

MARKING SCHEME OF CLASS X FOR SAT EXAM 2020

Subject: -ENGLISH LANGUAGE(English 01)

Marking scheme of English 01

Question 1. Composition [20]

Heading : A proper and suitable Heading with suggestive phrases 2

Structure of the Essay: 4

- *Different Paragraphs*
- *Uniformity in the size of the paragraphs*
- *Introduction*
- *Conclusion*

Understanding of the topic: 4

- *Good Knowledge on the topic*
- *Sufficient ideas on the topic*

Expression and Elaboration of Ideas: 4

- *Ability to Express Ideas well*
- *Able to elaborate at ease on the chosen topic*
- *Signs of awareness/ good arguments*

Grammar: 4

- *Tenses*
- *Brevity and Conciseness in Expression*
- *Good Vocabulary*
- *Spelling and Punctuation*

Overall Presentation: 2

- *Good Handwriting*
- *Clean Presentation*

N.B. Story should be original and self composed.

Question 2. LETTER WRITING [10]

- *Format : All steps and Paragraphs well organised 2*
- *Topic well discussed 2*
- *Grammar: Tenses, Spelling, Punctuation, Vocabulary 4*
- *Overall Presentation: Neatness and Handwriting 2*

Question 3.

a. Notice writing: [5]

HEADING Must be appropriate to the event 1

NAME OF EVENT 1

DATE 1/2

TIME 1/2

VENUE 1

General Grammar 1

b. Email Writing [5]

TO: a complete plausible email id 1/2

SUBJECT should be appropriate to given topic 1/2

SALUTATION 1/2

OPENING AND CLOSING LINES 1

The information to be delivered 1

SUBSCRIPTION 1/2

General Grammar 1

Question 4.

a. Word meaning [4]

- i. skillfully
- ii. involved in the matter
- iii. unwilling
- iv. bitterness

b. The boy was very sad because no fish was caught during the day. He could not eat his supper. In order to overcome his bitter experience, his mother bought him a fishing line. [2]

c. The narrator was an innocent boy [2]

- He prays to God to make the trout hungry
- He imagines that God is like a grocer, dispensing His gifts in exchange for his prayer
- He does not understand the mother's trick of putting the herring in his bait
- He plans to eat the fish caught by him for supper but promises to give mother for buying the rod.

d. So that she could get a herring from the market secretly and hook it to the new rod for her overenthusiastic son. She did so to keep up his spirits. [2]

e. The author's mother believed that his success in fishing would make him proud and overconfident later in life. [2]

f. Précis points [USE GRIDS TO WRITE YOUR CONNECTED PASSAGE] [8]

- mother played a trick by putting a herring on the fishing line when he goes to pick
- Flowers.
- She saved her son from disappointment as he has not caught any fish
- Son is overjoyed with his catch continuously for a week
- Mother fears this success would make his son proud and overconfident in future
- She discloses about the trick when the author was seventeen to curb his pride and confidence.

Question 5.

a. Preposition (8x1/2=4)

- i. down
- ii. away
- iii. into
- iv. with
- v. under
- vi. on
- vii. by
- viii. above

b. TRANSFORMATION (8)

- i. Peter was a witness to the accident

- ii. Priya said that she was never going to trust her again.
- iii. No doubt there is honesty in him.
- iv. I could not help complying with his desire.
- v. Don't sign the delivery note without checking the furniture.
- vi. Hardly do the sirens sound when the people dive for cover.
- vii. Such concert had never been seen by him and therefore he was just lost in great amazement.
- viii. Rakesh said, "We will call the cub 'Sundar' ".

C. SYNTHESIS (4)

- 1. Our side suffered the disastrous results.
- 2. It is a shameful thing that being a senior citizen you are clumsy in conduct.
- 3. I feel bored of his talkative habit.
- 4. Despite being sorrowful he is hopeful.

d. Correct form of words (8x1/2=4)

- 1. carrying 5. failure
- 2. landing 6. had fallen
- 3. could prevent 7. was
- 4. did not come 8. had prevented

Subject:- ENGLISH PAPER 2

LITERATURE

Marking scheme of English 02

(Prescribed Textbooks)

Attempt five questions in all

You must attempt one question from each of the Sections A, B and C

The intended marks for questions or parts of questions are given in the brackets []

SECTION A - DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow:

'Madam, you have bereft me of all words,

Only my blood speaks to you in my veins...'

a. Who is the speaker and who is addressed as 'Madam' in the above extract? [1]

- Bassanio [1/2]

- Portia [1/2]

b. Which wish has 'Madam' made a while before this speech from the speaker?

Which reason does she quote for that wish? [2+2]

- I would be trebled twenty times myself: A thousand times more fair

Ten thousand times more rich [2]

- Only to stand high in your account I might be

In virtues, beauties, livings, friends exceed account [2]

c. Which state of mind does the speaker claim to be in, just after these words? [1]

- There is confusion in my powers [1]

d. What has been 'converted' from 'Madam' to the speaker a while before? [3]

The Speaker becomes the Master of the following:

- The house
- The servants
- And the Madam herself [3]

e. Which symbolic token has the speaker just received from 'Madam' and in which forewarning does she bind the speaker then? [1+2]

- A ring [1]
- Which when you part from, lose , or give away

Let is presage the ruin of your love

And be my vantage to exclaim on you [2]

f. Which promise does the speaker make at this moment and how does this promise find an echo later in the drama? Which figure of speech is implied then? [2+1+1]

- When this ring parts from this finger

Then parts life from hence:

O, be bold to say Bassanio is dead. [2]

- The speaker gives away the ring to the lawyer
- And breaks his promise in [Act IV: Scene II] [1]
- Dramatic Irony: The Speaker unknowingly gives
- The ring to his own wife disguised as a lawyer. [1]

Question 2.

Read the extract given below and answer the questions that follow:

Shylock: What judgment shall I dread, doing no wrong?

a. Why does Shylock say the above line? [1]

- In reply to the Duke's question on Mercy:

How shall you hope for Mercy, rendering none? [1]

b. What was Shylock offered a while ago and how does he respond then? [1+2]

- He was offered Six Thousand ducats instead of three [1]
 - If every ducat in six thousand ducats were in six parts
- and every part a ducat, I would not draw them

I would have my bond [2]

c. Which 'answer' does Shylock offer to the Duke here? How does he go on to support his 'stand' then? [2+3]

- The pound of flesh which I demand of him
- is dearly bought, it's mine and I will have it. [2]
- If you deny me, fie upon your law!
 - There is no force in the decrees of Venice
 - I stand for judgment [3]

d. Which judgment is pronounced by the lawyer on Shylock later in the scene? [3]

- One half of Shylock's goods shall be seized by the party he contrived against [1]
- The other half will come to the privy coffer of

the state [1]

- Shylock's life lies in the mercy of the duke only against all other voice [1]

e. In which terms does Antonio present his mercy to Shylock when prompted by the lawyer? [4]

- Quit the fine for one half of his goods [1]

- Shylock will let me have the other half in use, to render it, upon his death, unto the gentleman that lately stole his daughter [1]

- Shylock becomes a Christian [1]

- He records a gift here in the court. of all he dies possessed unto his son Lorenzo and his daughter. [1]

SECTION : POETRY

A Collection of Poems

Question 3.

Read the extract given below and answer the questions that follow:

'Thus I entered and thus I go!'

- The Patriot

- Robert Browning

a. When did 'I' enter the town? How is this day significant for 'I' later? [1+1]

- A year ago. [1]

- After a year on that very day, he was to be hanged. [1]

b. Describe the event and the festivity in the town at the entry of 'I'? [4]

- It was roses, roses all the way

- With myrtle mixed in his path like mad

- The house roofs seemed to heave and sway

- The church spires flamed with flags

- The air broke into a mist with bells

- The old walls rocked with the crowd and cries. [Any Four- 4]

c. Which life did 'I' live just after this festive entry? [3]

- He leaped at the sun to give it ... all impossible tasks [1]

- to his loving people to keep... did for the people [1]

- There was nothing left undone which a man could do [1]

d. Which reversal of fortune did 'I' witness later? [2]

- He has lost their appreciation...He is going to be hanged [1]

- There's no one to stand by him...just some at the windows [1]

e. Describe the current situation of 'I'. [3]

- He is at the Shambles' Gate - by the scaffold's foot [1]

- He is in the rains, with a rope cutting both his wrists behind [1]

- His forehead is bleeding hit by the stones flung

by people for his year's misdeeds. [1]

f. How does 'I' display his faith and hope in his difficult times? [2]

- He thinks that even great heroes and people

have fallen in their triumphs

• He does not care about the reward from the people for his achievements. Rather he believes that God will finally take care of his Good Deeds.
[He is optimistic that there is still hope in God's ways] [2]

Question 4.

Read the extract given below and answer the questions that follow:

'That's how the race ended, with nine gold medals'

- Nine Gold Medals

- David Roth

a. Where had the athletes come from and how did they prepare for games? [1+2]

• They had come from so many countries [1]
• Many weeks and months in training had they spent all
Building up to the games

• They had come there to win Gold , Silver and Bronze
Medals for their countries. [2]

b. How did the spectators respond to the presence of athletes on the field? [2]

• All round the field the spectators were gathered [1]
• They cheered all the young athletes -men and women [1]

c. Describe the scene when the last race was about to begin on the last day. [2]

• The loudspeakers called out the names of the runners [1]
• The nine young athletes stood determined and poised for
The sound of the gun. [1]

d. How did the youngest athlete conduct himself when he fell on his knees?
Why did he do so? [1+1]

• He gave a cry of frustration and anguish [1]
• His dreams and his efforts dashed in the dirt [1]

e. Which strange incident occurred as the youngest athlete lay on the ground? [3]

• The eight other athletes stopped in their tracks [1]
• One by one they turned round and came back to help him [1]
• And lifted the lad to his feet. [1]

f. How did the race end? [2]

• It ended with nine Gold Medals with each athlete winning
a gold medal each [1]

• All nine athletes came together to the finish line holding
hands still. [1]

g. Explain in your own words the significance of the line: [2]

'Said more than these words ever will'

• The smiling faces of the nine athletes at the finish line
said things which were more deeper and clearer than
the words on the banner 'Special Olympics'.

• They had truly proved the spirit of Olympics that they
were indeed special in helping their fellow beings. [2]

SECTION C: PROSE

A Collection of Short Stories

Question 5.

Read the extract given below and answer the questions that follow:

'Did I come 3000 miles for this?' I thought bitterly.

- My Greatest Olympic Prize

- Jesse Owens

a. Why did 'I' think bitterly about the above line? Which personal comments had he made regarding the same? [1+2]

- To foul out of the trials and make a fool of himself. [1]

- Angry athletes make mistakes

- He was no exception [2]

b. Where was 'I' at that moment and why was he there? [1+1]

- In Berlin [1]

- To participate in Summer Olympics of 1936 [1]

c. Which atmosphere and theory of the place made 'I' a determined person and what did he want to do then? [1+1]

- Hitler's ways had spread an atmosphere of negativity

His Nazi philosophy of Aryan-superiority degraded

Other races especially the Negros. [1]

- He wanted to really show Der Fuhrer [Hitler] and his master race who was superior and who wasn't. [1]

d. What did 'I' do just when he was thinking about the above line?

Who did he meet then and which suspicion did this person raise regarding 'I'?

[1+1+1]

- Walking a few yards from the jumping pit, he kicked in disgust at the dirt [1]

- Luz Long [1]

- Something must be eating you because you should have qualified your eyes closed, he told Owens. [1]

e. Which suggestion did 'I' receive from the person he met and what did 'I' feel and do thereafter? [2+2]

- Why don't you draw a line a few inches in back of the board and aim at making your take-off from there?

You will be sure not to foul and you certainly ought

to jump far enough to qualify. What does it matter if

you are not first in trials? Tomorrow is what counts. [2]

- Owens felt all the tension go [1]

- He drew a line a full foot in back of the board and proceeded to jump from there. [1]

f. Which message did 'I' leave for us from his experience of the place and people? [2]

- _____ Olympic games are important only when we come hand in hand to melt down all differences to become one in the love of one human race. [2]

Question 6.

With reference to the story 'The Little Match Girl', discuss the following:

a. Describe the actuality of poverty as mentioned and presented in the life of little

girl. [4]

[Discuss the following ideas in your presentation]

- *She did not have a proper house*
- *She was starved and without food*
- *She had to earn money in her childhood*
- *She did not have proper upbringing*
- *She went out in bitter cold to sell packet of matches*
- *She was without warm clothes*
- *She was barefoot on the street when it was snowing*

b. Describe the circumstances in which the little girl died and mention how people responded to her death. [4]

[Discuss the following ideas in your presentation]

- *She had huddled between the walls of two houses*
- *She tried to keep herself warm*
- *She scratched all the matches for it*
- *However, her poor resources ran out*
- *She froze to death*
- *The people casually looked at her*
- *They just said how she might have died*
- *Lack of sensitivity*

c. Describe and comment on all the visions seen by the little girl. [8]

[Discuss the following ideas in your presentation]

• *The First Vision: It really seemed to the little girl as if she were sitting before a great iron stove with shining brass knobs and a brass cover. How wonderfully the fire burned! How comfortable it was! The youngster stretched out her feet to warm them too; then the little flame went out, the stove vanished, and she had only the remains of the burnt match in her hand.*

• *The Second Vision: On the table a snow-white cloth was spread, and on it stood a shining dinner service. The roast goose steamed gloriously, stuffed with apples and prunes. And what was still better, the goose jumped down from the dish and waddled along the floor with a knife and fork in its breast, right over to the little girl. Then the match went out, and she could see only the thick, cold wall.*

• *The Third Vision: she was sitting under the most beautiful Christmas tree. It was much larger and much more beautiful than the one she had seen last Christmas through the glass door at the rich merchant's home. Thousands of candles burned on the green branches, and colored pictures like those in the printshops looked down at her. The little girl reached both her hands toward them. Then the match went out. But the Christmas lights mounted higher. She saw them now as bright stars in the sky. One of them fell down, forming a long line of fire.*

• *The Fourth Vision: It became bright again, and in the glow the old grandmother stood clear and shining, kind and lovely."*

Grandmother!" cried the child. "Oh, take me with you! I know you will disappear when the match is burned out. You will vanish like the warm stove, the wonderful roast goose and the beautiful big Christmas tree!" And she quickly struck the whole bundle of matches, for she wished to keep her grandmother with her. And the matches burned with such a glow that it became brighter than daylight. Grandmother had never been so grand and beautiful. She took the little girl in her arms, and both of them flew in brightness and joy above the earth, very, very high, and up there was neither cold, nor hunger, nor fear they were with God

Subject:-Maths

Marking scheme of Maths

SECTION A

1. a) $x^2 - 7x + 3 = 0$. This is quadratic equation $\therefore a = 1, b = -7$ and $c = 3$

$$D = b^2 - 4ac,$$

$$\therefore D = (-7)^2 - 4 \times 1 \times 3$$

$$D = 37 \text{ [1]}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-(-7) \pm \sqrt{37}}{2 \times 1}$$

$$= 7 \pm 6.042 \text{ [1]}$$

$$x = 7 + 6.082 \text{ or } 7 - 6.082$$

$$x = 6.54 \text{ or } 0.46 \text{ [1]}$$

$$\text{b) } x = 3$$

$$(k+2)x^2 - kx + 6 = 0$$

$$9k + 18 - 3k + 6 = 0$$

$$6k = -24, k = -4, \text{ [1]}$$

$$\text{Now, } (k + 2)x^2 - kx + 6 = 0, \text{ put } k = -4$$

$$-2x^2 + 4x + 6 = 0 \text{ Or } x^2 - 2x - 3 = 0 \text{ [1]}$$

$$x^2 - 3x + x - 3 = 0,$$

$$(x - 2)(x + 1) = 0 \therefore x = 3, x = -1$$

$$\text{Hence other root} = -1. \text{ [1]}$$

$$\mathbf{1.c) } 11x - 4 < 15x + 4 \leq 13x + 14$$

$$11x - 4 < 15x + 4 \text{ and } 15x + 4 \leq 13x + 14$$

$$11x - 15x < 8 \quad 15x - 13x \leq 14 - 4$$

$$-4x < 8 \quad 2x \leq 10$$

$$x > -2 \text{ [1]} \quad x \leq 5 \text{ [1]}$$

$$-2 < x \leq 5 \quad (x \in W), \text{ Soln set} = \{0, 1, 2, 3, 4, 5\} \text{ [1]}$$

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$$-4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \text{ [1]}$$

2.a) Let digit at ten's place = x

Digit at unit place = y

$$\therefore \text{Required no.} = 10x + y \text{ [1]}$$

$$\text{A/Q } x \cdot y = 27,$$

$$\text{and } x - y = 6 \text{ or, } y = x - 6$$

$$\text{Since } X \cdot Y = 27$$

$$\therefore x(x - 6) = 27 \text{ or } x^2 - 6x - 27 = 0 \text{ [1]}$$

$$x^2 - 9x + 3x - 27 = 0$$

$$x(x - 9) + 3(x - 9) = 0$$

$$(x - 9)(x + 3) = 0$$

$$\therefore x = 9 \text{ or } x = -3$$

$$\text{Required no.} = 10x + y$$

$$= 93 \text{ [1]}$$

$$2.b) a + 3d + a + 7d = 24 \quad a + 5d + a + 9d = 34$$

$$2a + 10d = 24 \quad 2a + 14d = 34$$

$$a + 5d = 12 \text{eq.i} \quad a + 7d = 17 \text{eq.ii [1]}$$

Subtract eqn i from ii ;

$$a + 7d = 17$$

$$\underline{a} + 5d = \underline{12}$$

$$2d = 5$$

$$d = \frac{5}{2} = 2 \frac{1}{2} \text{ [1]}$$

$$\therefore a + 5 \times 52 = 12$$

$$a = 12 - 252$$

$$= -12$$

$$\therefore AP : -12, 2, 92 \text{ [1]}$$

$$\mathbf{2.c) D(3,5) C(x,y)}$$

$$A(-1,0) B(1,3)$$

(ABCD) is a Parallelogram.

$$\therefore AC \text{ and } BD \text{ bisect each other at } o. \text{ [1]}$$

$$\text{Co-ordinate of } o \text{ } -1+x_2, 0+y_2$$

$$\text{Again Co-ordinate of } o \text{ } 3+12, 5+32 \text{ [1]}$$

$$\therefore -1+x_2 = 3+12 \text{ and } 0+y_2 = 5+32$$

$$-1+x = 4, y=8 \text{ [1]}$$

$$x = 5$$

$$\text{or } C(x,y) = C(5,8) \text{ [1]}$$

$$3.a) A = -306-9 \therefore At = -306-9 \text{ [1]}$$

$$2At - 3A = -6012-18 - -9180-27 \text{ [1]}$$

$$= 3-18129 \text{ [1]}$$

$$3.b) (k+3) : (k+2) = (3k-7) : (2k-3)$$

$$\text{or, } (k+3)((2k-3) = (k+2)(3k-7) \quad [1]$$

$$2k^2 - 3k + 6k - 9 = 3k^2 - 7k + 6k - 14$$

$$2k^2 + 3k - 9 = 3k^2 - k - 14$$

$$-k^2 + 4k + 5 = 0$$

$$k^2 - 4k - 5 = 0 \quad [1]$$

$$k^2 - 5k + k - 5 = 0$$

$$k(k-5) + 1(k-1) = 0$$

$$(k-5)(k+1) = 0$$

$$k = 5 \text{ or } k = -1 \quad [1]$$

3.c) P(3,m-5) is a point of trisection.

Therefore $m_1:m_2 = 1:2$ or $2:1$ [1]

$$x = \frac{m_1x_2 + m_2x_1}{m_1 + m_2}$$

$$3 = \frac{m_1 \times 1 + m_2 \times 4}{m_1 + m_2} \quad A(4,-2) \quad m_1 \quad P(3,m-5) \quad m_2 \quad B(1,4) \quad [1]$$

$$2m_1 = m_2 \text{ or } m_1:m_2 = 1:2 \quad [1]$$

Hence, P is a point of trisection of AB.

$$\text{Now, } Y = \frac{m_1y_2 + m_2y_1}{m_1 + m_2}$$

$$m-5 = \frac{1 \times 4 + 2 \times -2}{3}$$

$$m-5 = 0 \text{ or } m = 5 \quad [1]$$

4.a) Put $x = -2$.

$$P(x) = 6x^3 + 17x^2 + 4x - 12$$

$$P(-2) = 6(-2)^3 + 17(-2)^2 + 4(-2) - 12$$

$$= -48 + 68 - 8 - 12$$

$$= 20 - 20$$

$$= 0. \text{ Remainder is 0. Hence } (x+2) \text{ is a factor of } P(x) \quad [1]$$

Now, $6x^3 + 17x^2 + 4x - 12x + 2$

$$= 6x^2 + 5x - 4 \quad [1]$$

$$= 6x^2 + 8x - 3x + 4$$

$$= 2x(3x + 4) - 1(3x + 4)$$

$$= (2x - 1)(3x + 4)$$

Therefore,

$$6x^3 + 17x^2 + 4x - 12 = (x + 2)(2x - 1)(3x + 4) \quad [1]$$

$$4.b) Mo(a, b) = (-a, -b)$$

$$\text{Reflection in origin} = (-a, -b) \quad [1]$$

$$P' \text{ Reflection in y-axis} = (-x, y)$$

$$\therefore P'(4, 6) = P'(-4, 6) \quad [1]$$

$$P'(4, 6) = P'(a, -b)$$

$$\text{Hence, } a = 4 \text{ and } b = -6 \quad [1]$$

$$4.c) \text{ Let usual speed} = x \text{ km/h}$$

$$\text{Distance}(d) = 1500 \text{ km}$$

$$\text{Time}(t) = \frac{\text{distance}}{\text{speed}}, \therefore t = \frac{1500}{x} \text{ hrs.}$$

$$A/Q, 1500x - 1500x + 250 = 12 \quad [1]$$

$$\text{or, } 1500x + 3750 - 1500x(x + 250) = 12$$

$$x^2 + 250x = 37500x^2$$

$$x^2 + 250x - 750000 = 0 \quad [1]$$

$$x^2 + 1000x - 750x - 750000 = 0 \quad [1]$$

$$x(x + 1000) - 750(x + 1000) = 0$$

$$(x + 1000)(x - 750) = 0$$

$$x = -1000, \text{ or } x = 75$$

∴ usual speed (x) = 750km/h [1]

{ SECTION : B }

5.a) let the natural numbers be x and 8-x

$$\Rightarrow 1x - 18 - x = 215$$

$$8 - x - x(8 - x) = 215 [1]$$

$$\Rightarrow 2(8x - x^2) = 15(8 - 2x) \text{ i.e } 16x - 2x^2 = 120 - 30x$$

$$2x^2 - 46x + 120 = 0$$

$$x^2 - 23x + 60 = 0 \dots\dots\dots *1 +$$

$$x^2 - 20x - 3x + 60 = 0$$

$$x(x - 20) - 3(x - 20) = 0$$

$$(x - 20)(x - 3) = 0$$

$$x = 20, x = 3$$

$$\therefore x = 3$$

$$\therefore \text{other no} = 8 - 3 = 5$$

Required no. = 3 and 5 [1]

5.b)

$$\text{Slope} = y_2 - y_1 \quad x_2 - x_1 \quad 3x = 24 - 52$$

$$-3 \quad 4 = 2 + 11x - 8 [1] \quad 3x = -28$$

$$52 = -3x + 24 [1] \quad x = -28 \quad 3 [1]$$

5.c)

$$B = 1183$$

$$B^2 = 1183 \quad 1183$$

$$= 1 \times 1 + 1 \times 81 \times 1 + 1 \times 38 \times 1 + 3 \times 88 \times 1 + 3 \times 3$$

$$B2 = 943217 [1]$$

$$X = B2 - 4B$$

$$= 943217 - 443212$$

$$X = 5005 [1]$$

$$X \text{ } ab = 550$$

$$5005 \text{ } ab = 550 (1)$$

$$5a + 0 \times b + 0 \times a + 5 \times b = 550$$

$$5a + 5b = 550$$

$$5a = 5 \quad 5b = 50$$

$$a = 1 \quad b = 10 [1]$$

6) a)

$$B(-4, 3n) \quad P(1, 2m-1) \quad A(3m, 6)$$

P is the midpoint of AB

$$\therefore 1 = \frac{3m - 4}{2}$$

$$3m - 4 = 2 \text{ or } m = 2 [1]$$

$$\text{and } 2m - 1 = \frac{6 + 3n}{2} [1]$$

$$4m - 2 = 6 + 3n$$

$$4 \times 2 - 2 = 6 + 3n \quad (m = 2)$$

$$6 - 6 = 3n \text{ or } n = 0 [1]$$

$$6.b) a = 4 \quad 6^2 \quad 3$$

$$a^2 - 2 = 2 \cdot 3^2 + 3$$

$$a + 2 \quad 2a - 2 \quad 2 = 2 \cdot 3 + 2 + 3 \cdot 2 \quad 3 - 2 - 3$$

$$= 3 \cdot 3 + 2 \cdot 3 - 2 \quad [1]$$

$$\text{Again, } a^2 - 3 = 2 \cdot 2^2 + 3$$

$$a + 2 \quad 3a - 2 \quad 3 = 2 \cdot 2 + 2 + 3 \cdot 2 \quad 2 - 2 - 3$$

$$= 3 \cdot 2 + 3 \cdot 2 - 3 \quad [1]$$

$$\text{Or, } a + 2 \quad 2a - 2 \quad 2 + a + 2 \quad 3a - 2 \quad 3 = 3 \cdot 3 + 2 \cdot 3 - 2 - 3 \cdot 2 + 3 \cdot 3 - 2$$

$$= 3 \cdot 3 + 2 - 3 \cdot 2 - 3 \cdot 3 - 2$$

$$= 2 \cdot 3 - 2 \cdot 2 \cdot 3 - 2$$

$$= 2 \cdot 3 - 2 \cdot 3 - 2$$

$$= 2 \quad [1]$$

$$6.c) \text{ let the number } a-d, a \text{ and } a+d$$

$$\text{AT.Q, } a-d + a + a+d = 15$$

$$3a=15$$

$$a = 5$$

$$\text{and } (a-d)^2 + (a+d)^2 = 58$$

$$(5-d)^2 + (5+d)^2 = 58 \quad [1]$$

$$25+d^2 - 10d + 25+d^2 + 10d = 58$$

$$50+2d^2 = 58$$

$$d^2 = 58 - 50 \quad \text{or } d^2 = 8$$

$$d = 2 \quad \text{or } d = -2 \quad [1]$$

Numbers are : a-d, a, a + d

or 5-2, 5, 5+2

or 3, 5, 7 [1]

$$7.a) x-2=0$$

$$\therefore x=2 [1]$$

Remainder : $(x) = x^3+3x^2-mx+4$

$$m+3 = 23 + 3 \times 2^2 - m \times 2 + 4 [1]$$

$$= 8 + 12 - 2m + 4$$

$$m+3 = 24-2m$$

$$\therefore m=7 [1]$$

$$7.b) 4 \times 122 \times 1212 \times 14554 [1]$$

$$= 21124554$$

$$= 2 \times 4 + 1 \times 52 \times 5 + 1 \times 41 \times 4 + 2 \times 51 \times 5 + 2 \times 4 [1]$$

$$= 8 + 510 + 44 + 105 + 8$$

$$= 13141413 [1]$$

7(c)

x'

5

4.B(0,4) .A(6,4)

3

2 1

x -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 y

-1

-2

-3

(-6,-4)A' -4.B'(0,4)

-5

-6

Y'

*i+ Graph : *2m+ *ii+ A'(-6,-4), B'(0,-4) [1m] and [iii] Parallelogram [1m]

8.a) AP : 4 ,11, 18, 25....

$\therefore a=4, d=7$

$t_{25} = a+24d$ or $4 + 24 \times 7$

$=172$

$t_n = t_{25}+42$

$a+(n-1)d = 172+42$

$4 + (n-1) \times 7=214$

$7n-7=210$

$7n=217$

$$n=31 [1]$$

Require terms 31st terms

8(b)

$$P(3-k) \therefore x = 3, y = -k [1]$$

Line equation: $9x+4y = 3$

$$9 \times 3 + 4x - k = 3 [1]$$

$$27 - 4k = 3$$

$$24 = 4k$$

$$k = 6 [1]$$

8.c)

$$y^2 = xz$$

$$\text{L.H.S} = x^2 - y^2 + z^2 x - 2 - y - 2 - z - 2$$

$$= x^2 - y^2 + z^2 1x^2 - 1y^2 + 1z^2 [1]$$

$$= x^2 - y^2 + z^2 y^2 z^2 - x^2 z^2 + x^2 y^2 x^2 y^2 z^2$$

$$= x^2 - y^2 + z^2 1 \times x^2 y^2 z^2 x^2 z^2 - x^2 z^2 + x^2 y^2 [1]$$

$$= x^2 - y^2 + z^2 (x^2 y^2 z^2)^2 z^2 - (y^2)^2 + x^2 y^2 \text{ Since, } y^2 = xz$$

$$= x^2 - y^2 + z^2 (x^2 y^2 z^2)^2 (x^2 - y^2 + x^2) [1]$$

$$= x^2 z^2 \text{ or, } xz^2$$

$$= (y^2)^2 \therefore [y^2 = xz]$$

$$= y^4 \text{ RHS. } [1]$$

Subject:- History and civics

Marking scheme of History and civics

Attempt all the questions from this Part.

Answer 1

$$1 \times 10 = 10$$

a) -There is dual government

-the union government runs the administration of the entire country and the state government runs the administration of the respective state

-both the governments are independent in their respective spheres

-the subjects are divided

-the subjects of national importance are given to the central government

- Subjects of local importance to the state

- Common subjects are kept in the concurrent list. (any one point)

b) Define quorum.

-the minimum number of members (1/10) required to be present in the Lok Sabha /Rajya Sabha before a meeting is allowed to begin.

- c) - He summons and prorogue parliament and dissolve the Lok Sabha
- Nominates the members of the parliament
 - Prior sanction before introducing certain Bills.
 - To address Parliament
 - Assent to Legislation
 - To issue Ordinance
 - Assent to State Bills. [any one]
- d) In what circumstance does the president nominate two members of the Anglo-Indian community in the Lok Sabha?
- When the Community is not adequately represented.
- e) Under what situation can the tenure of the Lok Sabha be extended?
- When there is national emergency.
- f) Who elects the speaker of the Lok Sabha?
- Members of Lok Sabha
- g) Who is the presiding officer of the Rajya Sabha?
- Vice President
- h) What is the maximum gap allowed between two sessions?
- Six months
- i) How does the Parliament supersede the State legislature, in relation to Concurrent list?
- On a subject in the concurrent list both the parliament and a State Legislature may make a law, but the law of the Parliament supersedes the law of the State Legislature.
- j) What happens if the Prime Minister loses the confidence of the parliament?
- PM will resign along with his entire council of members.

Answer 2

2X10= 10

- (a) Who introduced the doctrine of 'subsidiary alliance'? Name a state brought under British control by this system.
- Lord Richard Wellesley.
 - Hyderabad, Gwalior, Indore, Jodhpur, Jaipur, Awadh.

(b) Name the laws that interfered with the religious customs of the people.

- General service Enlistment Act of 1856
- The religious Incompetence Law (Religious Disabilities Act)
- Widow Remarriage Act, 1856 [Any two]

(c) What was the immediate cause for the revolt of 1857?

-Issue of greased cartridges

-soldiers had to bite the end of the cartridge with their mouth before using it.

-the Cartridges were believed to be greased with the fat of cow or pig.

- Sepoys felt it was an attempt to defile both Hindu and Muslim religions. (1/2 mark each)

(d) What was the General Service Enlistment Act?

-new recruits were required to serve anywhere in India or overseas.

- According to Hindu customs, crossing sea was contrary to their religion.

(e) What was the impact of the defeat of the British in the First Afghan War on the Indian soldiers?

- Enormous waste of money and loss of human lives exposed the British weakness.
- The Indian troops gained confidence to be able to challenge the British in India too, at an opportune time which came in 1857A.D. 1+1

(f) Name the two great Indian leaders who hailed the uprising of 1857.

-Nana Saheb

- Rani Laxmi Bai

- Bahdur Shah Zafar (any 2)

(g) Why was the treaty imposed upon Germany called a 'dictated peace'?

- Unjust, harsh, disgraceful, humiliating, economically crippling and military emasculating.

-It stripped Germany of all its colonial possessions and enacted enormous compensation in the form of War indemnity. 1+1

(h) Name the first and the second international peace –keeping organization set up after the first and the Second World War respectively.

-League of Nations

- United Nations Organizations. 1+1

(i) Name the countries that signed the Rome- Berlin- Tokyo axis.

-Germany (two correct 1.5 marks, three correct 2 marks)

-Italy

-Japan

(j) Name the organs- 'enforcement wing' and 'World Parliament' of UNO.

-Security Council

-General Assembly 1+1

SECTION – A (CIVICS)

(Attempt any two questions from this section.)

Answer 3

In the context of Union Parliament explain the following:

(a) Which house is considered to be more powerful- Lok Sabha or Rajya Sabha? Give reasons.

[3]

-Lok Sabha 1

-Numeric strength

-Directly elected

- Money bill originates here

- Government is formed by the members of Lok Sabha

-in case of a deadlock the will of Lok Sabha prevails(any two points 2 marks)

(b) Explain the composition of the Rajya Sabha. [3]

-Total 250 members

-238 elected members who represent the 29 states and the union territories

-12 members are nominated by the President from various fields of literature, science, arts and social service (one mark each)

(c) Mention two special powers of the Rajya Sabha. [4]

-permanent houses, 1/3 of its members retire every two years

-Under art.249 it can declare a state subject of national importance and empower the union parliament to legislate on it by passing a resolution to this effect by 2/3 majority

-It can establish all India services (any two points...2 marks each)

Answer 4.

With reference to the office of the President, answer the following questions:

(a) State the qualifications required for the post of President. [3]

- must be citizen of India*
- must have completed 35 years of age*
- must be qualified for election as a member of the Lok Sabha*
- must not hold any office of profit (any three points)*

(b)How is the President elected? Mention the term of office. [3]

- The joint body of elected MPs and MLAs elect the President*
- indirectly elected*
- single transferable vote (any two points 2 marks)*

Term – 5 years- 1 mark

(c) Explain the impeachment procedure of the President [4]

- the resolution may be moved in either house of the Parliament*
- notice of 14 days is given*
- charges must be supported by $\frac{1}{4}$ th of the total members*
- Resolution must be passed by a 2/3rd majority*
- The charges are investigated by the other house*
- The President can appear in person or through a counsel to defend himself*
- If the charges are approved by 2/3rd majority, the President is removed from his/her office (all points- 4 marks)*

Answer5.

The makers of our Constitution adopted the Parliamentary and the Cabinet form of Government. With Reference to this, answer the following questions:

(a)What is meant by Collective Responsibility of the members of the Cabinet? [3]

- The council of ministers is jointly responsible to the Lok Sabha*
- they defend a decision inside and outside the Parliament*
- if a vote of no confidence is passed then the whole ministry has to resign*

(b) State the position of the Prime Minister in a Parliamentary Democracy. State any two of his powers in relation to the President. [3]

- advices the President to summon prorogue the parliament and to dissolve the Lok Sabha*

- He is the leader of the Lok Sabha
- he gives the concluding speech on all debates and discussion
- He defends his government
- If any ugly situation arises in any house the matter ends with the intervention of the P.M
- The appointment of judges of Supreme Court, the Governors and ambassadors or removal.
- The P.M is only line of communication between the Cabinet and the President
- conveys cabinet decision to the President
- The President cannot dismiss the P.M as long as he enjoys the support of the majority

[Any three points 1 mark each]

(c) Distinguish between the Cabinet and the Council of Ministers. [4]

The council of ministers The cabinet

It consists of all the four ranks of ministers. It is a small group which generally consists of senior ministers holding cabinet ranks and important portfolio.

It is a large body. It meets occasionally It is smaller which meets regularly to determine the policy.

PM may not take the advice of council of ministers for urgent decision. The members are consulted by the PM on every important issue.

Two points on each side....

SECTION – B (HISTORY)

(Attempt any three questions from this section)

Answer 6

The most important cause of discontentment among the Indians was the economic exploitation of India by British. It became a huge cause for the Revolt of 1857. In this context, explain the following.

(a) Confiscation of estates. [3]

-inam commission was appointed in 1852

- The owners of landed states were to show the papers, documents as proof of their ownership
- Many could not produce these documents; the company's government confiscated about 20,000 landed estates of talukdars
- Lord Bentinck's resumption of rent-free tenures reduced the owners to poverty any 3 points

(b) *Inhuman treatment of indigo cultivators.* [3]

-A new plantation system introduced in 1833 brought incalculable misery for the Indian peasants.

-Indigo was required by cloth manufacturers, to dye cloth. As the indigo trade grew, commercial agents and officials of the Company began investing in indigo production.

- They forced the peasants to produce only indigo.

-Most of the cultivators were in a debt trap.

-Peasants were initially tempted by the loans soon they realized how harsh the system was.

-the price they got for the indigo they produced was very low and they cycle of loans never ended. [Any three points]

(c) *Poor condition of peasantry.* [4]

- Through the Permanent Settlement of 1793 A.D. introduced in Bengal. Bihar and Orissa, The Zamindar was supposed to collect the land revenue.

-He was authorized to eject a peasant for the non- payment of revenue.

-In the South, the British revenue collectors were even more harsh towards the peasants.

- They claimed more than half the produce as land revenue.

-The poor cultivator was forced to borrow money from the landlord or money lender at a heavy rate of interest.

-The peasants held the British responsible for their poverty in India.

- The famine of 1837-38 made the people desert their village.

[Any four points]

Answer 7

Lord Dalhousie greatly extended the boundaries of the British Indian empire by introducing various policies. In this regard answer the following questions.

(a) *What is meant by the Doctrine of Lapse?* [3]

-According to the Doctrine, if an Indian ruler of a dependent State did not have his real son to succeed him, he was not allowed to adopt a successor without the Company's consent.

-In this case, the State in question was annexed.

- Heir adopted without the consent of the company could neither inherit the throne nor the title.

-They could inherit only the private property of the deceased ruler.

-By this Doctrine Governor of India annexed three Maratha dependent states of Satara, Nagpur and Jhansi.

[Any three points]

(b) Annexation of Awadh.

[3]

-Awadh was a protected feudatory State with control over internal administration only. On February 13, 1856 Lord Dalhousie annexed Awadh on the pretext of maladministration by Nawab Wajid Ali Shah who was sent to Calcutta on a pension of Rs. 12 lakh per annum.

- Consequently, a number of talukdars or nobles, officials and the soldiers were deprived of their status, and rendered jobless.

-Dalhousie's annexation of Awadh to the British Empire was illegal and the people of Awadh were very displeased with the British.

2+1/2+1/2

(c) Ill-treatment to Mughal emperor.

[4]

-Lord Dalhousie declared that after the death of Bahadur Shah Zaffar, the Emperor and his successors would have to leave the royal palace i.e. The Red Fort.

-Later, Lord Canning, the next Governor General announced in 1856 A.D that Bahadur Shah's successors would not be allowed even to use the title of a 'King'. 2+2

Answer 8

With reference to the formation of UNO answer the following questions:

(a) What are the objectives of UNO

[3]

-To save succeeding generations from the scourge of war

-To develop faith in fundamental human rights and the dignity and worth of human beings.

-To develop conditions under which justice and respect for International law and treaties can be maintained.

- To promote social progress and better standards of life and more freedom

- Disarm, decolonize and develop

[Any three points]

(b) Name the major organs of UNO

[3]

-The General Assembly

-The Security Council

-International Court of Justice

(c) Give the expanded form of UNICEF, WHO and UNESCO.

[4]

- *United Nations International Children's Emergency Fund*
- *World Health Organization*
- *United Nations Educational, Scientific and Cultural Organization*

[One correct- 02 marks. Two correct- 03 marks. Three correct- 04 marks]

Answer 9.

With reference to the

First World War, explain:

(a) *Nationalism.*

[3]

-Patriotism, love for one's nation meant hatred towards the other nations.

-Each nation thought about her own interests.

-Competitive, aggressive, taking the shape of chauvinism.

(b) *Division of Europe*

[3]

-Europe was divided into two hostile camps at the dawn of the 20th century. The major European nations were divided into Blocs.

- Britain, France and Russia had formed the Triple Entente in 1907.

-Germany, Austria- Hungary and Italy had formed Triple Alliance in 1882.

- They had made treaties of mutual help to each other in case of a war with the opponents.

-Tension prevailed in their relations with each other, bloc-wise.

[Any three points](c)

The

immediate cause.

[4]

-The Sarajevo incident- In June 1914, the Archduke Franz Ferdinand, the Heir-apparent to the throne of Austria went on an official visit to Sarajevo, the Capital of Bosnia. There on June 28.1914 he and his wife were shot dead.

-The assassin, Gavrilo Princep was a nineteen-year-old Bosnian.

-This dual murder had been planned in Serbia by a secret society of patriotic terrorists called the "Black Hand".

- The Austrians blamed the Serbian for this crime, as the assassin and the fellow conspirators had received their guns and bombs in the Siberian capital with the help of Serbian officials.

- Austria made 11 demands and sent a stiff ultimatum to Serbia to apprehend the criminals and hand over them over to the Austrian government.

- Austria also sought a ban on anti-Austrian publication, anti-Austrian meetings and institutions in Serbia. (first four points 4 marks....)

Answer 10

With reference to the Second World War, explain the following:

(a) The failure of the League of Nations. [3]

-It failed to check the rise of dictatorships in Italy and Germany.

-when the weaker nations appealed the League could not apply economic sanctions against the aggressors.

-It lacked its own armed force.

- U.S.A. did not become its members.

- Its decision-making process was very slow.

[Any three points](b) Rise of Fascism and Nazism. [3]

-Rise of fascism in Italy under Mussolini and Nazism in Germany under Hitler was one of the major factors responsible for the Second World War.

- Both followed aggressive nationalism and imperialistic policies.

- Both believed in the principles of expansion.

-In 1936 Italy attacked and acquired territories of Ethiopia.

- Hitler attacked Austria, Denmark, Czechoslovakia, Norway, etc.

- In 1937 Italy, Japan and Germany formed Rome-Berlin and Tokyo axis.

[Any three points]

(c) Give reasons why Hitler invaded Poland? [4]

- Danzig Corridor was a part of Germany before the Treaty of Versailles which was given to Poland.

- It had cut off East Prussia from the rest of Germany (to connect Prussia with Germany)

- Due to isolation, the Germans living in East Prussia were being slaughtered by the Polish Jews.

- The corridor was creating a number of obstacles for the German traders.

(all four points)

Subject:- GEOGRAPHY

MARKING SCHEME of Geography

PART I (30 marks)

Question 1

- a) **Mention one physical and one chemical characteristic of Laterite soil.**

[2]

Physical- Coarse in texture; Friable; Doesn't retain moisture; Red in colour (any one)

(1)

Chemical- Poor in nitrogen and lime; Acidic in nature (any one) (1)

- b) **State two methods of controlling the erosion of soil caused by running water.**

[2]

Terrace farming; contour bunds; afforestation; reforestation; contour ploughing (any two)

(1 mark each)

- c) **What are tidal forests? Name two typical trees found there.**

[2]

Forests found in tidal or delta areas. They have stilted roots.

(1)

Trees- sundari, gorjan, hintal (any two) (1 mark for writing both the names, ½ for writing one)

- d) i) **Name two hills in peninsular india where mountain vegetation is found.**

Nilgiris, Western ghats (1 mark for writing both the names, ½ for writing one)

- ii) **State one way in which kitchen waste can be put to good use.**

[2]

Kitchen wastes like vegetable peels and food residue, when decomposed under aerobic condition, get converted into a safe, clean, soil-like substance called compost. It is an excellent organic fertilizer.

(1)

- e) **What are the advantages of rain water harvesting? Mention any two water harvesting systems practiced in India.**

[2]

Reduces surface run off, reduces soil erosion, avoids flooding of roads, increases underground water table, improves quality of water, reduces ground water pollution (any two) (½ for each)

Borewell; recharge pits; percolation pits; johad; potholes; groundwater dams (any two) (½ for each)

f) Why are inundation canals being converted into perennial canals?

[2]

Provides water only when river is flooded. So that it can provide water throughout the year, without any regulatory system. (2 marks for both the things to be mentioned)

g) What grade of iron ore is mostly mined in India? Mention two leading iron ore producing states.

[2]

Haematite.

(1)

Odisha, Jharkhand, Chattisgarh (any two)

(½ for each)

h) i) What is an ore?

Rocks containing metallic minerals in concentrated form.

(1)

ii) What are ferrous minerals? Give an example.

[2]

Which have iron content.

(½)

Iron or Manganese (any one)

(½)

i) Give two reasons why plastic and polythene products must be banned.

[2]

Plastic and polythene products are non- biodegradable. They do not decompose naturally and therefore causes pollution; Can cause soil degradation; Kills animals as they choke; Litters the landscape.(any two)

(1 mark each)

j) i) Give one reason for the decline of inland waterways.

Silting of river bed; diversion of water for irrigation; insufficient water in rivers; presence of waterfalls and sharp bends.(any one)

(1)

ii) Mention two problems of the Kolkata port.

[2]

Problems of silting, sharp bends and tidal bores. (any two) (1 mark for writing both, ½ for one)

Question 2

On the outline map of India, mark and name the following:

[10]

a) Shade and label the Gulf of Mannar.

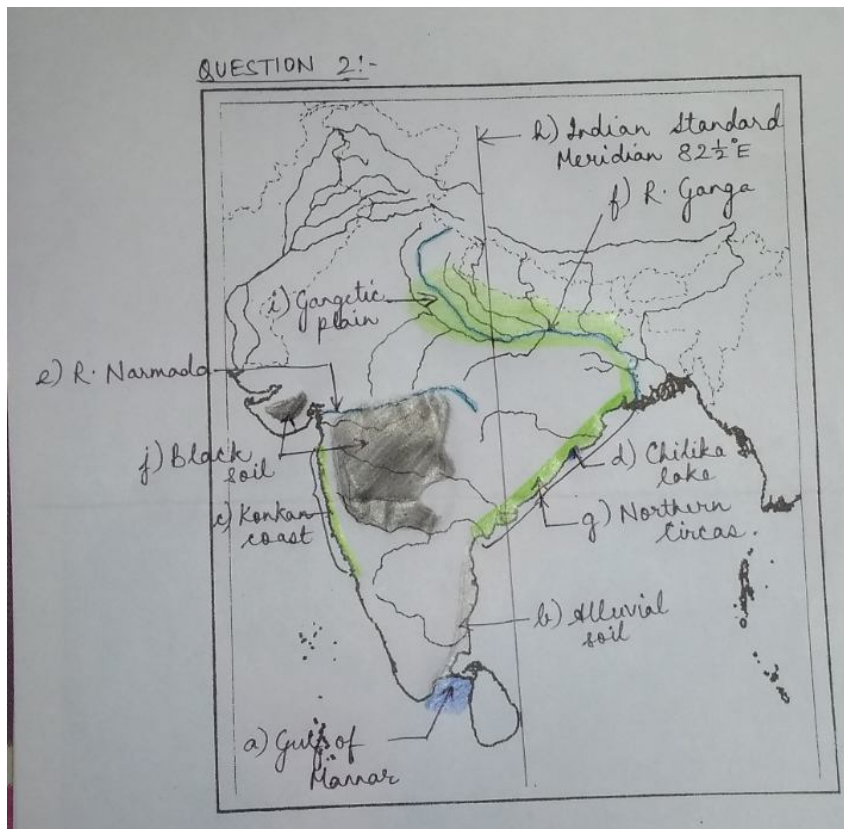
b) Shade and label an area of alluvial soil in peninsular India.

c) Mark and label the Konkan coast.

d) Shade and name Chilika lake.

e) Shade and label Narmada river.

- f) Shade and label River Ganga.
- g) Shade and label the Northern Circars.
- h) Draw, name and number the Standard Meridian.
- i) Mark and name the Gangetic Plains.
- j) Shade and label an area with Black soil. (1 mark each for both marking and naming. If only marking is done and no naming or if only naming is done but no marking then no marks.)



PART II (50 marks)

Question 3

- a) State the differences between the lower course alluvial soil and upper course alluvial soil. [2]

Lower course:

New soil found in lower beds; replenished by flood and hence fertile; non-porous.

Upper course:

Old soil found about 30m above flood level; less fertile; porous. (any two points of difference. The points given for difference must be on a particular point otherwise no marks) (2)

- b) Name two states in India where Regur soil is found. In what way does Regur soil help in agriculture?**

[2]

*States- Gujarat, Maharashtra.
(for each)*

(½)

As it is moisture retentive.

(1)

- c) Give geographical reasons for the following:**

[3]

- i. Laterite soil is not suitable for cultivation.**

High content of acidity; inability to retain moisture (any one)

(1)

- ii. Black soil is suitable for the growth of cotton.**

Has the ability to retain moisture.

(1)

- iii. Reforestation should be practised extensively.**

So that the roots of trees can hold on to the soil and help in soil conservation.

(1)

- d) How is red soil formed? What are its disadvantages?**

[3]

Red soil have been formed by the disintegration and weathering of crystalline and metamorphic rocks.

(1)

Disadvantages:

Coarse grained; cannot retain moisture; acidic in nature; lacks humus; deficient in nitrogen, lime and phosphoric acid (any two)

(2)

Question 4

- a) Explain two reasons for forests being an important natural resource.**

[2]

Provides variety of forest products; prevents soil erosion and floods; biodiversity hotspots; regulating temperature. (any two)

(2)

- b) Explain how trees in the tropical desert forests adapt themselves to the dry climate?**

[2]

Long roots to absorb underground water; leaves developed into spines to reduce the rate of transpiration and protect themselves from animals; spongy barks to store water (any two)

(2)

- c) Name the type of forests found in the Western Ghats. Give two reasons why these forests are so called.**

[3]

Tropical evergreen forests.

(1)

These trees do not have a fixed time to shed their leaves;

(1)

Found in tropical areas with heavy rainfall.

(1)

- d) Name any three trees found in monsoon deciduous forests and state one use of each of these trees.

[3]

Sal	Railway sleepers/house construction
Teak	Shipbuilding; furniture making; house construction
Sandalwood	Handicraft; oil for perfumery
Semal	Packing cases; matchboxes; toys
Myrobalan	Tanning leather; dyeing cotton

(any three. $\frac{1}{2}$ for name and $\frac{1}{2}$ for use)

(3)

Question 5

- a) "Without irrigation, development of agriculture is difficult in India." Clarify the statement by giving two reasons.

[2]

Irrigation is important because:

Rainfall is unevenly distributed.

It is seasonal and uncertain.

Some crops require more water and rainfall is not sufficient to meet the requirements.

Multi cropping can be done for the growing population. (any two)

(2)

- b) Which state is the leading producer of manganese in India? Name two important industrial uses of manganese.

[2]

Odisha

(1)

Used in iron and steel industry for strengthening steel; Manufacturing paints and glasses; chemical industry for manufacturing bleaching powder; dry cell battery (any two) ($\frac{1}{2}$ for each)

- c) Give a reason for each of the following:

[3]

- i. Tube well irrigation is well developed in Punjab.

High water table; soft soil, easy to dig and install tubewells; it is a fertile and productive region so that the cost of construction and operation may be recovered.

(1)

- ii. Tank irrigation is an important method of irrigation in Karnataka.

In Karnataka the topography is uneven and natural depressions are there where water gets collected;

Underlying layers are hard and impermeable which do not allow the collected water to percolate through. (any one)

(1)

iii. Although expensive, yet, sprinkler irrigation is gaining popularity in recent times.

It is water conserving method of irrigation; water sprayed uniformly and suitable for all types of soil. (any one)

(1)

d) State the importance of copper in the steel industry. State two properties of copper.

[3]

Alloyed with iron and nickel to give stainless steel.

(1)

Ductile; good conductor of heat and electricity; has resistance to corrosion. (any two)

(2)

Question 6

a) Give one disadvantage of air transport. Give two reasons why is it still a popular means of transportation in India?

[2]

Limited carrying capacity; expensive; hampered by weather condition. (any one)

(1)

Reaches inaccessible and remote areas; free from physical barriers; fastest mode. (any two)

($\frac{1}{2}$ for

each)

b) Explain why there is lack of rail transport in north eastern India.

[2]

Rugged topography; large no. of rivers requires construction of bridges which is expensive. (2)

c) What is the Golden Quadrilateral? Mention any two ways in which it will help in the economic development of the country?

[3]

Golden quadrilateral is the largest express highway connecting Delhi, Mumbai, Chennai and Kolkata.

(1)

Helps in the industrial development of all small towns through which it passes; interconnects major cities and ports; opportunity for agricultural produce; job facilities (any two) (2)

d) i) State one important difference between an expressway and a highway.

Expressways are national highways with four or six lanes that enable speedy movement between two metropolitan cities. Highways connect two or more states and are of national importance. (1)

ii) Name the first expressway constructed in the country.

Mumbai- Pune Expressway

(1)

iii) State a reason why the northern rivers are more suitable for navigation than the Deccan rivers.

[3]

They are perennial; almost flat topography. (any one)

(1)

Question 7

a) "Waste segregation is important." Give a reason to support your answer.

[2]

As it helps in waste management. In separating biodegradable and non – biodegradable waste where biodegradable can be used as compost and non – biodegradable can be reused and recycled.

(2)

b) Mention two reasons for the need of waste management.

[2]

Waste if not managed properly spoils the beauty of the land and causes serious damage to the environment (pollution);

It helps in preventing diseases. Waste provides breeding ground for all sorts of insects, flies and mosquitoes;

Conserves the finite resources by helping us in reusing and recycling products.(any two)

(2)

c) Define the following terms:

[3]

i. **Composting**

In this solid, organic waste is decomposed under aerobic conditions. The bacteria breaks down the waste into clean substance called compost which is used as a good fertilizer.(1)

ii. **Open dumping**

Waste is dumped in open pits on the outskirts of the cities.

(1)

iii. **Recycling**

Discarded articles made from glass,tin,metals,rubber and paper can be sent to the factories where the waste is treated and then made a new product.it helps conserve our limited resources.

(1)

d) Explain the significance of the three R's giving one suitable example of each.

[3]

Significance and one example:

- Reduce wasteful means of production of goods as well as their consumption. We should not waste water; must close tap when not in use; segregation also reduces waste.
- Reuse of products.We can use discarded products instead of throwing them away. Old pair of jeans can be cut and stitched into bags.

- Recycling- certain products can be processed in factories and made into new useful products.

Bagasse from sugar industry can be used as a raw material in paper industry. This would help conserve softwood trees

Subject:-physics

Marking scheme of physics

Section A(40 marks)

Question 01(5 × 2 = 10)

a) On what factor does the position of the centre of gravity of a body depend?

Ans:-The position of centre of gravity of a body depends upon (i) its shape (ii) distribution of mass within the body.-----(1+1)m

b) i) Define moment of couple. Write its S.I. unit.

Ans:-Two equal and opposite forces acting on a rigid body, such that they act along different lines of force constitutes a couple.-----1m S.I. unit Nm-----1m

c) State the energy changes in (i) Respiration (ii) Steam engine

Ans:(i) chemical energy to heat energy----- 1m (ii) heat energy to mechanical energy -----1m

d) Calculate the change in kinetic energy of a moving body, if its velocity is reduced to $\frac{1}{3}$ of the initial velocity.

Solution $K_1 = \frac{1}{2}mv^2$; $K_2 = \frac{1}{2}m\left(\frac{v}{3}\right)^2$; ----- 1m (both correct)

$K_2 - K_1 = \frac{1}{2}m\left(\frac{v^2}{9} - \frac{1}{2}mv^2\right)$; = 4/18 of initial velocity----- (1m)

e) Derive a relationship between S.I. and C.G.S. unit of work.

Ans S.I. unit joule and c.g.s unit erg----- (both correct 1m)

1J = 1 kg m²/s² = (1000g × 100cm × 100cm)/s = 10⁷ erg-----1m

Question 02(5×2=10)

a) A type of single pulley is very often used as a machine, even though it does not give any gain in mechanical advantage. (i) Name the type of pulley used. (ii) For what purpose is such a pulley used?

Ans-(i)Single fixed pulley ----1m (ii)It helps in changing the direction of applying efforts-----
-----1m

b)What is meant by the term critical angle? How is it related to the refractive index of the medium?

Definition -----1m, refractive index= $\frac{1}{\sin C}$ -----1m

c)State the conditions required for the total internal reflection of light to take place.

(i)the ray of light must travel from rarer to denser medium-----1m

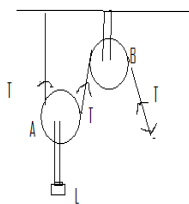
(ii)the angle of incidence in denser medium should be more than the critical angle of denser medium-----1m

d)An object AB is placed between f_1 and $2f_1$ on the principle axis of a convex lens .Using three rays from point A, obtain the image of the object formed by the lens.

Ans:-Correctly drawn image with three rays -----1m

All arrows correctly marked -----1m,

e)from the diagram, answer the questions.



a

i)State the purpose of pulley B

ii)What effort has to be applied at C to just raise a load $L=20 \text{ kgf}$?(direction of load is downward)

Ans(i) to change the direction-----1m (ii) $M.A=2$ so, $E=10 \text{ kgf}$ at effort point-----
1m

Question 3 (5×2=10)

a)State the position of the object in front of a converging lens if :

(i)It produces a real and same size image of the object

(ii)it is used as a magnifying lens

Ans(i) Object is at the centre of curvature -----1m , (ii) when the object is in between focus and optical centre.

b) i) Name the prism required for obtaining spectrum of ultraviolet light. ii) Name the radiation which can be detected by a thermopile.

Ans(i) Quartz prism -----1m (ii) infrared radiation-----1m

c) The Speed of light is 2×10^5 km/s .What is the refractive index of glass?

$$\text{Refractive index} = \frac{\text{speed of light in air}}{\text{speed of light in glass}} = \frac{3 \times 10^5 \text{ km/s}}{2 \times 10^5 \text{ km/s}} = 1.5$$

----- (1m) ans----- (1m)

d) Name the constituent colour of white light for which :- (i) the deviation produced by the glass prism is least (ii) the refractive index of glass is maximum.

(i) red -----1m (ii) violet

e) How does the angle of minimum deviation produced by a prism change with increase in (i) the wavelength of incident ray and (ii) refracting angle of prism?

Ans: (i) decreases -----1m (ii) increases-----1m

Question 4(5×2=10)

a) Light of a single colour is passed through a liquid having a piece of glass suspended in it .On changing the temperature of liquid, at a particular temperature the glass piece is not seen.(i) When is the glass piece not seen?(ii) why is the light of a single colour used?

Ans(i) when refractive index of liquid becomes equal to refractive index of glass-----1m(ii) refractive index is different for the light of different colours .

b) A light mass and a heavy mass have equal momentum. Which will have more kinetic energy? Give reason.

Ans more is mass ,more is the k.e-----1m, $p=mv$, v is constant-----1m

c) Write the S.I. unit of power and define it?

Ans(i) watt-----1m(ii) Definition-----1m

d) A coin is placed at the bottom of a beaker appears raised by 4.0 cm. If the refractive index of water is $\frac{4}{3}$, find the depth of the water in the beaker.

Ans:- Let the real depth of water = x , Apparent depth = $(x-4)$ cm, refractive index $\rightarrow \frac{4}{3} = \frac{x}{x-4}$ —
— 1m or

$$4x - 16 = 3x \text{ or } x = 16 \text{ cm} \text{ -----1m}$$

e) A uniform half metre rule balances horizontally on a knife edge at 29 cm mark when a weight of 20 gf is suspended from one end. What is the weight of the half metre rule .0

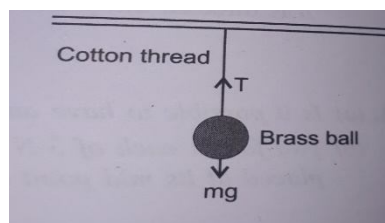
Solution $20 \times 21 = W \times 4$ -----1m

$W = 105 \text{ gf}$ -----1m

Question 5(3+3+4=10)

a)(i) A brass ball is hanging from a stiff cotton thread. Draw a neat labelled diagram showing the forces acting on

the brass ball and cotton thread?



(ii) Why is a jack screw provided with a long arm?

Ans (i) diagram with arrows -----2m (no arrows -1) (ii) for applying less efforts-----1m

b) A uniform metre scale of weight 50gf, is balanced at 60 cm mark, when a weight of 15 gf is suspended at the 10 cm marks. Where must a weight 100 gf be suspended to balance the metre scale?

Ans $15 \text{ gf} \times 50 \text{ cm} + 50 \text{ gf} \times 10 \text{ cm} = 100 \text{ gf} (x - 60 \text{ cm})$ -----1m

$100 \times x = 7250 \text{ gfcms}$ -----1m

$x = 72.50 \text{ cm}$ -----1m

c) A boy of mass 55kg runs up a flight of 40 stairs, each measuring 0.15 m in 15 s. Calculate

i) Work done by the boy ii) Gain of potential energy by the boy iii) power in kilowatt and horsepower.

Solution (i) $W = f \times s = mgs = 55 \times 10 \times 40 \times 0.15$ -----1m $= 3300 \text{ J}$ -----
 1m; $p = \frac{w}{t} = \frac{3300}{15} = 220 \text{ w}$ -----1m; power in h. p. $= \frac{220}{750} = 0.29 \text{ H. P.}$ -----1m

Question 06(3+3+4=10)

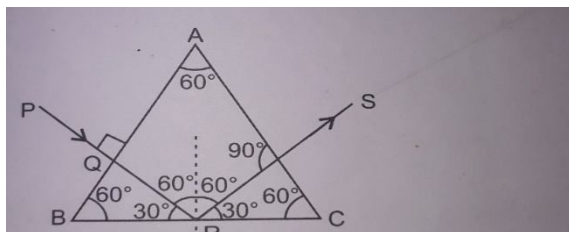
a) Calculate the horse power of an engine, which lifts 4000 m^3 of water from a depth of 50 m in 40 minutes

$$\text{Mass of water} = V \times D = 4000 \times 1000 = 4000000 \text{ kg} \text{ --- 1m;}$$

$$\text{Work done in lifting} = mgh = 4 \times 10^6 \times 10 \times 50 = 2 \times 10^9 \text{ J} \text{ --- 1m}$$

$$\text{Solution Power in H.p.} = \frac{1 \times 10^9}{1200 \times 750} = 1111.1 \text{ H.P.}$$

b) Copy the diagram given above and complete the path of ray till it emerges out of Prism. The critical angle of glass is 42° . In your diagram mark the angles wherever necessary. Fig.



all

Ans:- All the refraction ----- 1m; all the angle of incidence ----- 1m; full correct ----- 1m

c) A block and tackle has two pulleys in each block, with the tackle tied to the hook of the lower block and the effort being applied upwards. (i) Draw a neat diagram to show this arrangement and calculate its mechanical advantage. (ii) If the load moves up a distance x , by what distance will the free end of the string move up?

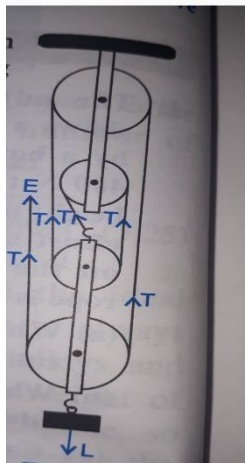


Diagram correctly drawn ----- 3m (no T is marked upward or effort is not marked upward then ----- (-1)) Strings should be straight (ii) the string move up by a distance $5x$

Question 07(3+3+4=10)

a) i) If the lens is placed in water instead of air, how does its focal length change?

ii) Which lens, thick or thin has greater focal length?

iii) Why is the ratio of the velocities of wavelength $4000 \text{ \AA}$ and $8000 \text{ \AA}$ in vacuum is 1:1?

Ans(i)increases (ii)thin lens (iii)Light has constant speed for all wavelength.

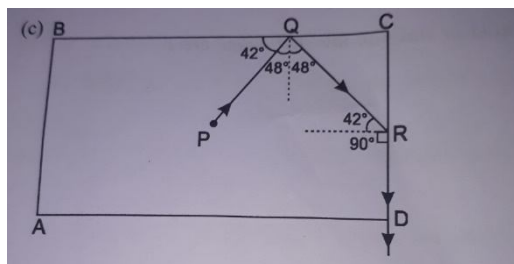
b)Two bodies A and B have masses in the ratio 5:1 and their kinetic energies in the ratio 125:9.Find the ratio of their velocities?

Solution:- $\frac{\frac{1}{2} \times 5m \times v_1^2}{\frac{1}{2} \times m \times v_2^2} = \frac{125}{9}$ ----- 1m;

$V_1/V_2 = 125/45 = 25/9$ -----1m

$V_1 / V_2 = 5/3$ -----1m

c) The diagram below shows a light source p embedded in a rectangular glass block ABCD of critical angle 42° .Complete the path of the ray PQ till it emerges out of the block (write necessary angle)



All rays correctly drawn-----1m; all angle of incidence marked-----1m;(no arrow or no angles are marked then -1)

Question 08(3+3+4=10)

a)i)Name the force required for circular motion.

ii)State its direction

iii)What is the position of centre of gravity of a cylinder?

(i)centripetal (ii)inward (iii)mid point on the axis of cylinder

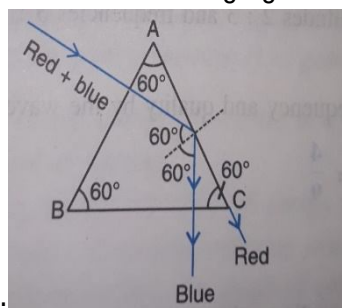
b)In a dam, water falls at a rate of 1000 kgs^{-1} from a height of 100m.(i) Calculate the initial potential energy of the water.(ii)Assuming that 60% of the energy of the falling water is converted to electrical energy, calculate the power generated (take $g=9.8 \text{ ms}^{-2}$)

Solution=(i) $mgh = 1000 \times 9.8 \times 100 = 9.8 \times 10^5 \text{ J}$ ----- 1m

Energy available= $60/100 \times mgh = 0.6mgh$ ----- 1m; power generated = $5.88 \times 10^5 \text{ W}$ ----- 1m

c)The diagram alongside shows a beam of light (red +blue)incident normally on an equilateral triangular Prism. If the critical angle for the material of prism is 60° for the light of red colour

,complete the diagram showing the path of light of each colour emerging out of the prism.



Mark in the diagram the angles wherever necessary.

Ans:-Red light emerges out from side AB having angle of refraction =90 degree -----2m

Blue comes out from the surface BC----- 2m(all the incidence angles should be marked)-----2m(if missing then -1)

Subject: - Chemistry

Marking scheme of chemistry

Question1

a) 1 mark each

- i. Calcium Nitrate
- ii. Redox reaction.
- iii. Hydrogen gas
- iv. Upward displacement of air
- v. Ionisation

(b) 1 mark each. No marks to be given for examples.

- i) Alkali
- ii) Strong Electrolyte
- iii) Cathode
- iv) Acid salt
- v) Amphoteric oxide

(c) 1mark each

i) Hydrogen ion is below sodium ion in the electrochemical series so it is easily discharged at cathode. It accepts

electron more easily than sodium ion. **If only the underlined statement is written, then also marks to be given.**

ii) decrease in the concentration of Copper ion/ Cu^{2+} .

iii) Absence of free/mobile ions.

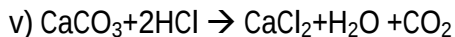
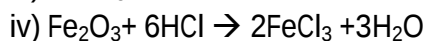
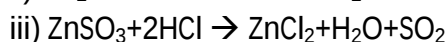
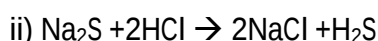
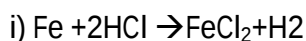
iv) ionises by liberating one hydronium ion/it releases one hydronium ion per molecule in its aqueous solution.

v) Graphite does not react /combine with bromine vapours.

(d) 1. 1mark each

- i) Hydronium ions/ OH^-
- ii) Acid salt
- iii) Dibasic.
- iv) Ammonium hydroxide/ NH_4OH
- (d) 2. Negative logarithm to the base 10 of the hydrogen ion concentration expressed in moles per litre. [1 mark to be given only if the above definition is written.]

(e) 1 mark each for complete balanced equation. [No marks to be given for unbalanced equation.]



(f) 1 mark each [1/2 marks for correct formula and ½ marks for mention of solubility in excess]

i) $\text{Zn}(\text{OH})_2$ slouble

ii) $\text{Pb}(\text{OH})_2$ insoluble

iii) $\text{Fe}(\text{OH})_2$ insoluble

iv) $\text{Fe}(\text{OH})_3$ insoluble

v) $\text{Cu}(\text{OH})_2$ soluble

(g) 1. 1 mark each

i) ions.

ii) ions as well as molecules. [both to be mentioned]

iii) molecules.

(g) 2. 1 mark each.

i) Copper/ Silver/ Nickel

ii) Platinum/ graphite.

(h) 1 mark each

i) Strong electrolyte.

ii) Weak electrolyte.

iii) Non electrolyte.

iv) Strong electrolyte.

v) Strong electrolyte.

SECTION II

Question 2

- (a) 1 mark each if only the correct option as mentioned below is written. No marks to be given for any other option not given in the bracket.

i) low

ii) moist blue litmus

iii) $\text{Cu}(\text{OH})_2$

(b) 1 mark each

i) greater than 7

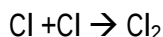
ii) solution R

iii) Anode

(c) i) $\text{Cl}^- - \text{e}^- \rightarrow \text{Cl}$

Oxidation [1 mark for complete ionic conversion] and

1 mark for



oxidation. ii) $\text{Pb}^{2+} + 2\text{e}^- \rightarrow \text{Pb}$

Reduction

[1+1]

Question 3

(a)

i) Conc. Sulphuric acid. It is non volatile.

[1+1] presence of conc.

is essential.

ii) $\text{NaCl} + \text{conc. H}_2\text{SO}_4 \rightarrow \text{NaHSO}_4 + \text{HCl}$ [temperature below 200°C]. [1

mark. Mention of conc. and temp. is essential in the balanced equation.

iii) Conc. Sulphuric acid.

[1mark]. If conc. not mentioned

then no

marks to be given.

(b) 1 mark each

i) Back suction occurs.

ii) Inverted funnel arrangement.

iii) An empty flask is placed between generative flask and water trough so that if any back suction occurs, water does not reach the generative flask.

(c)

i) Highly soluble in water. [1 mark]

ii) Red. [1 mark]

iii) With sodium sulphite, a colourless gas with a smell of burning sulphur/turns turns orange acidified potassium dichromate paper green. With Sodium carbonate, a colourless gas with effervescence turns lime water milky, but no effect on orange acidified potassium dichromate paper. [1 mark only if the observations are written for both cases.] No marks for just naming the gas evolved.

Question 4

(a) 1 mark each

i) Zinc

ii) $\text{Zn}(\text{OH})_2$

iii) colourless

(b) 1 mark each [Formula not accepted]

i) Ammonium chloride/ ammonium sulphate/ ammonium nitrate/ ammonium carbonate . ii)

Aluminium

iii) Hydrochloric acid.

(c) 1 mark each

i) Ferrous ion Dirty green

ii) Zinc ion - White soluble in excess.

iii) Ferric ion – Reddish brown

iv Calcium ion – White sparingly soluble in excess

Question 5

(a) [1+1+1] 1 mark if only both the reactions at cathode and anode are written.

i) cathode: $4\text{H}^+ + 4\text{e}^- \rightarrow 4\text{H}$

$4\text{H} \rightarrow 2\text{H}_2$

Anode: $4\text{OH}^- - 4\text{e}^- \rightarrow 4\text{OH}$

$4\text{OH}^- \rightarrow 2\text{H}_2\text{O} + \text{O}_2$

ii) cathode: $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$

Anode: $\text{Cu} - 2\text{e}^- \rightarrow \text{Cu}^{2+}$

iii) Cathode: $\text{Pb}^{2+} + 2\text{e}^- \rightarrow \text{Pb}$

Anode: $2\text{Br}^- - 2\text{e}^- \rightarrow 2\text{Br}$

$2\text{Br} \rightarrow \text{Br}_2$

(b) Ammonia. Gives dense white fumes with a glass rod dipped in conc. HCl.

[1+1] No marks for writing the formula of ammonia.

(c) 1 mark each. [For part i) and part ii) reasons for both sides have to be mentioned.]

i) Dil. HCl contains one replaceable hydrogen atoms. Carbonic acid contains two replaceable hydrogen atoms.

ii) Dil. HCl ionises completely in solution whereas Acetic acid ionises partially.

iii) A white ppt. is formed which acts as a coating and stops the further reaction.

iv) In phosphoric acid the two hydrogen atoms bonded to oxygen atoms are only replaceable.

v) It ionises in solution to release hydronium ions/ or it releases hydronium ions in solution.

Question 6

- (a) **1 mark each**
- i) A colourless gas with effervescence extinguishes a burning splinter with a pop sound.
 - ii) A colourless gas with brisk effervescence turns lime water milky but no effect on orange acidified potassium dichromate paper.
 - iii) A colourless gas with a pungent smell of rotten eggs/turns lead acetate paper black.
 - iv) A colourless gas with a smell of burning sulphur/turns orange acidified potassium dichromate paper green.
- (b) **1 mark each only if the difference is made clear from both sides as mentioned below.**
- i) conduction in copper metal is due to presence of free electron, conduction in copper sulphate solution due to presence of free/mobile ions.
 - ii) With NaOH a pale blue ppt. insoluble in excess of NaOH solution.
With NH_4OH a pale blue ppt. soluble in excess of NH_4OH forming a deep blue /royal blue/azure blue solution.
- (c)
- i) $\text{AgNO}_3 + \text{HCl} \rightarrow \text{AgCl} + \text{HNO}_3$ **[1 mark for balanced equation only]**
 $\text{Pb}(\text{NO}_3)_2 + 2\text{HCl} \rightarrow \text{PbCl}_2 + 2\text{HNO}_3$ **[1 mark for balanced equation]**
 - ii) A colourless solution observed. **[1 mark]**
 $2\text{Al} + 2\text{NaOH} + 2\text{H}_2\text{O} \rightarrow 2\text{NaAlO}_2 + 3\text{H}_2$ **[1 mark for balanced equation.]**

Question 7

1 mark each:

- i) Dilute sulphuric acid helps water to ionise and make it conducting.
 - ii) Cathode increases in mass. Anode diminishes/decreases in mass.
 - iii) A white ppt. which dissolves/ in hot water. **[presence of white ppt. and dissolves in hot water is essential] No marks if either of them is missing.**
- (b) **1 mark each.**

- i) Bromine vapours.
- ii) Nil.
- iii) Oxygen gas.

(c)

- i) When two or more ions of the same charge are present in a solution of an electrolyte, and are competing to be discharged at the same electrode, one of them gets preferentially discharged. Cu^{2+}

[1+1]

- ii) Thick white fumes formed due to the formation of Ammonium chloride/ NH_4Cl **[1]**

ii) Cupric Oxide/ Copper (II)Oxide.[Formula not accepted] [1]

Subject:- Biology

Marking scheme of Biology

Attempt all questions from Section A and any four questions from section B

The intended marks for the questions or parts of questions are given in brackets ()

NOTE: While correcting the answers, if a scientific name (eg. *Mangifera indica*) is misspelled then no marks shall be allotted. In case of a technical/scientific term (eg. Osmoregulation, Acetylcholine) if the spelling is wrong but you are able to make out the term through its pronunciation, marks shall not be deducted otherwise no marks shall be allotted.

Section A (40 marks)

Question .1.

- A. Fill in the blanks: (1 x5=5)
- i. The process by which kidneys regulate the water content of the body is called ...OSMOREGULATION.....
 - ii. ...MENINGES.. is the protective covering of the brain and spinal cord.
 - iii. The junction between two nerve cells is called ...SYNAPSE.....
 - iv. Deafness is caused due to rupturing of ...TYMPANUM.....
 - v. ...PANCREAS... (endocrine gland) produces both hormones and enzymes.

B.. State whether the statements are true or false. If false rewrite the correct statement by changing underlined word/words only: (1 x5=5)

NOTE: IF THE STATEMENT IS FALSE AND ITS NOT STATED EVEN THOUGH THE CORRECT STATEMENT IS WRITTEN, STILL NO MARKS SHALL BE ALLOTTED

- (i) Olfactory nerve is a cranial nerve that arises from brain. TRUE

- (ii) Adrenaline hormone is produced by adrenal cortex. FALSE Adrenaline hormone is produced by ADRENAL MEDULLA
- (iii) Parasympathetic nervous system increases rate of heartbeat. FALSE Parasympathetic nervous system RETARDS rate of heartbeat.
- (iv) Sneezing and coughing are examples of natural reflexes. TRUE
- (v) The eye defect affecting older people caused due to lose of flexibility of lens is called Astigmatism. FALSE The eye defect affecting older people caused due to lose of flexibility of lens is called PRESBYOPIA.

C. Write in logical sequence : (1x5=5)

(i) Ear ossicles, oval window, tympanum, auditory canal, cochlea.

AUDITORY CANAL, TYMPANUM, EAR OSSICLES, OVAL WINDOW, COCHLEA

(ii) Yellow spot, conjunctiva, cornea, lens, vitreous humour, aqueous humour.

CONJUNCTIVA, CORNEA, AQUEOUS HUMOUR, LENS, VITREOUS HUMOUR, YELLOW SPOT

(iii) Renal vein, renal artery, afferent arteriole, glomerulus, efferent arteriole

RENAL ARTERY, AFFERENT ARTERIOLE, GLOMERULUS, EFFERENT ARTERIOLE, RENAL VEIN

(iv) Aorta, hepatic vein, hepatic portal vein, stomach, liver

AORTA, STOMACH, HEPATIC PORTAL VEIN, LIVER, HEPATIC VEIN

(v) Axon endings, nucleus, dendrites, axon, dendrons

DENDRITES, DENDRONS, NUCLEUS, AXON, AXON ENDINGS

D. State the location and main function of the following: (½ x10=5)

(i) Corpus callosum –BETWEEN THE TWO CEREBRAL HEMISPHERE. TRANSFERS INFORMATION FROM ONE HEMISPHERE TO THE OTHER.

(ii) Iris of the eye. – EXTENSION OF CHOROID PARTIALLY COVERING THE LENS. IT REGULATES THE SIZE OF PUPIL THEREBY CONTROLLING THE AMOUNT OF LIGHT ENTERING THE EYES.

(iii) *Medulla oblongata* – AT THE BASE OF THE SKULL. IT CONTROLS ALL THE INVOLUNTARY FUNCTIONS OF THE BODY EG. PERISTALSIS.

(iv) *Adrenal gland* – LIKE A CAP ON THE TOP OF THE KIDNEY. IT SECRETES HORMONES EG. ADRENALINE, MINERALOCORTICIDS

(v) *Thrombocytes* – PRESENT IN THE BLOOD PLASMA. IT HEPLS IN BLOOD CLOTTING.

E. Differentiate the following pairs according to what is given in brackets:(1X5=5)

NOTE:MARKS SHALL BE ALLOTED ONLY IF BOTH THE TERMS ANSWERED ARE CORRECT

(i) *Motor nerve and Sensory nerve (definition)*

MOTOR NERVE - CONTAINS MOTOR FIBRES CARRYING IMPULSES FROM CNS TO EFFECTOR ORGANS.

SENSORY NERVE- CONTAINS SENSORY NERVES BRINGING IMPULSES FROM RECEPTORS TO THE CNS.

(ii) *Unconditioned and Conditioned reflexes (one example)*

UNCONDITIONED – SNEEZING/COUGHING , ETC

CONDITIONED – TYING OF SHOE LACE/PLAYING A MUSICAL INSTRUMENT, ETC

(iii) *Hypothyroidism and Hyperthyroidism (disorder)*

HYPOTHYROIDISM – SIMPLE GOITRE/CRETINISM/MYXOEDEMA

HYPERTHYROIDISM – EXOPHTHALMIC GOITRE

(iv) *Blood and Lymph (colour and reason)*

BLOOD – RED DUE TO PRESENCE OF HAEMOGLOBIN

LYMPH – PALE YELLOW DUE TO ABSENCE OF HAEMOGLOBIN

(v)*Semicircular canal and Utriculus-Sacculus (function)*

SEMICIRCULAR CANAL – DYNAMIC EQUILIBRIUM

UTRICULUS-SACCULUS – STATIC EQUILIBRIUM

F. Give reason for the following:

(1 X 5 =5)

NOTE: (1/2 + 1/2 FOR EACH QUESTION AS THERE ARE TWO POINTS FOR EACH)

(i) Blood flows in spurts and under pressure in arteries.

IN SPURTS BECAUSE BLOOD FLOWS IN ARTERIES ONLY DURING VENTRICULAR SYSTOLE. UNDER PRESSURE BECAUSE TUNICA MEDIA IS THICK AND THE LUMEN OF ARTERIES IS NARROW.

(ii) On entering a poorly lit room, one feels blinded for a short while.

IT TAKES SOME TIME FOR RHODOPSIN TO REGENERATE AND PUPIL TO DILATE

(iii) Presence of pericardial fluid between the double walled pericardium.

IT LUBRICATES THE HEART AND REDUCES FRICTION DURING HEART BEAT. IT PROTECTS THE HEART FROM MECHANICAL INJURIES.

(iv) Flow of impulse is unidirectional in a neuron.

DENDRITES OF A NEURON RECIVES THE IMPULSE FROM THE SENSE ORGANS AND PASSES IT TO THE DENDRON, CYTON AND THEN TO THE AXON OF THE SAME NEURON. AXON THEN PASSES THE IMPULSE TO THE DENDRITES OF THE NEXT NEURON THROUGH THE SYNAPSE THUS MAKING THE FLOW OF IMPULSE UNIDIRECTIONAL.

(v)Adrenalin is called emergency hormone.

ADRENALIN IS SECRETED DURING EMERGENCY SITUATION AND HELPS TO INCREASE THE HEART BEAT AND BLOOD PRESSURE WHICH INCREASES THE BLOOD SUPPLY TO THE MUSCLES. THUS MORE GLUCOSE WILL BE OXIDISED TO LIBERATE EXTRA ENERGY REQUIRED TO OVERCOME THE EMERGENCY SITUATION BY FIGHT OR FLIGHT.

G. Match and write column A with Column B :

(1X5=5)

Column A

Column B

Coronary Artery

Heart muscles

Tricuspid Valve

Right Heart

Oxygenated Blood

Pulmonary vein

Semilunar valve

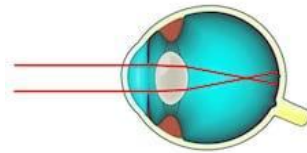
Aorta

Deoxygenated blood

Pulmonary Artery

Pulmonary circulation (EXTRA)

H. Study the diagram given carefully and answer the questions that follow. The diagram is depicting a defect of the human eye. (1 X 5=5)



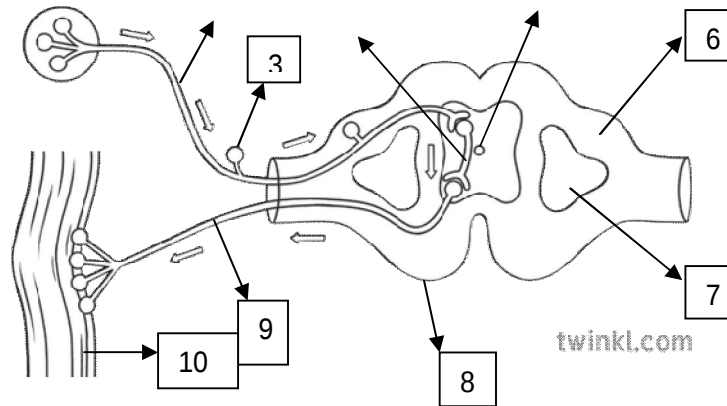
- (i) Identify the defect shown in the diagram. MYOPIA*
- (ii) Give two possible reasons for the above mentioned defect. EYEBALL IS LENGHTENED FROM FRONT TO BACK OR LENS IS TOO ROUND*
- (iii) How can this defect in a person be corrected. BY USING CONCAVE LENS*
- (iv) Which photosensitive cells perceive colours during daytime. CONES*
- (v) Name the aperture through which light enters the eye. PUPIL*

Section B (40 marks)

Question 2

A. The diagram below shows the internal structure of a spinal cord depicting a phenomenon. (10)





- (i) Name the phenomenon depicted in the diagram. Define the phenomenon.
($\frac{1}{2}$ for term + $\frac{1}{2}$ for definition = 1)

REFLEX ARC/REFLEX ACTION.

REFLEX ARC – THE SHORTEST ROUTE TRAVELLED BY THE IMPULSE FROM RECEPTOR TO THE EFFECTOR OR

REFLEX ACTION – IT IS A QUICK, SPONTANEOUS, INVOLUNTARY ACTION IN RESPONSE TO A STIMULUS TAKEN BY THE BODY.

- (ii) Label the parts numbered 1 to 10. ($\frac{1}{2} \times 10 = 5$)

1-RECEPTOR/SENSE ORGAN

2-SENSORY NEURON

3-DORSAL ROOT GANGLION

4-ASSOCIATION NEURON

5-CENTRAL CANAL

6-WHITE MATTER

7- GREY MATTER

8-SPINAL CORD

9-MOTOR NEURON

10-EFFECTOR/MUSCLES OR GLANDS

- (iii) How does the arrangement of neurons in the spinal cord differ from that of the brain.
($\frac{1}{2} \times 4 = 2$)

SPINAL CORD

BRAIN

OUTER CORTEX – WHITE MATTER (AXON)

GREY MATTER (CYTON)

INNER MUEDULLA – GREY MATTER (CYTON) WHITE MATTER (AXON)

- (iv) Mention two ways by which the spinal cord is protected in our body.

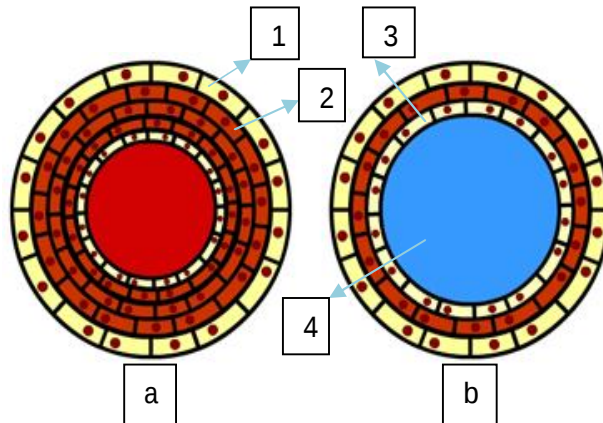
(1+1=2)

- OUTSIDE COVERING – MENINGES AND CEREBRO SPINAL FLUID PRESENT BETWEEN THE THREE MEMBRANES

- SPINAL CORD IS PRESENT IN THE NEURAL CANAL OF VERTEBRAL COLUMN

Question 3

A. The diagram given below shows the cross-section of two kinds of blood vessels: (5)



(i) Identify the blood vessels a and b. In each case give a reason to support your answer. ($\frac{1}{2} \times 2 = 1$)

a- ARTERY AS THE LUMEN IS NARROW/TUNICA MEDIA IS THICK.

b- VEIN AS THE LUMEN IS WIDER/TUNICA MEDIA IS THIN

(ii) Label the parts numbered 1 and 4. ($\frac{1}{2} \times 4 = 2$)

1. TUNICA EXTERNA

3. TUNICA INTERNA/ENDOTHELIUM

2. TUNICA MEDIA

4. LUMEN

(iii) When are the sounds LUBB and DUP produced during a heart beat.

LUBB – CLOSURE OF BICUSPID/TRICUSPID VALVES ($\frac{1}{2} \times 2 = 1$)

DUP – CLOSURE OF AORTIC AND PULMONARY SEMILUNAR VALVES

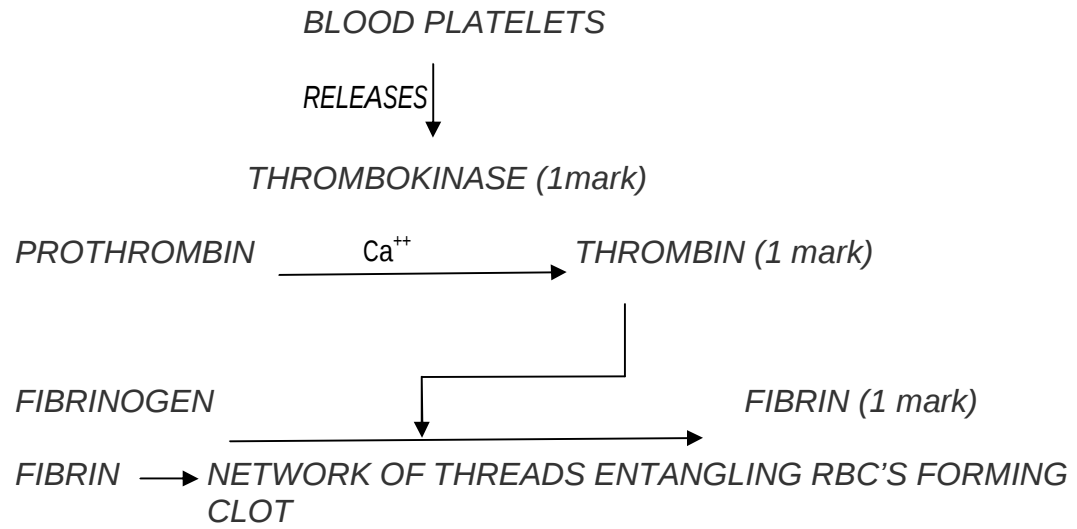
(iv) Name the blood vessel that (a) begins and ends in capillaries (b) supplies blood to the walls of the heart. ($\frac{1}{2} \times 2 = 1$)

(a) HEPATIC PORTAL VEIN (b) CORONARY ARTERIES

B. Answer the questions:

(5)

- (i) Describe the stages of blood clotting



- (ii) Define Double circulation? (1mark)

WHEN THE BLOOD PASSES THROUGH THE HEART TWICE IN A CARDIAC CYCLE COMPRISING OF PULMONARY AND SYSTEMIC CIRCULATION.

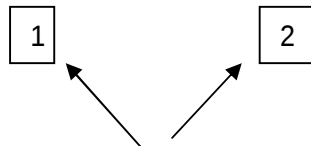
- (iii) An Rh-negative woman may become sensitive if she carries an Rh-positive child in her uterus. Explain (1 mark)

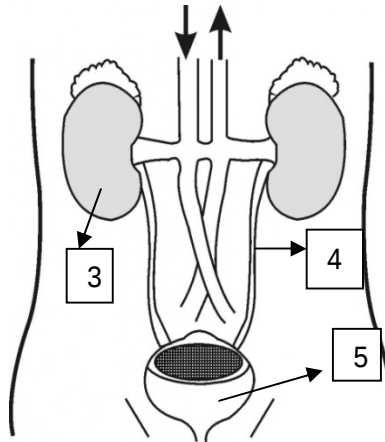
DURING FIRST PREGNANCY WHEN THE FOETUS BLOOD REACHES MOTHERS BLOOD, IT STARTS FORMING ANTIBODIES AGAINST RH ANTIGEN WHICH HAS COME ALONG WITH FOETUS BLOOD WHICH TAKES AROUND SEVEN DAYS. DURING SECOND PREGNANCY, WHEN MOTHERS BLOOD DIFFUSES INTO FOETUS BLOOD IT ALSO PASSES THE ANTIBODIES, SO BLOOD COAGULATION TAKES PLACE IN THE FOETUS AND FOETUS DIES.

Question 4.

- A. The given diagram represents an organ system in the human body. Study the same and answer the questions that follow: (10)

B.





(i) Identify the system and define it. **EXCRETORY SYSTEM – REMOVAL OF HARMFUL NITROGENOUS WASTE FROM THE BODY.** ($\frac{1}{2} \times 2 = 1$)

(ii) Label the parts marked 1-5. Mention the function of part 4 and 5.

1 – AORTA 2- INFERIOR VENA CAVA 3- RIGHT KIDNEY 4- URETER 5- URINARY BLADDER ($\frac{1}{2} \times 5 = 2\frac{1}{2}$)

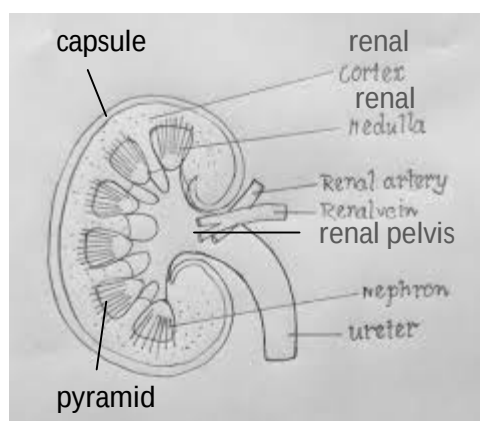
4- TRANSFER OF URINE FROM KIDNEY TO URINARY BLADDER ($\frac{1}{2}$)

5- IT TEMPORARILY STORES THE URINE ($\frac{1}{2}$)

(iii) Name the structural and functional units of the part marked 3. **NEPHRON** ($\frac{1}{2}$)

(iv) What is the fluid that accumulates in part 5. What is the main nitrogenous waste present in it. **URINE, UREA** ($\frac{1}{2} \times 2 = 1$)

(v) Draw a neat labelled diagram showing the longitudinal section of part 3. ($\frac{1}{2} \times 5 = 2\frac{1}{2}$ for any five correct labelling + $\frac{1}{2}$ for correct diagram = total marks = 3)



- (v) *How is hydrostatic pressure generated in glomerulus for ultrafiltration. Name the components present in blood which do not get filtered out.*
($\frac{1}{2} + \frac{1}{2} = 1$)

HYDROSTATIC PRESSURE IS GENERATED DUE TO DIFFERENCE IN THE DIAMETER OF AFFERENT AND EFFERENT ARTERIOLE WHERE EFFERENT ARTERIOLE IS NARROWER TO THE AFFERENT ARTERIOLE.

PROTEIN AND RBC DOES NOT GET FILTERED OUT.

Question 5

A. Answer the following questions: (5)

- (i) *What is meant by power of accommodation of the eye. (1 mark)*

FOCUSSING THE EYE TO SEE OBJECTS KEPT AT DIFFERENT DISTANCES.

- (ii) *What is the shape of the lens during (a) near vision (b) distant vision*

(a) MORE ROUND /MORE CONVEX ($\frac{1}{2}$ mark)

(b) MORE FLAT/LESS CONVEX ($\frac{1}{2}$ mark)

- (iii) *Name the two structures in the eye responsible to bring about change in the shape of the lens. CILIARY BODY /MUSCLES AND SUSPENSORY LIGAMENTS ($\frac{1}{2} + \frac{1}{2} = 1$)*

- (iv) *Name the cells of the retina and their respective pigments which gets activated (a) in the dark (b) in the light.*

(a) RODS - RHODOPSIN ($\frac{1}{2} + \frac{1}{2} = 1$ marks)

(b) CONES – IODOPSIN ($\frac{1}{2} + \frac{1}{2} = 1$ marks)

B. Answer the following questions: (5)

- (i) *Name the three bones found in the middle ear ? What are they together known as? State the significance of these bones. MALLEUS, INCUS, STAPES ($\frac{1}{2}$ marks) EAR OSSICLES ($\frac{1}{2}$ marks) THEY AMPLIFY THE*

MECHANICAL VIBRATIONS BY LEVER MECHANISM AND PASSES IT TO THE INNER EAR THROUGH OVAL WINDOW (1 marks)

- (ii) Where is eustachian tube located in the ear. Write the function of it?

IN BETWEEN THE MIDDLE EAR AND THROAT. ($\frac{1}{2}$ marks)

IT EQUALISES THE AIR PRESSURE ON EITHER SIDE OF THE TYMPANUM ($\frac{1}{2}$ marks)

- (iii) Name the sensory cells and the structure found in membranous labyrinth that helps in hearing. ORGAN OF CORTI ($\frac{1}{2}$ marks), COCHLEA($\frac{1}{2}$ marks)

- (iv) Name the fluid present in the median canal of cochlea. ENDOLYMPH ($\frac{1}{2}$ marks)

- (v) Where is the flat end part of stirrup connected to that leads to the inner ear. OVAL WINDOW ($\frac{1}{2}$ marks)

Question 6.

A. Study the figure of a blood smear. (5)

- (i) Name the parts labelled 1 and 2 and give one structural difference between the two other than shape.

1- RBC, ENUCLEATED ($\frac{1}{2} + \frac{1}{2} = 1$) 2-WBC, NUCLEATED ($\frac{1}{2} + \frac{1}{2} = 1$)

- (ii) What is the life span of the part labelled 1. 120 DAYS ($\frac{1}{2}$ mark)

- (iii) Name a soluble protein found in part 4 which helps in blood clotting. FIBRINOGEN ($\frac{1}{2}$ mark)

- (iv) Name the part labelled 3 and state its function. 3 – THROMBOCYTES OR BLOOD PLATELETS. IT HELPS IN BLOOD CLOTTING ($\frac{1}{2} + \frac{1}{2} = 1$)

- (v) Define diapedesis. SQUEEZING OUT OF WBC THROUGH THE WALLS OF CAPILLARIES (1 marks)

B. Answer the following questions: (1 x 5 = 5)

- (i) Why is pituitary gland known as the master gland. AS IT CONTROLS ALL OTHER ENDOCRINE GLANDS TO SECRETE THEIR HORMONES.

- (ii) Why does a person urinate fewer times in summer as compared in winters.

IN SUMMERS, TO MAINTAIN BODY TEMPERATURE BODY LOOSES WATER AS SWEAT SO URINATION IS LESS WHEREAS IN WINTER SWEAT IS NOT PRODUCED.

(iii) What is 'diuresis'? State the reason causing diuresis. INCREASED PRODUCTION OF URINE IS CALLED DIURESIS. IT IS DUE TO REDUCED SECRETION OF ANTI DIURETIC HORMONE FROM POSTERIOR PITUITARY GLAND.

(iv) What is the difference between diabetes insipidus and diabetes mellitus. Name the hormone responsible for each.

DIABETES INSIPIDUS – PRESENCE OF EXCESS WATER IN URINE. VASOPRESSIN / ANTI DIURETIC HORMONE

DIABETES MELLITUS – PRESENCE OF GLUCOSE IN BLOOD AND URINE. INSULIN

(v) Which type of valves is present in the veins and what is its significance.

POCKET VALVES. IT PREVENTS BACKFLOW OF DEOXYGENATED BLOOD AS BLOOD FLOWS AT LOW PRESSURE AND AGAINST THE GRAVITY.

Subject:-Hindi

Marking Scheme of Hindi

Section – A [40 Marks]

Q.1. Read the following passage and answer the questions given below. (12/15)

"कन लहेक इज /; कु नाफो"क; ओलर]हक"क "कयह , ओ वफहो; फडर लुनज गक आ लहक फलुनक दक दे ल वुपनन }कज फय [क आ ओरुह , ओ हक"क लक/क =fv; क उ गक गलरफयि लुनज गक एगोजक] यकडफडर] फोजकुक द ओपु] दफरक ध दन इफडर; क , ओ मनकज.क हक गक

[क&ि= &मररे &वद इकलर -----6/7

-ि= दक इक#ि लघ]ि= ए फन, ख, लहक फलुनक इज फपकज आ

ओरकुह ध व "कफ) ; क उघ द कजकज आ इ= ए फज "र दक /; कु ज [क र ग, हक"क दक इ; कखा

ख- वफडर ख | क "क& मररे &वद इकलर &8/10

-वको " ; द फलुनक इज इक "क मक्य] ख | क "क ध हक"क दक ; फकि ; कख उ दजा

मररज वकड वीउ "ककन ए गकु पकfg, Am)] .क द ओकड; क दक उ मरकज न] वद दवख ओरुह ध =fv; क उ गक

0 ; कगकफज द 0 ; कदज.क &&8/8

0 ; कदज.क ए एक=कवक इज फो "क"क /; कु न वउ; फक वद उघ फेयखा लक; क; ओकफ "ककन मरु गह न फत रु इन त क, आ , द ल वफ/क फोये "ककन फय [कु इज इगक गह फोये "ककन लोहक; गकख आ न लज लघ

gku ij Hkh ekU; ugh gkxkA blh rjg ftru Hkh i"u jg] fun" kku l kj mRrj n]ugh rk vd ugh feyxA

eY;kdu dk vk/kkj&Section –B [40 Marks]

l kfgR; l xj& x| ,o i| d mRrj l gh gku ij vd &8/10

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jyxkMh d fMcc e fry j[ku dh txg ugh gkrhA
cky&-cky cpuk&&&(cgr FkkM l vrj l cpuk&&og unh e Mcu l
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]vfglk ,o ekuork dk ikB i<k;kAbIh Hkfe e Jhjke]Jhd".k]jegkRek c) g,A mud i.;k l HkkjrHkfe
ifo= gk xBA

Xk&gk vudk ufn;k cgrh gA;g ufn;k l kUn; rk fc[kjrh gh g l kFk gh l [k lef) Hkh ykrh gA
ufn;k ftl LFkku l xtjrh g ogk vFkkg ty jkf" k jgrh gA ufn;k d ty l fd lku viU [krk
dk l hpr gA ;gk dh feVVh cgr mitkA g ftle Hkjij Qly gkrh gA blh l bl Lo.kHkfe dgr
gA

?k&f=o.kh dk vFk g &ru /kkjk,A ru ufn;k dk lxe&&xxk];euk] lJLorhAoreku e bl LFkku
dk uke i; kxjkt gA dgk tkrk g fd igy xxk dk lQn ty] ;euk dk lkoyk vkj lJLorh dk
yky jx Li"V utj vkrk Fkka vc lJLorh unh ylr gk pdh gA

9-(d&dfo d b"Vno Jhjke gAdfo u nL; HkfDr dk egRo fn;kA mud xUFkk d uke g&
(1&Jhjkepfjrekul vkj (2&dforKoyh A

([k&vFk&&ifr] ;Ru] vi.k] mI A

Xk&dfo rylhnl u HkfDr Hkko dk J"B ekuk gAbI HkfDr e lok Hkko d fcuk gh iHk nhu&ghu
0;fDr;k ij viuh d#.kk cjl k nr gA mUg viU fy, fd l h idkj dh lok dju dh vko";drk
ugh gkrh gA lclh vkj tVh; Jhjke d ifr vVv HkfDr j[kr Fk] mUg ekfk dh ikflr gk xBA ogh
nljh rjQ jko.k u f"ko d ifr lok HkfDr dhA ti] ri fd;k ;gk rd dh ;K e viU flj
vfir djrk Fkk] rc tkdj f"ko u [k" k gkdj mI eukudy pht nhA

"kcjh Hkhy tkfr dh L=h FkA og erx _f" k d vkJe e jgrh FkA ogh og lQ&lQkb d dk;
fd;k djrh FkA og ;okoLFkk l ydj o)koLFkk rd Jhjke dk brtkj djrh jghA ,d fnu jke
lhrk dh [kk t e erx _f" k d vkJe e igpA Hkko&foHkkj lclh u p[k&p[kdj viU >B cj jke
dk f[kyk, FkA jke dh dik l mUg ekfk dh ikflr gbA

10&d& dfo dgr g fd mud ijk e vlx c<u dh vFkk" kFDr nh xb g fQj og fcuk dkj.k D;k
 #dAdfo dk viu y{; ikflr d fy, yEch ;k=k djuh gA og y{; ikflr d fcuk foJke ugh
 djxA ikjk e feyh "kFDr dk fujFkd ugh gku nxA
 [k&vFk n&&#dk gvk] vkBk igj] foLrr]fo#) A
 Xk&dfo dgr g fd yEck jkLrk g fujrj pyu e gh y{; dh ikflr gk ldrh gA fu/kfjr le; d
 vUrxr gh igpuk gkrk g A le; dh xfr #drh ugh A ge mld lkFk pyuk gkrk gA jkLrk yEck
 r; djuk gkrk gAtxg&txg ij #du l le; ij viu xr0; LFkku ij igpk dfBu lk gk tkrk
 gA eu"; dh xfr "khyrk gh ml cm l cm mnn"; rd y tku e l{ke gA
 ?k&pyuk gekjk dke* ,d ij.kknk;d dfork gA dfo dgr g fd blku dk fujrj viu dkek dk
 djr jguk pkfg,A l [k&n[k] vk" kk&fujk" kk mld ekx e #dkoV u cuA l [k vkj n[k thou d
 vfHkUu vx gAmUg leHkko l xg.k djuk pkfg,A ,lk dju ij gh blku thou e vlx c< ldrk
 gA l lkj d egku yxk u viuk jkLrk ,l gh r; fd;kA

COMPUTER APPLICATIONS

SECTION A

Question 1:

a) Differentiate between compareTo() and equals() method?

compareTo()	equals()
Compares two strings alphabetically	Checks whether two strings are same or not
Return type is int	Return type is boolean
Syntax: int r=String1.compareTo(String 2)	Syntax : boolean b=String 1.equals(String 2)

(1 marks for each difference. Two difference expected)

b) Differentiate between a String and a StringBuffer?

No.	String	StringBuffer
1)	String class is immutable.	StringBuffer class is mutable.
2)	String is slow and consumes more memory when you concat too many strings because every time it creates new instance.	StringBuffer is fast and consumes less memory when you concat strings.
3)	String is a general approach of programming	StringBuffer is advanced approach of programming

(1 marks for each difference Two difference expected)

c) Name the package that contains information about the various String functions?

java.lang

(2 marks for correct answer -1 if j or l is in uppercase)

d) Write a java statement which forms the word combining the first and last letters of a word?

String s=word.charAt(0)+word.charAt(word.length()-1);

1 marks for each part

e) What is the significance of using void in the function definition?

The void statement signifies that the function does not return any value.

2 marks for correct answer

Question 2:

a) Write Java statements to:

(i) find the position of the last occurrence of the letter 'N' in a String "INNOCENCE"

`x.lastIndexOf('N')`

(ii) extract the character present after the last blank space from a word str1

`str1.charAt(str1.lastIndexOf(' ') + 1);`

(iii) obtain LOCKDOWN using str2="LOCKER" and str3="DOWNFALL"

`str2.substring(0,4) + str3.substring(0,4);`

(iv) obtain UNLOCK using str4="LOCKDOWN"

`"UN".concat(str4.substring(0,4))`

1 marks for each correct answer

b) Write the output of the following:

1.) `System.out.println("QUARENTINE ".substring(3,6));`

REN

2.) `System.out.println("DISTANCE ".charAt("SOCIAL".length()));`

C

3.) `System.out.println("TANGIBLE ".compareTo("TANGY"));`

-13

4.) `System.out.println("Hey" + 'S' + 3);`

HeyS3

5.) `System.out.println('A' + 5)`

70

6.) `System.out.println("JAVA".equals("Java"));`

False

1 marks for each correct answer

Question 3:

a) Write the prototype of the function *angrybird* that returns a boolean type value and takes two double

and a character value as its argument.

`boolean angrybird( double x, double y, int z)`

1 marks for function name and return type 1 mark for parameter list

b) What do you understand by *private* Access Specifier ?

The **private** access **specifiers** restrict the member variable or function to be called outside of the parent class. A **private** function or variable cannot be called outside of the same class.

2 marks for correct answer

c) Explain call by reference along with a proper example ?

Call by reference is the process of passing the reference of actual parameter to the formal parameter and any change made in the formal parameter will be seen in the actual parameter.

`void add(int x[])`

`{`

`int i,l;`

`l=x.length;`

`for (i=0;i<l;i++)`

`x[i]=x[i]+2;`

`System.out.println("Parameters after change");`

```

for (i=0;i<l;i++)
System.out.println(x[i]+"\\t");
}

```

1 mark for syntax 1 mark for example

d) Design a function which accepts two integers as parameter and swaps their values without using any third variable

```

void swap(int a, int b)
{
a=a+b;
b=a-b;
a=a-b;
System.out.println("Swapped value of a="+a);
System.out.println("Swapped value of b="+b);
}

```

1 marks for function prototype and 1 mark for body of the function

e) Differentiate between Actual and Formal Parameter

Formal parameter	Actual parameter
It contains the list of variables along with their data types separated by commas	It contains the actual variables used in the function
It is used in the function definition	It is used in the function call statement
Eg. void sum(int a,int b)	ob.sum(3,5)

1 marks for each difference Two difference expected

Question 4:

i) Write output when function test1() is invoked:

```

class Robust
{
    int n=20;
    void test1()
    {
        System.out.println(n);
        int n=15;
        test2(n);
        System.out.println(n);
        test3();
        System.out.println(n);
    }

    void test2(int n)
    {
        n=20;
        System.out.println(n);
    }
}

```

```

    }
    void test3()
    {
        System.out.println(n);
        n=30; }}
20
20
15
20
15

```

4 or 5 output Correct : 4 marks

3 output Correct : 3 marks

2 output Correct : 2 marks

1 output Correct : 1 marks

b) State the purpose and return type of the following string functions :
 i) concat() ii) isUpperCase()

1.) concat() – this function combines two strings together to form a new string. Its return type is String.

2.) isUpperCase() – This function is used to check whether a String is in upper case or not. Its return type is Boolean. **1 marks for each correct answer**

c) Name the keyword that is used to allocate memory units during function call?
 new **2 marks for correct answer -1 if n is used in uppercase**

d) Why main function is so important?

The main() function is invoked in the system by default. Hence as soon as the command for execution of the program is used, control directly reaches the main() function.

2 marks for correct answer

SECTION B

Question 5:

Write a menu driven program which will use function overloading to find :

i) Area of Right Angled triangle using $\frac{1}{2} b \times h$.

ii) Area of Equilateral triangle using $\frac{\sqrt{3}}{4} \text{side}^2$.

iii) Area of Scalene triangle using $\sqrt{s(s-a)(s-b)(s-c)}$

class Overload

```

{
void area (int b, int h )
{
int a1= 1/2*b*h;
System.out.println("Area of right angled triangle =" +a1);
}
void area(int side)
{
double a2 =(Math.sqrt(3))/4*side*side;

```

```

System.out.println("Area of equilateral triangle="+a2);
}
void area(int a, int b, int c,)
{
int s =(a+b+c)/2;
double a3 = Math.sqrt(s*(s-a)*(s-b)*(s-c));
System.out.println("Area of scalene triangle =" +a3);
}
public static void main(String args[])
{
Overload ob = new Overload();
ob.area(6,7);
ob.area(5);
ob.area(2,3,4);
}
}

```

Function 1 definition 1 marks

Body of function 1 3 marks

Function 2 definition 1 marks

Body of function 2 3 marks

Function 3 definition 1 marks

Body of function 3 3 marks

Creating objects of functions 1 marks

Variable description /Mnemonic codes 2 marks

Question 6:

Define a class named **BookFair** with the following description:

Instance variables/Data members:

String Bname – stores the name of the book.

double price - stores the price of the book.

Member Methods:

(i) void Input() To input and store the name and the price of the book.

(iii) void calculate() To calculate the price after discount. Discount is calculated based on

the following criteria.

Price	Discount
Less than or equal to Rs 1000	2% of price

More than Rs 1000 and less than or equal to Rs 3000	10% of price
More than Rs 3000	15% of price

(iii) void display() To display the name and price of the book after discount.

Write a main method to create an object of the class and call the above member methods.

```
import java.io.*;
class BookFair
{
String Bname;
double price;
void Input()throws IOException
{
BufferedReader input=new BufferedReader(new InputStreamReader(System.in()));
System.out.println ("Enter the name of the book ");
String Bname = input.readLine();
System.out.println ("Enter the book price");
double price = Double.parseDouble(input.readLine());
}
void calculate()
{
if(price<=1000)
double amt = price-(2/100*price);
else if(price >1000 && price<=3000)
double amt = price-(10/100*price);
else
double amt = price-(15/100*price);
}
void display()
{
System.out.println ("The name of the book is "+Bname);
System.out.println ("Price of the book after discount =" +amt);
}
public static void main (String args[])throws IOException
{
BookFair ob = new BookFair();
ob.Input();
ob.calculate();
ob.display();
}
}
```

class name 1 marks

Declaration of variables 1 marks

void input() 1 marks

Two inputs 2 marks

void calculate() 1 marks

Calculation of bill amount (3 conditions With 3 calculations) 3 marks

void show () & print statement 2 marks

void main() 1 marks

Object creation 1marks

Variable description /Mnemonic codes 2 marks

Question 7:

Define a class ConvertCurrency that contains the following member methods :

double DollorToRupee(double d) : Accepts dollor as parameter and returns the amount in rupees.

double EuroToRupee(double e) : Accepts euro currency as parameter and returns the amount in rupees.

void Exchange() : Asks the user to input a choice and based upon which asks the amount to

be exchanged and calls the required function and displays the amount in

Rupees

Also create a main function to call the required functions

```
import java.io.*;
```

```
class ConvertCurrency
```

```
{
```

```
double r;
```

```
double DollorToRupee(double d)
```

```
{
```

```
r=73.47*d;
```

```
return(r);
```

```
}
```

```
double EuroToRupee(double e)
```

```
{
```

```
r=86.90*e;
```

```
return(r);
```

```
}
```

```
void exchange () throws IOException
```

```
{
```

```
BufferedReader input=new BufferedReader(new InputStreamReader(System.in()));
```

```
int ch;
```

```
System.out.println ("Enter the choice : 1 for Dollar, 2 for Euro");
```

```
ch = Integer.parseInt(input.readLine());
```

```
switch(ch)
```

```
{
```

```
case 1:
```

```
System.out.println ("Enter the amount in dollars");
```

```
double d1 = Double.parseDouble(input.readLine());
```

```
r= DollorToRupee(d1);
```

```
System.out.println ("Amount in rupees= "+r);
```

```
break;
```

```
case 2:
```

```

System.out.println ("Enter the amount in Rupees");
double e1 = Double.parseDouble(input.readLine());
r= EuroToRupee(e1);
System.out.println ("Amount in rupees= "+r);
break;
default:
System.out.println ("Invalid Choice");
}
}
public static void main (String args[])throws IOException
{
ConvertCurrency ob = new ConvertCurrency ();
ob.exchange();
}
}

```

class name 1 marks

Declaration of variables 1 marks

Function 1 definition 1 marks

Conversion (dollar to rupee) 1 marks

return 1 marks (No marks if print statement is used)

Function 2 definition 1 marks

Conversion (euro to rupee) 1 marks

return 1 marks (No marks if print statement is used)

void exchange() 1 marks

menu input 1 marks

calling the functions as needed 2 marks

Object creation 1marks

Variable description /Mnemonic codes 2 marks

Question 8:

WAP which will use menu and function overloading to perform the following:

numSys(int N) : check if the given number is an Armstrong number or not.

(A number is said to be Armstrong number if the sum of the cube of the digits is equal

to the original number eg. $153 = 1^3 + 5^3 + 3^3 = 153$)

numSys(int A, int B) : find HCF of the two given number.

numSys(int A, int B, int C): check if the given sides follows Pythagorean triplet or not. ($h^2 = b^2 + h^2$)

```

public class Overload
{
void numSys(int N)
{
int m, dig, sum=0;
m=N;
while(N>0)

```

```

{
dig=N%10;
sum=sum+(dig*dig*dig);
N=N/10;
}
if(m==sum)
System.out.println (N + "is an armstrong no.");
else
System.out.println (N + "is not an Armstrong no.");
}
numSys(int A , int B)
{
int i, hcf;
for(i=1; i<=A *B; i++)
{
if(A%i ==0 && B%i==0)
hcf=i;
}
System.out.println ("HCF of the entered nos.=" +hcf);
}
numSys( int A, int B, int C)
{
if((C*C)==(B*B)+(A*A))
System.out.println ("it is a pythagorean triplet");
else
System.out.println ("It is not a Pythagorean triplet");
}
public static void main(String args[])
{
Overload ob = new Overload();
ob.numSys(153);
ob.numSys(12,9);
ob.numSys(3,4,5);
}
}

```

Function 1 definition 1 marks

Body of function 1 3 marks

Function 2 definition 1 marks

Body of function 2 3 marks

Function 3 definition 1 marks

Body of function 3 3 marks

Creating objects of functions 1 marks

Variable description /Mnemonic codes 2 marks

Question 9:

A class INNOCENT has been defined to perform the following tasks. Some members of the class are given below:

Class name: INNOCENT

Data members/instance variables: int dd,mm,yy

Member functions/methods

void getdata(): to input date , month and year all in a two digit format

void cruel_date(): to check if the date is a cruel date or not. The date is referred to a cruel date if the sum of the date and the month is equal to the year.

eg. 10/10/20 is a cruel date because $10+10=20$

Also create a main function to create object of class as well as all other functions.

```
import java.io.*;
class Innocent
{
    int dd,mm,yy;
    void getdata()throws IOException
    {
        BufferedReader input=new BufferedReader(new InputStreamReader(System.in()));
        System.out.println("Enter the date,month and year in two digit format");
        dd = Integer.parseInt(input.readLine());
        mm = Integer.parseInt(input.readLine());
        yy = Integer.parseInt(input.readLine());
    }
    void cruel_date()
    {
        if(dd+mm==yy)
            System.out.println ("Date is a cruel date");
        else
            System.out.println ("Date is not a cruel date");
    }
    public static void main(String args[]) throws IOException
    {
        Innocent ob = new Innocent();
        ob.getdata();
        ob.cruel_date();
    }
}
```

class name 1 marks

Declaration of variables 1 marks

void getdata() 1 marks

Three inputs 3 marks

void cruel_date() 1 marks

if condition 2marks

statement 1 marks

else 1 marks

statement 1 marks

Object creation 1marks

Variable description /Mnemonic codes 2 marks