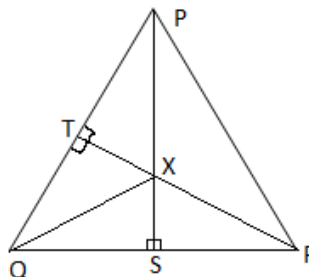
Attempt all questions from Section A and any three Questions from Section B.

Group A(20marks)

(Attempt all questions)

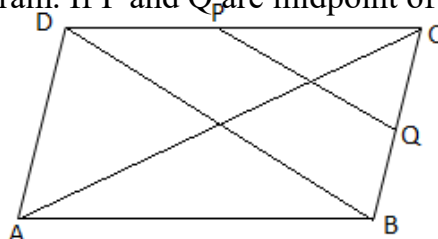
- 1) a) In the figure given below, QX, RX are bisectors of $\angle PQR$ and $\angle PRQ$ respectively of ΔPQR . If $XS \perp PQ$, Prove that

- i) $\Delta XTQ \cong \Delta XSQ$
- ii) PX bisect the angle P



[4]

- b) In the adjoining figure ABCD is a parallelogram. If P and Q are midpoint of sides CD and BC respectively. Show that $CR = \frac{1}{4}AC$



[3]

- c) If $5\cos\theta - 12\sin\theta = 0$, find the value of $\frac{\sin\theta + \cos\theta}{2\cos\theta - \sin\theta}$

[3]

- 2) a) Simplify the following:

$$\frac{\cos\theta}{\sin(90^\circ - \theta)} + \frac{\cos(90^\circ - \theta)}{\sec(90^\circ - \theta)} - 3\tan^2 30^\circ$$

[2]

- b) the area of a rectangle gets reduced by 9cm^2 if its length is reduced by 5 cm and breadth is increased by 3cm. if we increase the length by 3cm and the breadth by 2cm then the area is increased by 67cm^2 . Find the dimensions of the rectangle.

[4]

- c) If Ad, BE and CF are medians of ΔABC , prove that

$$3(AB^2 + BC^2 + CA^2) = 4(AD^2 + BE^2 + CF^2)$$

[4]

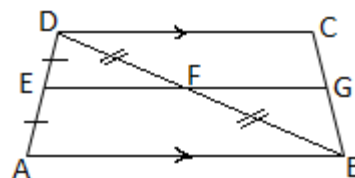
Group B(30marks)

(Attempt any three questions)

- 3) a) If $\cot B = \frac{12}{5}$, prove that $\tan^2 B - \sin^2 B = \sin^4 B \cdot \sec^2 B$

[3]

- b) In the quadrilateral given along side $AB \parallel DC$, E and F are the midpoints of AD and BD respectively.



Prove that (1) G is the midpoint of BC. (2) $EG = \frac{1}{2}(AB + DC)$

[4]

- c) A cuboidal block of metal has dimensions 36cm by 32cm by 0.25m. If is melted and recast into cubes with an edge of 4cm.

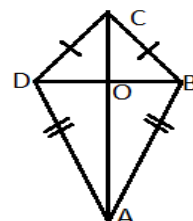
- i) How many such cubes can be made?

- ii) What is the cost of Silver coating the surfaces of the cubes at the rate of ₹1.25 per sq. cm.?

[3]

- 4) a) In the adjoining figure ABCD is a kite in which $AB=AD$ and $BC=CD$. Prove that

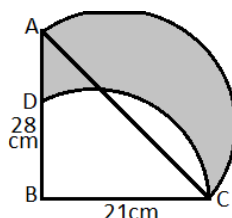
- AC is a bisector of $\angle A$ and $\angle C$
- AC is perpendicular bisector of BD.



[3]

- b) The base of triangular field is 3 times its height. If the cost of cultivating the field at the rate of ₹25 per 100 m² is ₹60000, find its base and height. [3]

- c) In the adjoining figure ABC is a right angled triangle $\angle B = 90^\circ$ $AB=28$ cm and $BC=21$ cm. With AC as diameter a semicircle is drawn and with BC as radius a quarter circle is drawn. Find the area of the shaded region correct to two decimal places.

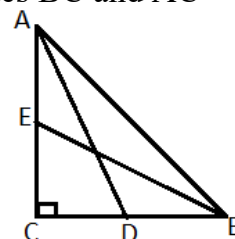


[4]

- 5) a) Construct a rhombus PQRS whose diagonals PR, QS are 8cm and 6cm respectively. [3]

- b) In the adjoining figure D and E are the midpoints of the sides BC and AC respectively of $\triangle ABC$, right angled triangle at C. Prove that.

- $4AD^2 = 4AC^2 + BC^2$
- $4BE^2 = 4BC^2 + AC^2$
- $4(AD^2 + BE^2) = 5AB^2$



[4]

- c) If $\frac{\sec\theta + \tan\theta}{\sec\theta - \tan\theta} = 2\frac{51}{79}$, then find the value of $\sin\theta$. [3]

- 6) a) P and Q are points on opposite sides AD and BC of a parallelogram ABCD such that PQ passes through the point of intersection O of its diagonals AC and BD. Show that PQ is bisected at O.

- b) Solve for x: $3\tan^2(2x - 20)^\circ = \sin 90^\circ$ [2]

- c) If $\tan\theta = \sqrt{2} - 1$, show that $\sin\theta\cos\theta = \frac{\sqrt{2}}{4}$ [2]

- d) Using ruler and compasses only construct a parallelogram ABCD with $AB = 6$ cm altitude is 3.5cm and side $BC = 4$ cm.

Measure the acute angles of the parallelogram. [3]

General Instructions.

- This question paper is divided into two sections.
- Section I and II both are compulsory.
- The intended marks for questions or parts of questions are given in brackets ().

Section I (30 Marks)

Q1. (a) Why is mercury used as a barometer liquid? (2)

(b) Why and how does the atmospheric pressure vary with altitude?
Draw a graph to illustrate it. (2)

(c) A man first swims in sea water and then in river water.

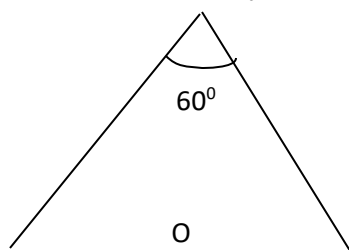
(i) Compare the weight of sea water and river water displaced by him.

(ii) Where does he find it easier to swim and why? (2)

(d) Obtain the relationship between the density of a floating object (ρ_s), density of the liquid (ρ_l) and the volume immersed (V_i). (2)

(e) What is the role of swimming bladder of fish? (2)

Q2 (a) The given figure is an overhead view of two plane mirrors inclined at an angle θ with an object O placed between them. If you look into the mirrors you see multiple images of O. If θ is equal to (i) 45° (ii) 60° , how many images of O would you see? (2)



(b) You are given three mirrors of equal sizes –

Concave, Convex and plane. How will you identify them without touching their surfaces?

(c) How can you distinguish between a real and virtual image? (2)

(d) Write two characteristics of the image seen in a plane mirror. (2)

(e) Mention two disadvantages of using water as a barometric liquid. (2)

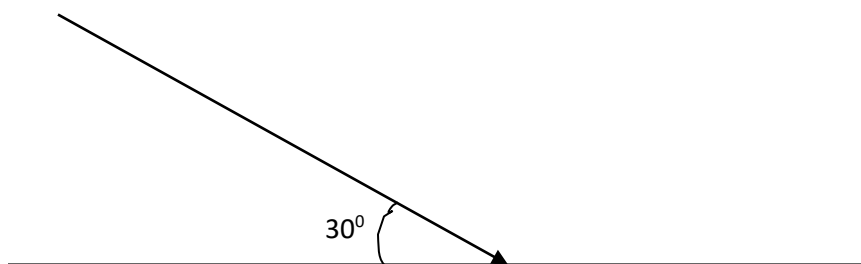
Q3. (a) Write two characteristics of a floating body. (2)

(b) How is buoyant force related to the volume of the body placed inside a liquid? (2)

- (c) A Cargo ship is loaded in sea water to maximum capacity. What will happen if this ship is moved to river water? Give a reason for your answer. (2)
- (d) Calculate the mass of air in a room 4.5 m long, 3.5 m wide and 2.5 m high. The density of air at NTP is 1.2 kg m^{-3} . (2)
- (e) Find the relation between the SI and CGS unit of density. (2)

Section – II (20 marks)

- Q4. (a) How does a concave mirror give a vertical image of an object? Explain with the help of a ray diagram. (3)
- (b) On a plane mirror a ray of light falls at a glancing angle 30° as shown in the diagram.
- (i) Through what angle has the ray been deviated?
- (ii) If the angle of incidence is increased by 10° , What would be the increase in the angle of reflection?
- (iii) Without changing the incident ray, if the mirror is turned through an angle of 5° , how much will the reflected ray turn?
- (iv) What should be the angle of incidence for the incident and reflected rays to form an angle of 80° between them? 4



- (c) Show that the image of an object observed in a plane mirror is as far behind the mirror as the object is in front. (3)

- Q5. (a) Calculate the length of the water column, if water is used as a barometric liquid. (3)

- (b) The following observations were taken while determining R.D. of a liquid:

Weight of the solid in air = 0.100 Kgf.

Weight of the solid in liquid = 0.080 Kgf.

Weight of the solid in water = 0.075 Kgf.

Calculate:

- (i) The apparent loss of weight of solid in liquid.

(ii) The apparent loss of weight of solid in water.

(iii) R.D of the liquid. (3)

(c) State the laws of liquid pressure. (4)

১) নিম্নলিখিত বিষয়গুলির মধ্যে থেকে একটি বিষয় বেছে নিয়ে একটি রচনা লেখো।

(কমবেশি ২৫০টি শব্দের মধ্যে)

১৫

ক. শিশু শ্রমিক

খ. জীবনে আড়ার প্রয়োজনীয়তা।

২) নীচের অংশটি পড় ও তারপরে প্রশ্নগুলোর উত্তর দাও।

৫×২=১০

প্রকৃত জ্ঞান মানুষের মনের অন্ধকার দূর করে। পুঁথিগত বিদ্যা অর্জন করলেই জ্ঞানী হয় না। জ্ঞান মানুষকে যথার্থ সত্যের সন্ধান দেয়। দেয় মানুষ্যত্বের দীক্ষা। জন্ম দেয় গভীর প্রেমবোধের। প্রকৃত জ্ঞানী নরের মধ্যেই নারায়ণের অস্তিত্ব প্রত্যক্ষ করেন। কিন্তু অধিকাংশ মানুষই সত্যের মহিমা উপলব্ধি করতে পারে না। ধর্মের নামে চলে অধর্মের বজ্রাতি। ধর্মাক্রান্ত আচ্ছন্ন করে মানুষকে। বড় হয় জাতপাতের বিচার। লড়াই চলে মন্দির মসজিদ নিয়ে। আচার অনুষ্ঠান প্রধান হয়। লক্ষ্যের চেয়ে উপলক্ষ্য বড় হয়। বাহ্য আড়ম্বর নিয়েই চলে মাতামাতি। ধর্ম নিয়ে মানুষের মধ্যে কত রক্তই না ঝরেছে। অথচ মানুষের জন্যই ধর্ম। ধর্মের জন্যই মানুষ।

ক) মানুষের মনের অন্ধকার কিভাবে দূর হয়?

খ) জ্ঞান মানুষকে কী কী দেয়?

গ) প্রকৃত জ্ঞানী কিরকম হন?

ঘ) অধিকাংশ মানুষের চরিত্র কিরকম হয়?

ঙ) মানুষকে কী আচ্ছন্ন করে রাখে? তার ফলে কী হয়?

৩) নতুন বই কেনার জন্য টাকা পাঠবার অনুরোধ জানিয়ে দূরে কর্মরত বাবাকে একটি পত্র লেখো। (কমবেশি ১২০ শব্দের মধ্যে)

৮

৪) ক) চলিত ভাষায় রূপান্তরিত করো।

৪+৩=৭

রথের চাকা মাটিতে পুঁতিয়া গিয়াছে - দুই হাতে প্রাণপণে সেই চাকা মাটি হইতে টানিয়া তুলিবার চেষ্টা করিতেছেন - সেই নিরস্ত্র, অসহায়, বিপন্ন কর্ণের অনুরোধ মিনতি উপেক্ষা করিয়া অর্জুন তির ছুঁড়িয়া তাহাকে মারিয়া ফেলিলেন।

খ) রৌদ্রের জন্য পুনর্বীর ঝাঁপানে চড়িয়া প্রায় দুই প্রহরের সময় বোয়ালি নামক পর্বতে উপস্থিত হইলাম। সুগুপ্তী হইতে অনেক নিম্নে এই পর্বতের তলে শতদ্রু নদী বহিতেছে।

বিভাগ- খ

৫) "ভাবিতে মনের সাধ

ঘটে যদি পরমাদ

মধুহীন কর না গো তব মনঃ কোকনদে।"

ক) কবির মনের সাধ কী ছিল?

খ) অংশটির দ্বারা কবি কী বোঝাতে চেয়েছেন?

২+৩=৫

৬) " কিন্তু কোন গুণ আছে,

যাচিব যে তব কাছে,

হেন অমরতা আমি, কহ গো শ্যামা জন্মদে।"

ক) 'শ্যামা জন্মদে' কথাটির অর্থ কী?

খ) সমগ্র অংশটির দ্বারা কবি কী বোঝাতে চেয়েছেন?

২+৩=৫

Question 1.

निम्नलिखित विषयों में से किसी एक विषय पर 250 शब्दों में एक प्रस्ताव लिखिए। (15)

- (i) विज्ञापन का औचित्य (ii) जहाँ चाह वही शह

Question 2.

निम्नलिखित विषयों में से किसी एक विषय पर पत्र लिखिए।

- (i) आपके शहर में नगर निगम ने नागरिकों के लिए अनेक सुविधाएँ उपलब्ध कराई हैं इस लिए निगम के कमिशनर के नाम आप एक धन्यवाद पत्र लिखिए।

OR

- (ii) छात्रावास में रहकर अध्ययन करने वाली छोटी बहन को पत्र लिखिए जिसमें उसे अपने स्वास्थ्य का ध्यान रखते हुए परिश्रम पूर्वक अध्ययन करने की सलाह दी गई हो।

Question 3.

निम्नलिखित गद्यांश को पढ़कर उसके नीचे दिए गए प्रश्नों के उत्तर अपनी भाषा में लिखिए।

वसंत ऋतु का आगमन हो चुका था, परन्तु कोयल और मोर उदास थे। जंगल के राजा ने एक जाँच आयोग का गठन करवाया जिसका प्रमुख कौआ बनाया। जाँच द्वारा पता चला कि कोयल और मोर एक ही घर की छुंड़ पर बैठे थे कि तभी उनकी नजर घर पर चल रहे टेलीविजन पर पड़ी, जिस पर नृत्य का कार्यक्रम दिखाया जा रहा था। दोनों ही बड़े चाव से कार्यक्रम देखने लगे। नृत्यांगना मोर-पंख पहनकर नाच रही थी, गायिका मधुर स्वर में गा रही थी। कार्यक्रम की समाप्ति पर दोनों को सम्मानित किया गया। यह कार्यक्रम

देखकर दोनों उदास हो गये। वे सोचने लगे कि हम दिन-रात मधुर वाणी और मनमोहक अदाओं से सबका मन बहलाने हैं, पर हमारी प्रशंसा में किसी ने कुछ नहीं कहा।

कौमु को जब इस बात का पता चला तो उसने दोनों को समझाया कि पक्षियों में सबसे अधिक निरादर की भावना से मुझे देखा जाता है। मेरे सारे गुणों को नाक पर रख दिया जाता है। हम आस-पास की गंदगी साफ कर देते, अन्य पक्षियों की तरह सगड़ने नहीं, हमारे जैसा भाईचारा तो मनुष्यों में भी नहीं पाया जाता। जब हमारा साथी मर जाता तो हम सभी कोंव-कोंव कर अपना दुःख प्रकट करते हैं, मित्र और मेहमानों के आगमन की सूचना देने हैं फिर भी लोग हमारी उद्ब नहीं करते। गीता के उपदेश की तरह हम अपने कार्य को करते हैं, फल की इच्छा नहीं करते। क्या तुम आज तक प्रशंसा और पुरस्कार के लिए जी गाने और नाचते रहे। इस पर्यावरण को खुश करने में क्या तुम्हारी सबसे अहम भूमिका नहीं है।

कौमु की बातें उन दोनों की समझ में आ गईं। उसी समय जंगल में काले बादल छा गये। कोयल और मोर धूम-धूमकर नाचने और गाने लगे। सारे जंगल में खुशी की लहर दौड़ गई। उनके साथ-साथ सभी पशु-पक्षी, पेड़-पौधे झूमने लगे, गाने और चहचहाने लगे। मोर नाचता रहा उसने आँसू बहाते रहे। कौवे ने कुछ भगवान कृष्ण तुम्हारे पैर अपने सिर पर लगाने हैं। इससे बढ़कर तुम्हारा पुरस्कार और क्या हो सकता है? इस भाव से कोयल ने भी समझाया। दोनों ने खुशी के आँसू बहाने लगे।

प्रश्न: (i) मोर और कोयल उदास क्यों थे? (2)

(ii) जंगल के राजा ने उनकी उदासी का पता लगाने के लिए क्या किया? (2)

(iii) कौमु की बातों का दोनों पर क्या प्रभाव पड़ा? (2)

(iv) कौमु ने अपना उदात्तरण क्या कटकर दिया? (2)

(v) उन्हें अपने-अपने पुरस्कार किस रूप में प्राप्त हुए? (2)

Question 4.

- (i) निम्नलिखित शब्दों में से किसी दो शब्दों के विलोम लिखिए (1)
ज्योति , ताप , प्रश्न , प्रेम
- (ii) निम्नलिखित शब्दों के दो पर्यायवाची लिखो (1)
पुराना , मेघ
- (iii) निम्न शब्दों के विशेषण बनाइए :- (1)
शरीर , संशोधन
- (iv) निम्न शब्दों में से किसी दो शब्दों को शुद्ध करके लिखो (1)
आसूँ , तिथी , कृतग्र्य
- (v) निम्नलिखित मुहावरों में से किसी एक का अर्थ लिखो व वाक्य बनाओ : (1)
आकाश - पाताल तक करना , फूलान समाना
- (vi) निर्देशानुसार वाक्य परिवर्तन कीजिए :- (1)
- (a) कम स्वर्च करने वाला व्यक्ति हमेशा सुखी और निश्चिंत होता है।
(रेखांकित शब्दों के स्थान पर एक शब्द लिखें)
- (b) प्रेमचन्द ने अनेक कथानियाँ और उपन्यास लिखे हैं। (1)
(‘ने’ के स्थान पर ‘द्वारा’ शब्द का प्रयोग करें)
- (c) उस गाँव में निरक्षर लोग अधिक थे। (1)
(‘निरक्षरता’ शब्द का प्रयोग करें।)

साहित्य - सागर
(गद्य - भाग)

Question 5.

निम्न प्रश्नों के उत्तर लिखिए :-

A. आज वहीं रुकेंगे नहीं पान भी नहीं खाँगेंगे, मूर्ति की तरफ देखेंगे भी नहीं, सीधे निकल जाएँगे।

- (i) ये किसके विचार हैं? उन्होंने इसका कब सोचा? (2)

(ii) प्रस्तुत कही मुक्त महत्वपूर्ण संदेश अपने पाठकों को दे जाती है। आप अपने विचार दीजिए। (3)

पद्य- भाग

B. जाके प्रिय न शम वैदेही
नजिम् ताहि कोटि वैरी सम जूदयपि परम सेनेही ॥
तज्यो पिता प्रह्लाद, विभीषण बन्धु, भरत महतारी,
बलि गुरु तज्यो, कुंत ब्रज बनितस्नि, भक्त भुदमंगलकारी ॥

(i) तुलसीदास जी प्रस्तुत पद में किन्हे त्यागने के लिए कह रहे हैं और क्यों? (2)

(ii) किस- किस ने किन्हे त्यागा व क्यों? यहाँ जिनके बारे में कहा जा रहा है स्पष्ट करके लिखो? (3)