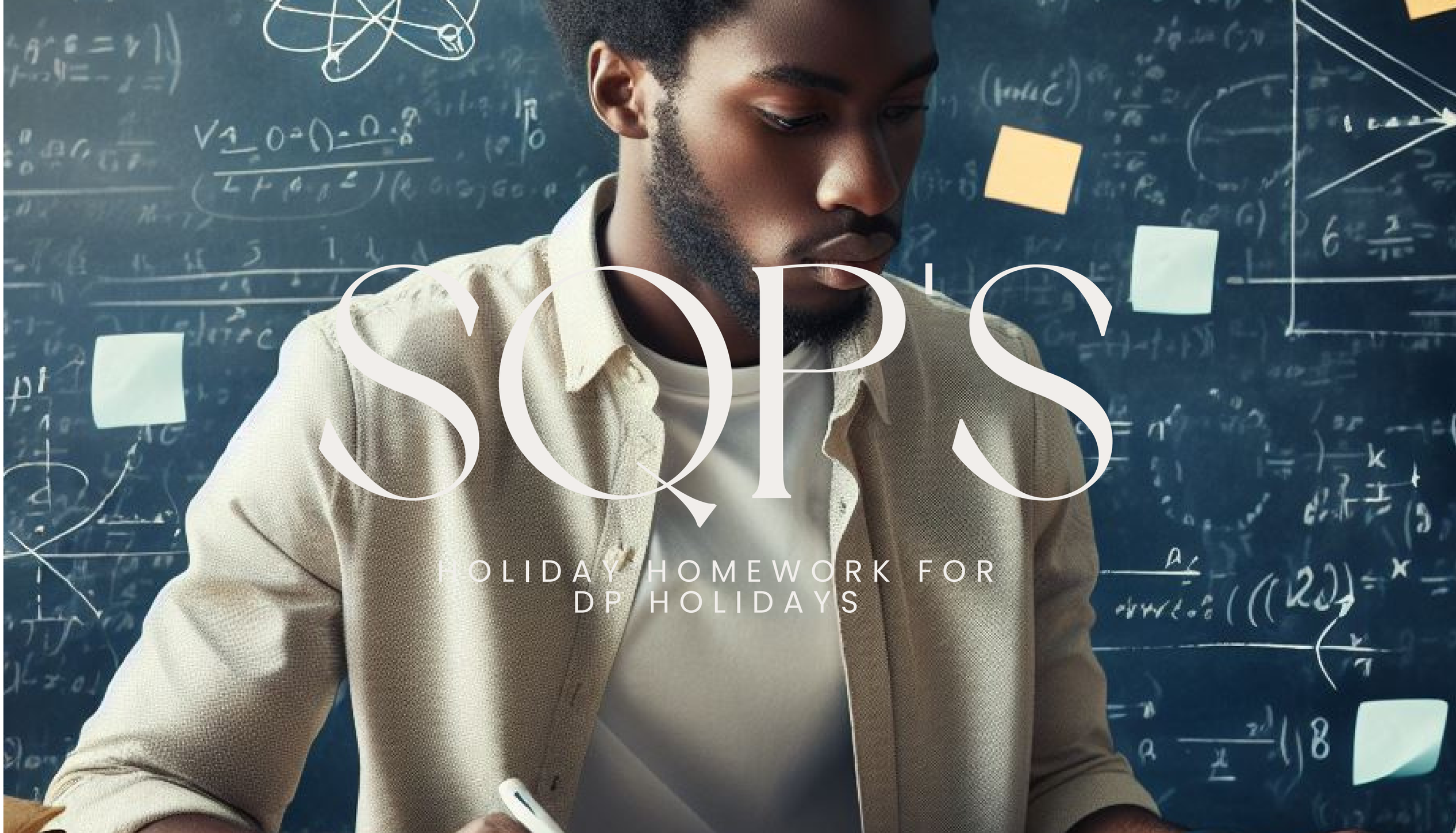
NIRJA SAHAY
DAV PUBLIC SCHOOL
KANKE, RANCHI

HOLIDAY HOMEWORK (DP HOLIDAYS)

session : 2023-24

C O N T E N T S


SQP'S
HOLIDAY HOMEWORK FOR
DP HOLIDAYS

NIRJA SAHAY DAV PUBLIC SCHOOL

KANKE, RANCHI - 06

HOLIDAY HOMEWORK, 2023-24

Class:-XII **ENGLISH (SQP)** **MM:-80**

SECTION A : READING SKILLS (22 marks)

Reading Comprehension Through Unseen Passages

1.	**Read the following text.**	**12 m**

Arthur lay in his cabin, still trying to piece together the events of the last few hours. He had watched his home planet of Earth be demolished to make way for a hyperspace bypass, been saved by his friend Ford, and then whisked away on a ship that was powered by an "infinite improbability drive." It was all too much for him.

Just then, Ford stuck his head around the door.

"Hey, Earthman," he said, "come and have a look at this."

Arthur stumbled after him down a corridor and into the ship's control room. He gazed in amazement at the banks of controls and flashing lights. In the center of the room was a large console covered in buttons and switches, and in the middle of the console was a small, white mouse.

"What's that?" asked Arthur.

"That's the ship's computer," said Ford.

Arthur stared at the mouse. "That's a computer?" he said.

"Yup," said Ford. "Five-dimensional, biologically-based, super intelligent, and in the form of a white lab mouse. Pretty neat, huh?"

"I don't know," said Arthur. "I don't think I really understand anything anymore. Why is a mouse the ship's computer?"

"It's a long story," said Ford. "But the short version is that the mice built the Earth as a giant computer to figure out the Ultimate Question of Life, the Universe, and Everything. Then they ran out of money and had to destroy it to make way for a hyperspace bypass. So now they're using the Heart of Gold to finish the calculation."

Arthur was about to say something, but at that moment the ship's intercom crackled to life.

"Good evening, Heart of Gold," said a smooth, computerized voice. "This is Eddie, your shipboard computer. I'm feeling a bit depressed today. Would you like me to sing you a song?"

"Oh, not again," groaned Ford.

"Eddie, would you mind shutting up?" said Arthur.

Arthur sighed and leaned back against the console, trying to make sense of everything. But as he closed his eyes, he heard a voice inside his head.

"Hello?" it said.

Arthur jumped, startled. "Who's there?" he said.

"It's me," said the voice. "Marvin."

"Marvin?" said Arthur. "Who's Marvin?"

"The Paranoid Android," said the voice.

Arthur looked around, but he didn't see anyone. "Where are you?" he said.

"I'm down here," said the voice.

Arthur looked down and saw a small, metal figure shuffling across the floor. It was about three feet tall, with a round head and a body that looked like it had been cobbled together from spare parts. Its eyes were a dull red, and its voice was a monotone.

"I've been waiting for someone to talk to me for over two million years," said Marvin.

Adapted - An excerpt from "The Hitchhiker's Guide to the Galaxy" by Douglas Adams / 444 words

Answer the following questions, based on the passage above.

i	Select the option that classifies Arthur's confusion about drastic events such as the destruction of his home planet and the introduction of new technologies, correctly. A. Routine and boredom B. Adventure and excitement C. Loss and change D. Calm and relaxation	1
ii	What is the significance of the white lab mouse in the control room of the Heart of Gold spaceship? A. It is the captain of the ship B. It serves as the ship's computer C. It is a pet of the crew D. It is used for scientific experiments	1
iii	Share evidence from the text, in about 40 words to support the view that the writer's writing style is descriptive and humourous.	2
iv	Complete the sentence appropriately with a characteristic or its description. Based on the information given in the excerpt, one can infer that the mice who built the Earth are _____.	1
v	Select the option that is similar in meaning to Ford's expression , "Pretty neat, huh?". A. Easy , isn't it? B. Could be worse, no? C. Impressive, yes? D. Too difficult for you?	1
vi	Explain, in about 40 words, why the name "The Paranoid Android" is considered ironic.	2
vii	In the line, "...a body that looked like it had been cobbled together from spare parts...", what comparison does the word "cobbled" refer to?	1
viii	How does the following, impact the reader, even though they know Marvin is just an android? *"I've been waiting for someone to talk to me for over two million years," said Marvin.* Answer in about 40 words.	2
ix	Read the five headlines (a) -(e), given below: (a) HUMANITY'S JOURNEY WITNESSED BY A DEPRESSED ROBOT (b) HITCHHIKING THROUGH SPACE: A COMICAL TAKE ON THE END OF THE WORLD (c) NEW STUDY FINDS ALIENS LIVING AMONG US (d) GROUNDBREAKING TECHNOLOGY WILL SOON ENABLE TIME TRAVEL (e) INTERGALACTIC TRAVEL VIA NEW INFINITE IMPROBABILITY DRIVE Identify the option that displays the headline/s that DOES/ DO NOT correspond with occurrences in the passage.	1

	A. Only (a) B. (b) (c) and (d) C. Only (e) D. (a) and (e)	
2.	**Read the following text.**	**10 m**
(1)	In recent years, there has been a surge in both group and solo travel among young adults in India. A survey conducted among young adults aged 18-25 aimed to explore the reasons behind their travel preferences and recorded the percentage variation for 10 common points that influence travel choices.	
(2)	Among those who prefer solo travel, the most common reason cited was the desire for independence and freedom (58%), followed closely by the opportunity for introspection and self-discovery (52%). Additionally, solo travellers appreciated the ability to customize their itinerary to their preferences (44%) and the chance to meet new people on their own terms (36%).	
(3)	On the other hand, those who prefer group travel often cited the desire for socializing and making new friends (61%) as their primary reason. Group travel also provided a sense of security and safety in unfamiliar places (52%) and allowed for shared experiences and memories with others (48%). Additionally, group travellers enjoyed the convenience of having pre-planned itineraries and organized transportation (38%).	
(4)	Interestingly, both groups had similar levels of interest in exploring new cultures and trying new experiences (40% for solo travellers, 36% for group travellers). Similarly, both groups valued the opportunity to relax and escape from the stresses of everyday life (36% for solo travellers, 32% for group travellers).	
(5)	However, there were also some notable differences between the two groups. For example, solo travellers placed a higher priority on budget-friendly travel options (38%) compared to group travellers (24%). Conversely, group travellers were more likely to prioritize luxury and comfort during their travels (28%) compared to solo travellers (12%).	
(6)	Overall, the survey results suggest that both group and solo travel have their own unique advantages and appeal to different individuals, based on their preferences and priorities.	
Created for academic usage / 290 words		
Answer the following questions, based on given passage.		
i	Infer two possible ways that the survey , mentioned in paragraph (1) could be beneficial. Answer in about 40 words.	2
ii	Which travel choice point of the survey would influence tour operators to incorporate group dinners, social events, and shared accommodations in their itinerary? A. Freedom to customise itinerary B. Luxury and comfort C. Security and safety D. Desire for making new friends	1
iii	What do the top choices in the survey, for traveling solo and in a group suggest about young adults?	1
iv	Identify the solo traveller from the following three travellers: (a) Reshma- I don't want to keep hunting for rickshaws or taxis. A pre-booked vehicle is perfect. (b) Nawaz-I'm happy sharing a room in a hostel. I don't need hotel accommodation. (c) Deepak-I'm not worried about my well-being , even while exploring remote areas.	1
v	Which of the following is an example of an opportunity for self-discovery, as mentioned in paragraph 2?	1

	A. Trying new cuisine B. Hiring a tour guide C. Purchasing local artifacts D. Advance booking travel tickets	
vi	How might the differences in budget priorities between solo and group travellers impact the types of accommodations and activities offered by the travel industry in India?	2
vii	Complete the sentence appropriately. The similarities in the percentage of both solo and group travellers who are interested in exploring new cultures and trying new experiences may be due to _____.	1
viii	State TRUE or FALSE. The title, "Wanderlust: The Solo Travel Trend Among Young Adults in India", is appropriate for this passage.	1

SECTION B : CREATIVE WRITING SKILLS (18 marks)

	Note : All details presented in the questions are imaginary and created for assessment purpose .	
3	Attempt **ANY ONE** of two , in about 50 words.	4
A	Bali High Public School has recently created *CureGreen*, a dedicated area for local medicinal herbs and shrubs, adjacent to the flower garden, on campus. As Rachel Tiwari, Captain of the Eco-Club , draft a notice for the school notice board, informing students of classes XI-XII, about a guided walk through *CureGreen* , post assembly, on Friday, 10 July. Invite care-giver applications, for *CureGreen*.	
	OR	
B	You are the Secretary of the Neighbourhood Watch Scheme , Jastinapur, Sector D-3 Society. Draft a notice for the Society notice board, informing residents about the change of personnel, Head Security, Gate 2 and share necessary details. Also, include the news of installation of the much awaited security camera, on the Eastern periphery of the Society.	
4	Attempt **ANY ONE** of two , in about 50 words.	4
A	You are the Student Head, Cultural Affairs, at M.K. Sr. Sec. School. Your school is organising a 2-day Yoga camp over the weekend, for parents of the school students. Create an invitation, inviting the school parents for this Yoga camp. Share information about the camp organisers and include other necessary details.	
	OR	
B	Smt. Leelavati Khatri, your grandmother, has received an invitation from her childhood friend , residing at a distance in the same city. The invite is for the blessing ceremony and celebratory dinner, marking the birth of her granddaughter. Your grandmother wishes to attend the event but would need to be accompanied by a family member to assist her with her wheelchair. Create an appropriate reply, accepting this invitation, on behalf of your grandmother.	
5	Attempt **ANY ONE** of two , in about 120-150 words.	5
A	You are Damanjit Singh, a fresh graduate of film-making (BFA), from JTTI, Chandigarh. You saw the given advertisement in the newspaper and wish to apply for the position advertised. Write a letter to Mili Johar Arts, along with your bio-data, expressing your interest in the advertised post.	

OR

B Despite being an essential component of road safety infrastructure, many people do not respect zebra crossings and fail to follow traffic rules, which results in hazardous situations on the roads. Write a letter to the editor of a national daily, sharing your concern, and examining the reasons for such behaviour. Provide suggestions for spreading awareness of rules and etiquettes involved, and ways to ensure adherence. Use the given cues along with your own ideas to compose this letter. You are Soma Baruah, a concerned city resident.

- For awareness -
  → general public / educational institutions
  → how? - in person/ social media
- Dire consequences - self and others
- Adherence-
  → fines & penalties
  → revoking driving licenses
  → strengthening traffic police force - monitoring resources and technology

6 Attempt **ANY ONE** of two , in about 120-150 words. 5

A You are Sohail Hassan of class XII-B. Write an article for your school magazine , sharing the importance of young adults , as volunteers in one's local community , the need to do so and the benefits involved. Use the given cues along with your own ideas to compose this article.

		Importance for personal growth + community development Benefits - For self: new skills, experiences, a sense of purpose For community: positive impact What are the ways one could get involved ?	
		OR	
B	The R.W.A (Resident Welfare Association), Nandipura -II, launched a volunteer programme for the young adults in and around the neighbourhood, on 18 January 2023. As Sunitha. J, the local correspondent of the neighbourhood newsletter, write a report, covering this event. Support your ideas with outline cues given below, to craft your report. → which volunteer programme? - purpose of the launch event -it's importance → activities that took place -who attended ? → any key messages delivered? → how were young adults encouraged to join the volunteer program? → any resources and information provided to attendees? → any insight into follow-up activities planned? → what impact is expected to be achieved in the community?	

SECTION C : LITERATURE TEXTBOOK AND SUPPLEMENTARY READING TEXT (40 marks)

7.	Read the given extracts and answer the questions for **ANY ONE** of the two, given.	6
A.	And such too is the grandeur of the dooms We have imagined for the mighty dead; All lovely tales that we have heard or read: An endless fountain of immortal drink, Pouring unto us from the heaven's brink. (*A Thing of Beauty*)	
i	Which of the following themes is best represented in the given extract? A. The beauty of nature B. The power of imagination C. The immortality of art and literature D. The inevitability of death	1
ii	State whether the given statement is TRUE or FALSE, with reference to the extract. By referring to the dead as "mighty", the poet emphasizes their importance and the power they exerted on the people.	1
iii	Complete the sentence appropriately. The "endless fountain of immortal drink" is an apt analogy for the tales of the mighty dead because _____.	1
iv	The use of the word "brink" in the extract suggests that the immortality that is being poured onto us is on the verge of overflowing. This creates a powerful image of _____.	1
v	Based on the poem rhyme scheme, evident in lines 2-5, of the given extract, which word would rhyme with line 1? said think tombs	1
vi	Select the option that is NOT true about the lack of punctuation at the end of line 1 in the extract. A. Creates a sense of continuity and flow that connects the line with the second line.	1

	B. Encourages the reader to continue reading seamlessly without any pause. C. Creates a sense of anticipation and expectation for the reader. D. Encourages a revisit to the ideas in the preceding lines.	
	OR	
B.	...I looked again at her, wan, pale as a late winter's moon and felt that old familiar ache, my childhood's fear, but all I said was, see you soon, Amma, all I did was smile and smile and smile..... (*My mother at Sixty-six*)	
i	What is the speaker's emotional state when looking at her mother? A. Confused and disoriented B. Nostalgic and longing C. Empathetic and understanding D. Fearful and apprehensive	1
ii	What does the use of the word "but" at the beginning of the line, ' but all I said..', suggest ?	1
iii	Select the word that WILL NOT complete the sentence appropriately. The description of the mother as "wan, pale / as a late winter's moon" creates a vivid image of _____ . A. vulnerability B. sensitivity C. frailty D. mortality	1
iv	State whether the given statement is TRUE or FALSE. The poetic device used in the line, 'pale as a winter's moon' is the same as the one used in the line, 'the winter wind wistfully wailed at night'.	1
v	What message do these lines highlight, in the context of familial relationships, and the speaker's sense of anxiety and fear at the prospect of losing her mother?	1
vi	Complete the sentence appropriately. The repetition of the word, 'smile' suggests that _____.	1
8.	Read the given extracts and answer the questions for **ANY ONE** of the two, given.	4
A.	Climate change is one of the most hotly contested environmental debates of our time. Will the West Antarctic ice sheet melt entirely? Will the Gulf Stream ocean current be disrupted? Will it be the end of the world as we know it? Maybe. Maybe not. Either way, Antarctica is a crucial element in this debate — not just because it's the only place in the world, which has never sustained a human population and therefore remains relatively 'pristine' in this respect; but more importantly, because it holds in its ice-cores half-million-year-old carbon records trapped in its layers of ice. (*Journey to the End of the Earth*)	
i	How does the absence of a human population in Antarctica make it significant in the climate change debate?	1
ii	Why is "climate change" described as a "hotly contested" issue in the extract provided? This is so, because there _____.	1

	A. is universal agreement on the causes and implications of climate change B. is a planned path ahead about how to address climate change C. are differing views on the causes and implications of climate change D. are minimal reports of fresh threats to climate change	
iii	The analogy of a time machine is an appropriate analogy for the role of carbon records in the study of climate change because _____.	1
iv	Give one reason why the writing style of the extract can be called factual and informative.	1
	OR	
B.	In other words, the Tiger King is dead. The manner of his death is a matter of extraordinary interest. It can be revealed only at the end of the tale. The most fantastic aspect of his demise was that as soon as he was born, astrologers had foretold that one day the Tiger King would actually have to die. "The child will grow up to become the warrior of warriors, hero of heroes, champion of champions. But..." they bit their lips and swallowed hard. When compelled to continue, the astrologers came out with it. "This is a secret which should not be revealed at all. And yet we are forced to speak out. The child born under this star will one day have to meet its death." (*The Tiger King*)	
i	Complete the sentence appropriately. The author's purpose in using foreshadowing, is to _____.	1
ii	In the given extract, what emotion were the astrologers feeling when they "bit their lips and swallowed hard"? A. Humiliation B. Disbelief C. Grief D. Unease	1
iii	Which trait are the astrologers lauding when they say "warrior of warriors, hero of heroes, champion of champions"?	1
iv	How is the line, "the most fantastic aspect of his demise", an example of contrast?	1
9.	Read the given extracts and answer the questions for **ANY ONE** of the two, given.	6
A	Usually, when school began, there was a great bustle, which could be heard out in the street, the opening and closing of desks, lessons repeated in unison, very loud, with our hands over our ears to understand better, and the teacher's great ruler rapping on the table. But now it was all so still! I had counted on the commotion to get to my desk without being seen; but, of course, that day everything had to be as quiet as Sunday morning. Through the window I saw my classmates, already in their places, and M. Hamel walking up and down with his terrible iron ruler under his arm. I had to open the door and go in before everybody. You can imagine how I blushed and how frightened I was. (*The Last Lesson*)	
i	List any two sensory details present in this extract.	1
ii	Why does the protagonist feel anxious about entering the classroom on this particular day? A. The classmates have started the lesson B. The teacher is in a bad mood C. The classroom is too quiet D. The protagonist is running late	1
iii	Complete the sentence appropriately. The phrase "as quiet as Sunday morning" suggests that _____.	1

iv	Pick evidence from the extract that helps one infer that this was not the protagonist's first time being late to school.	1
v	What does the term 'terrible iron ruler' indicate about M. Hamel?	1
vi	Which of the following headlines best suggests the central idea of the extract? A. The Fears of a Latecomer B. The Importance of Punctuality C. The Rigidity of the School System D. The Anxiety of a Young Student	1
	OR	
B	Unaware of what his name represents, he roams the streets with his friends, an army of barefoot boys who appear like the morning birds and disappear at noon. Over the months, I have come to recognise each of them. "Why aren't you wearing chappals?" I ask one. "My mother did not bring them down from the shelf," he answers simply. "Even if she did, he will throw them off," adds another who is wearing shoes that do not match. When I comment on it, he shuffles his feet and says nothing. "I want shoes," says a third boy who has never owned a pair all his life. Travelling across the country I have seen children walking barefoot, in cities, on village roads. It is not lack of money but a tradition to stay barefoot, is one explanation. (*Lost Spring*)	
i	What is the writer's purpose in allowing the boys to speak for themselves via dialogue, as opposed to only a writer's commentary ?	1
ii	The line, "It is not lack of money but a tradition to stay barefoot" can be best classified as: A. A fact B. An opinion C. A theme D. A plot point	1
iii	Explain any one possible inference that can be drawn from the line, "an army of barefoot boys who appear like the morning birds and disappear at noon".	1
iv	Identify the line from the text that bears evidence to the fact that the writer's association with the boys is not a recent one.	1
v	Based on the context provided in the extract, select the most likely comment that the writer would have made, based on the boy's reaction to the mismatched shoes. A. "Why are your shoes mismatched? That's not a good look." B. "Don't worry about your shoes, you can wear a matching pair later." C. "I like your shoes. What matters is that they protect your feet." D. "Have you chosen to mismatch your shoes?	1
vi	Complete the sentence with ONE word. The phrase "he answers simply", suggests that the boy's response to the writer's question about why he wasn't wearing chappals was _____.	1
10	Answer **ANY FIVE** of the following six questions, in about 40-50 words.	5x2=10
i	What can be inferred from Rajendra Prasad's recorded upshot of the lawyer consultations, at Motihari ? [Reference - *The senior lawyer replied, they had come to advise and help him; if he went to jail there would be nobody to advise and they would go home. What about the injustice to the sharecroppers, Gandhi demanded.*] (*Indigo*)	

ii	Douglas uses sensory details to create a vivid image of the unfortunate experience in the pool. What might be the impact on the reader if the narration were more informative than sensory? (*Deep Water*)	
iii	How does the setting of the remote forest location in '*The Rattrap*' contribute to the overall tone and mood of the story?	
iv	How might the message of the poem, '*Aunt Jennifer's Tigers*' be different, if the following last four lines were omitted? *When Aunt is dead, her terrified hands will lie* *Still ringed with ordeals she was mastered by.* *The tigers in the panel that she made* *Will go on prancing, proud and unafraid.*	
v	Umberto Eco, with reference to "The Name of the Rose" says, "I think if I had written The Name of the Rose ten years earlier or ten years later, it wouldn't have been the same." What could he have meant? (*The Interview*)	
vi	What does the story of Subbu's success in the film industry reveal about the importance of loyalty, creativity, and versatility in this field? (*Poets and Pancakes*)	
11	Answer **ANY TWO** of the following three questions, in about 40-50 words.	2x2=4
i	How can we say that the *vadai* packet incident reveals that the writer lacked the cognitive and emotional maturity required to understand the implications of untouchability?	
ii	What does the play '*On the Face of It*' suggest about the importance of empathy in overcoming prejudice and stereotypes?	
iii	Answer the question in the context of the following lines from '*The Enemy*'. "Stupid Yumi," she muttered fiercely. "Is this anything but a man? And a wounded helpless man!" In the conviction of her own superiority she bent impulsively and untied the knotted rugs that kept the white man covered. Explain the superiority Hana is convinced about.	
12	**Answer ANY ONE of the following two questions, in about 120-150 words.**	5
A	Imagine you are Pablo Neruda , the poet of *Keeping Quiet*. What advice might you offer to Robert Frost, the poet of *A Roadside Stand*, in the context of his conflicted emotions, as displayed in the given lines- *The requisite lift of spirit has never been found,* *Or so the voice of the country seems to complain,* *I can't help owning the great relief it would be* *To put these people at one stroke out of their pain.* Pen down your advice , in a letter to Frost. You may begin this way: Dear Robert I recently read your poem, "A Roadside Stand," and... You may end this way: I hope this advice is helpful to you. Please let me know if there is anything else I can do to support you. Warmly, Pablo Neruda	
OR		

B	The different portrayals of women in the texts *'Aunt Jennifer's Tigers'*, *'Going Places'*, *'Lost Spring'*, and *'My Mother at Sixty-six'* , offer insights into the experiences of women in society. You have been asked to address your peers and share- → the ways these portrayals highlight the diversity of the female experience. → the importance of understanding each individual woman's challenges and experiences. Compose this draft, with reference to <u>any three</u> of these prescribed texts. listed above. You may begin this way: Good morning, everyone. As I analysed the allotted texts... You may end this way. To conclude, I'd like to say that ...	
13	**Answer ANY ONE of the following two questions, in about 120-150 words.**	5
A	In the story, *'The Third Level'* by Jack Finney, Charley is obsessed with finding the third level. In an attempt to thrash out whether this obsession is a good quality or a harmful one, Charley's wife expresses her thoughts in a diary entry. As Louisa, Charley's wife, write this diary entry. Support your response with reference to the story. You may begin this way: I have been married to Charley for a few years now and I have always known him to be an intelligent man with an imaginative mind. However, his recent obsession with finding the Third Level has ...	
	OR	
B	A grown up Zitkala-Sa, reflects on the incident about cutting of her long hair and is conflicted that she did not do enough to resist and surrendered easily. She also wonders if she could have tried something else to prevent the incident. As the grown-up Zitkala-Sa, create a diary entry , expressing these thoughts and conclude by absolving yourself of any blame. You may begin like this: I find myself reflecting on an event that happened many years ago... (*Memories of Childhood*)	

NIRJA SAHAY DAV PUBLIC SCHOOL, KANKE, RANCHI

PRACTICE PAPER - 1, 2023-24

CLASS: - XII **SUBJECT :- MATHEMATICS**

F.M :- 80 **TIME :- 3 HOURS**

General Instructions:

1. This question paper contains - five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.

2. Section A has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each.

3. Section B has 5 Very Short Answer (VSA) type questions of 2 marks each.

4. Section C has 6 Short Answer (SA) type questions of 3 marks each.

5. Section D has 4 Long Answer (LA) type questions of 5 marks each.

6. Section E has 3 source based/case based/passage based/integrated units of assessment (4 marks each) with sub parts.

Section A

(Multiple Choice Questions) Each question carries 1 mark

1. From the set {1, 2, 3, 4, 5}, two numbers a and b($a \neq b$) are chosen at random. The probability that $\frac{a}{b}$ is an integer, is

(a) $\frac{1}{3}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{3}{5}$

2. If $\begin{vmatrix} 2 & 3 & 2 \\ x & x & x \\ 4 & 9 & 1 \end{vmatrix} + 3 = 0$, then the value of x is

(a) 3 (b) 0 (c) -1 (d) 1

3. The graph of the inequality 2x + 3y > 6 is

(a) half plane that contains the origin

(b) half plane that neither contains the origin nor the points of the line 2x + 3y = 6

(c) whole XOY-plane excluding the points on the line 2x + 3y = 6

(d) entire XOY plane

4. If A is a square matrix of order 3, such that A(adj A) = 10 I, then | adj A | is equal to

(a) 1 (b) 10 (c) 100 (d) 101

5. If $\vec{a} = 3\hat{i} + 2\hat{j} + 5\hat{k}$ and $\vec{b} = 6\hat{i} - \hat{j} - 5\hat{k}$ then find $(\vec{a} + \vec{b}) . (\vec{a} - \vec{b})$.

(a) 24 (b) -24 (c) 18 (d) 10

6. The two lines x = ay +b, z = cy + d; and x = a'y+b', z=c'y + d' are perpendicular to each other, if

(a) $\frac{a}{a'} + \frac{c}{c'} = 1$ (b) $\frac{a}{a'} + \frac{c}{c'} = -1$ (c) aa' + cc' = 1 (d) aa' + cc'= -1

8. The direction ratios of the line passing through two points (2, - A, 5) and (0, 1, -1) is

(a) (-2,-6,5) (b) (-2,5-6) (c) (5, - 2,-6) (d) (-6, -2,5)

9. If A is a 3 × 3 matrix such that | A | = 8, then |3A| equals

(a) 8 (b) 24 (c) 72 (d) 216

10. $\int \frac{2^{x+1} - 5^{x-1}}{10^x} dx$ is equal to

(a) $\frac{1}{5}\log 2(2^{-x}) - 2\log 5(5^{-x}) + C$ (b) $\frac{1}{6}\log(2^{-x}) - 2\log 5(5^{-x}) + C$

(c) $\frac{1}{5}\log(2^{-x}) + 3\log 5(5^{-x}) + C$ (d) None of the above

11. The integrating factor of the differential equation $x\frac{dy}{dx} + 2y = x^2$ is

(a) x (b) x^2 (c) 3x (d) xy

12. If $y = \cos^{-1} x$, then $(1 - x^2)y_2$ is equal to

(a) xy (b) xy_1 (c) xy_2 (d) x^2y

13. In an LPT if the objective function has Z = ax + by has the same maximum value on two corner points of the feasible region, then the number of points at which Z_{max} occurs is

(a) 0 (b) 2 (c) finite (d) infinite

14. The number of points of discontinuity of f defined by f(x) = |x| - |x + 1| is

(a) 1 (b) 2 (c) 0 (d) 5

15. The degree of the differential equation $1 + \left(\frac{dy}{dx}\right)^2 = x$ is

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

16. If $\begin{vmatrix} 2 & 2 \\ 2 & 3 \end{vmatrix} = \begin{vmatrix} 3x & 1 \\ 4x & 2 \end{vmatrix}$, then x equals

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

17. If $\vec{a} \cdot \vec{b} = \frac{1}{2}\left|\vec{a}\right|\left|\vec{b}\right|$, then the angle between $\vec{a}$ and $\vec{b}$ is

(a) 0° (b) 30° (c) 60° (d) 90°

18. $\int_0^{\pi/8} \tan^2(2x)dx$ is equal to

(a) $\frac{4-\pi}{8}$ (b) $\frac{4+\pi}{8}$ (c) $\frac{4-\pi}{4}$ (d) $\frac{4-\pi}{2}$

Assertion-Reason Based Questions

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

19. Assertion (A) We can write $\sin^{-1} x = (\sin x)^{-1}$

Reason (R) Any value in the range of principal value branch is called principal value of that inverse trigonometric function.

Reason The value of an inverse trigonometric function which lies in the range of principle branch, is called the principal value of that inverse trigonometric function. Hence, we can say that Assertion is false but Reason is true.

20. Assertion (A) A 2 × 2 matrix A = $[a_{ij}]$, whose elements are given by a_{ij} = i × j, is $\begin{bmatrix}1 & 2\\2 & 4\end{bmatrix}$.

Reason (R) If A is a 4 × 2 matrix, then the elements in A is 5.

Reason If A is a 4 × 2 matrix, then A has 4 × 2 = 8 elements.

Hence, Assertion is true but Reason is false.

Section B

(This section comprises of very short answer type questions (VSA) of 2 marks each)

21. Check if the relation R on the set

A = {1,2,3,4,5,6} defined as R = {(x, y): y is divisible by x} is

(i) symmetric

(ii) transitive.

Or

Find the value of

$\tan^{-1}(1) + \cos^{-1}\left(-\frac{1}{2}\right) + \sin^{-1}\left(-\frac{1}{2}\right)$

22. If x = a cos θ and y = b sin θ, then find $\frac{d^2y}{dx^2}$.

23. Find $|\vec{a}|$ and $|\vec{b}|$, if $|\vec{a}| = 21\vec{b}|$ and $(\vec{a} + \vec{b}).(\vec{a} - \vec{b}) = 12$.

Or

Find the unit vector perpendicular to each of the vectors $\vec{a} = 4\hat{i} + 3\hat{j} + \hat{k}$ and $\vec{b} = 2\hat{i} - \hat{j} + 2\hat{k}$.

24. Show that the function f defined by f(x) = (x - 1)e^x + 1 is an increasing function for all x>0.

25. If $\vec{a} = \hat{i} + \hat{j} + 3\hat{k}$ and $\vec{b} = 2\hat{i} - \hat{j} + \lambda\hat{k}$, then find the value of λ, if the vectors $\vec{a}$ + $\vec{b}$ and $\vec{a}$ - $\vec{b}$ are orthogonal.

Section C

(This section comprises of short answer type questions (SA) of 3 marks each)

26. Find $\int \frac{x}{x^2+3x+2}dx$

27. Find the value of $\int_0^1 x(1-x)^n dx$.

Or

Evaluate $\int_0^{\pi} \frac{x\sin x}{1+\cos^2 x}dx$.

28. Solve (x + 1) $\frac{dy}{dx}$ = $2e^{-y}$ + 1; y = 0 when x = 0.

Or

Solve $x\sin\left(\frac{y}{x}\right)\frac{dy}{dx} + x - y\sin\left(\frac{y}{x}\right) = 0; y = \frac{\pi}{2}$ when x = 1.

29. Three rotten apples are mixed with seven fresh apples. Find the probability distribution of the number of rotten apples, if three apples are drawn one by one with replacement. Find the mean of the number of rotten apples.

Or

In a shop X, 30 tins of ghee of type A and 40 tins of ghee of type B which look alike, are kept for sale. While in shop Y, similar 50 tins of ghee of type A and 60 tins of ghee of type B are there. One tin of ghee is purchased from one of the randomly selected shop and is found to be of type B. Find the probability that it is purchased from shop Y.

30. Evaluate $\int_1^2 \left[\frac{1}{x} - \frac{1}{2x^2}\right] e^{2x} dx$.

31. If Z = 2x + 3y, subject to constraints $x + 2y \leq 10$, $2x + y \leq 14$, $x, y \geq 0$, then find the corner point of feasible region.

Section D

(This section comprises of long answer type questions (LA) of 5 marks each)

32. If $A = \begin{bmatrix} 2 & -3 & s \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ then flnd A^{-1}

Using A^{-1} , solve the following system of equations:

$2x - 3y + 5z = 11$

$3x + 2y - 4z = -5$

$x + y - 2z = -3$

33. Find the vector and certesian equations of the line which is perpendicular to the lines with equations $\frac{x+2}{1} = \frac{y-3}{2} = \frac{z+1}{4}$ and $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$ and passes through the point (1, 1, 1). Also, find the angle between the given lines.

Or

Find the shortest distance between the lines given by

$\vec{r} = (2 + \lambda)\hat{i} - (3 + \lambda)\hat{i} + (5 + \lambda)\hat{k}$

and $\vec{r} = (2\mu - 1)\hat{i} + (4\mu - 1)\hat{i} + (5 - \mu)\hat{k}$.

34. Prove that the relation R on Z, defined by R {(x, y);(x - y) is divisible by 5} is an equivalence relation.

Or

Show that the relation R in the set A of points in a plane, given by R = {{P,Q): distance of the point P from the origin is same as the distance of the point Q from the origin}, is an equivalence reation. Further, show that the set of all points related to a point $P \neq (0,0)$ is the circle passing through P with origin as centre.

35. Find the area of the region lying in the first quadrant and enclosed by the X -axis, the line y = x and the circle $x^2 + y^2 = 32$,

(This section comprises of 3 case-study/passage-based questions of 4 marks each with two sub-parts. First two case study questions have three sub-parts (i), (ii), (Hi) of marks 1,1, 2 respectively. The third case study question has two sub-parts of 2 marks each)

Section E

(This section comprises of 3 case-study/ passage-based questions of 4 marks each with two sub-parts. First two case study questions have three sub-parts (i), (ii), (iii) of marks 1,1,2 respectively. The third case study question has two sub-parts of 2 marks each)

36. $P(x) = -6x^2 + 120x + 25000$ (in Rs.) is the total profit function of a company where x denotes the production of the company.

Based on the above information, answer the following questions.

(i) Find the profit of the company, when the production is 3 units.

(ii) Find P'(5).

(iii) Find the interval in which the profit is strictly increasing.

Or

Find the production, when the profit is maximum.

37. In a college, an architecture design a auditorium for its cultural activities purpose. The shape of the floor of the auditorium is rectangular and it has a fixed perimeter, say P.

Based on the above information, answer the following questions.

(i) If l and b represents the length and breadth of the rectangular region, then find the 'relationship between l, b, P.

(ii) Find the area (A) of the floor, as a function of l.

(iii) College manager is interested in maximising the area of the floor A.

For this purpose, find the value of l.

Or

Find the maximum area of the floor.

38. In an office three employees Vinay, Sonia and Iqbal process incoming copies of a certain form. Vinay process 50% of the forms. Sonia processes 20% and Iqbal the remaining 30% of the forms. Vinay has an error rate of 0.06, Sonia has an error rate of 0.04 and Iqbal has an error rate of 0.03.

Based on the above information answer the following questions.

(i) The total probability of committing an error in processing the form.

(ii) The manager of the company wants to do a quality check. During inspection he selects a form at random from the days output of processed forms. If the form selected at random has an error, the probability that the form is not processed by Vinay.

NIRJA SAHAY DAV PUBLIC SCHOOL

KANKE, RANCHI - 06

HOLIDAY HOMEWORK, 2023-24

Class: XII **COMPUTER SCIENCE (SQP)** **MM: 70**

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1. (a) Differentiate between mutable and immutable objects in Python language with example. (2)

(b) Write the modules that will be required to be imported to execute the following code in Python. (1)

(c) Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined. (2)

```
DEF execmain():
x = input("Enter a number:")
if (abs(x)=x):
print "You entered a positive number"
else:
x=*-1
print "Number made positive:"x
execmain()
```

(d) Find the output of the following: (2)

```
def main ( ) :
Moves=[11, 22, 33, 44]
Queen=Moves
Moves[2]+=22
L=Len(Moves)
For i in range (L)
print “Now@”, Queen[L-i-1], “#”, Moves [i]
```

(e)Write the output of the following Python program code: (2)

```
def ChangeList():
L=[]
L1=[]
L2=[]
for i in range(1,10):
L.append(i)
for i in range(10,1,–2):
L1.append(i)
for i in range(len(L1)):
L2.append(L1[i]+L[i])
L2.append(len(L)-len(L1))
print(L2)
ChangeList()
```

(f)Study the following program and select the possible output(s) from the options (i) to (iv) following it.

Also, write the maximum and the minimum values that can be assigned to the variable Y. (2)

```
import random
X= random.random()
Y= random.randint(0,4)
print(int(X),":",Y+int(X))
```

(i)0 : 0

(ii) 1 : 6

(iii)2 : 4

(iv) 0 : 3

2. (a) List one similarity and one difference between List and Dictionary data type. (1)

(b) Rewrite the following Python program after removing all the syntactical errors (if any), underline each correction.: (2)

```
def checkval:
x = input("Enter a number")
if x % 2 = 0:
print x,"is even"
else if x<0:
print x,"should be positive"
else;
print x,"is odd"
```

(c) Find the output of the following: (2)

```
def makenew(mystr):
newstr = ""
count = 0
for i in mystr:
if count%2 != 0:
newstr = newstr + str(count)
else:
if i.islower():
newstr = newstr + i.upper()
else:
newstr = newstr + i
count += 1
newstr = newstr + mystr[:1]
```

print("The new string is:", newstr)

makenew("sTUdeNT")

(d) Discuss the strategies employed by python for memory allocation? (2)

3. (a) Write a user defined function findname(name) where name is an argument in Python to delete phone number from a dictionary phonebook on the basis of the name, where name is the key. (3)

(b) Write the specific purpose of functions used in plotting: (2)

i) plot( )

ii) Legend( )

(c) Write a python program to plot the algebraic equation: 10x + 14. (3)

(d) Write definition of a Method MSEARCH(STATES) to display all the state names from a list of STATES, which are starting with alphabet M. (2)

For example: If the list STATES contains

["MP","UP","WB","TN","MH","MZ","DL","BH","RJ","HR"]

The following should get displayed

MP

MH

MZ

(e)Observe the following code and answer the questions that follow: (2)

File = open("Mydata","a") _____ #Blank1

File.close()

(i)What type (Text/Binary) of file is Mydata?

(ii)Fill in Blank 1 with a statement to write "ABC" in the file "Mydata".

4. (a) Write any one advantage and one disadvantage of Coaxial cable. (1)

(b)Riana Medicos Centre has set up its new centre in Dubai. It has four buildings as shown in the diagram given below: (4)

Accounts	**Research lab**
Store	**Packaging Unit**

Distances between various buildings are as follows:

Accounts to Research Lab 55 m

Accounts to Store 150 m

Store to Packaging Unit 160 m

Packaging Unit to Research Lab 60 m

Accounts to Packaging Unit 125 m

Store to Research Lab 180 m

Number of computers:

Accounts 25

Research Lab 100

Store 15

Packaging Unit 60

As a network expert, provide the best possible answer for the following queries:

(i) Suggest the type of network established between the buildings.

(ii)Suggest the most suitable place (i.e., building) to house the server of this organization.

(iii)Suggest the placement of the following devices with justification: (a) Repeater (b) Hub/Switch

(iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.

(c) How does IP address differ from MAC address? (2)

(d) Expand the following: (3)

(i) VoIP

(ii) SMTP

(iii) TDMA

5.(a) Write difference between IP v-4 and IPv-6. (2)

(b) Write the purpose of following commands (3)

1. whois

2. ipconfig

3. nslookup

5. (a) Write the difference between GET and POST method. (2)

(b)Write a MySQL-Python connectivity to retrieve data, one record at a time, from city table for employees with id less than 10. (2)

(c)What are the basic steps to connect Python with MYSQL using table Members present in the database 'Society'? (2)

(d)What is the role of Django in website design? (1)

6. (a) Write the steps to connect with database "testdb" with Python programming. (2)

(b)Which method is used to retrieve all rows and single row? (1)

(c)Table COACHING is shown below. Write commands in SQL for (i) to (iii) and show the output for (iv) and (v) (5)

ID	NAME	AGE	CITY	FEE	PHONE
P1	SAMEER	34	DELHI	45000	9811076656
P2	ARYAN	35	MUMBAI	54000	9911343989
P4	RAM	34	CHENNAI	45000	9810593578
P6	PREMLATA	36	BHOPAL	60000	9910139987
P7	SHIKHA	36	INDORE	34000	9912139456
P8	RADHA	33	DELHI	23000	8110668888

(i)Write a query to display name in descending order whose age is more than 23.

(ii)Write a query to find the average fee grouped by age from customer table.

(iii) Write query details from coaching table where fee is between 30000 and 40000.

(iv)Select sum(Fee) from coaching where city like "%O% ;

(v)Select name, city from coaching group by age having count(age)>2;

7. (a) What are the proper methods and steps for the disposal of used electronic items? (1)

(b) What are Intellectual Property Rights (IPR)? (1)

(c) How can we recycle e-waste safely? (2)

(d) What is meant by the term Cyber Forensics? (2)

(e) Write any two categories of cyber crime. (2)

(f) How does phishing happen? (2)

Note: Prepare the solution in A4 sheets and submit on 26.10.2023.

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NIRJA SAHAY DAV PUBLIC SCHOOL, KANKE, RANCHI – 06

HOLIDAY HOMEWORK (2023-24)

CLASS- XII **SUBJECT- PAINTING**

General Instructions

• Section A

Attempt all Questions (Each Question will carry mark)

• Section-B

Attempt all Questions (Each Question will carry 2 Marks)

Section-C Attempt any two Questions (Each Question will carry 6 Marks

SECTION-A

1. **The artworks of Pahari School of Miniature Painting were based on**

The divine themes of:

I Ramayana

I Rask Priya

III. Geet Govind

iv. All the above

2. **Assertion (A): Our mentor guides us in understanding the profundity of the Supreme God, as seen in the painting Hazrat Nizamuddin Auliya and Amir Khusrau**

   Reason ®: By obeying our Guru, we can build a peaceful and prosperous society.

   I. **Both A and R are true, and R is the correct explanation of A**
   II. **Both A and R are true, but R is not the correct explanation of A.**
   III. **A is true R is false**
   IV. **A is false R is true.**

	ii. Both A and R are true, but R is not the correct explanation of A iii. A is true but R is false iv. A is false and R is True	
3.	**The use of painting faces in side profile became the hallmark of:** i. Tribal Paintings ii. Company Paintings iii. Bengal School of Painting iv. Miniature Paintings	1
4.	**The painting 'Nand, Yashoda, and Krishna with kinsmen going to Vrindavan' reflecting the leadership qualities of a youth by voluntarily taking responsibilities at a crucial moment is painted by Miniature Artist:** i. Nihalchand ii. Nuruddin iii. Nainsukh iv. Nandlal Bose	1
5.	**Assertion (A): The Mughal School of Miniature Painting used decorative borders to enhance the beauty of the paintings.** **Reason (R): Artists of Mughal courts used floral motifs and gold to make their painting look royal and full of grandeur.** i. Both A and R are true, and R is the correct explanation of A ii. Both A and R are true, but R is not the correct explanation of A iii. A is true but R is false iv. A is false and R is True	1

9.	*Instead of mythological themes in his artwork, a disciple of Abanindranath Tagore showed how men, women and labourers diligently engage in their routine to achieve victory.* • **Who** *was this sensitive artist and* **which** *sculpture from your course of study reflects this through realistic modeling of muscle movement and human form and laborers.* • **Describe** how the strength of unity brings victory as shown in this sculpture. **(OR)** Considered to be one of the greatest painters in the history of Indian art, he fused European techniques with pure Indian sensibility. He was the first to print his artworks to make them affordable and easily available, bringing fine art close to the masses. • **Identify** the name of the artist and the Painting, method, and technique of painting from your syllabus. • **Describe** how this realistic painting (adapted from Ramayana) cautions us from the consequences of ego.	2
10.	*'Raghukul Reeti Sada Chali Aaye, Praan Jai Par Vachan Na Jaai'* • **Which** miniature painting from Rajasthan School showcasing strong bond of brotherhood between Rama and Bharat, re-lives this saying and **how** has the artist helped us in elevating our state of life by imbibing these virtues and family values? • **Give an example** through an episode from the present-day scenario which will help our future generation in character building. **(OR)** During the early 19th century, India was a male dominant society. Dana showed Women Empowerment, their versatile personality and showcased them overcoming traditional norms. • **Throw light** on the valour shown in the subject matter of Dana's painting from your syllabus. • **How** can this Rajasthani painting still help in broadening the mindset of our society?	2

11.	In this sculpture, the sacred representation of the divine power of **'Ganesh'** as a leader and an artist are depicted with indigenous character of cave and temple sculpture. • Write the **material** used and its **sculptor**. • While **critically analyzing** this sculpture, **identify** some characteristics of a leader and an artist which inspires you? **(OR)** M.F. Hussain painted cinema posters in his early days for living. But his art style flourished and was later honored by Government of India with Padma Shree, Padma Bhushan, and Padma Vibhushan for his great contribution to art. • **Identify** the painting made by him from your course and **how** does it inspire you? • Using elements of art as your parameter, **explain** how this painting depicts epitome of compassion and care.	2
12.	**Evaluate** the aesthetic beauty of any one of the following which shows the connection and bond between Royal Figures and Royal Animals: **A) 'Darashikoh ki Baraat' from Mughal school** (OR) **B) 'Chand Bibi Playing Polo' from Deccan School**	2
13.	Our national flag is the identification of our country and its citizens. It narrates thousands of stories of courage and sacrifice, peace and honesty, chivalry and prosperity, embracing secularism as it proudly flies high in our independent sky. • Do you feel we still imbibe these qualities in us? **Explain** your point of view. • **How** can these values help us in contributing towards the progress of our country?	2

	(OR) Art becomes a powerful medium when it reflects the social issues, problems related to the women, their sufferings, and traumas due to malpractices, especially after being a widow. • **Identify** the print, printmaker, medium and technique. • **How successful** do you think the artist has been in showcasing these issues and spreading awareness through this print? **How** can you contribute in irradicating them from the society?	
	SECTION-C	
14.	It is believed that 'The Glory of the Mughal Miniature painting rose like rising sun with the dawn of the Mughals and dwindled with the sunset of the Mughals'. • **Justify** this statement by **describing** the continuous growth in Mughal Miniature paintings. (Mention the 'Golden Period' and the 'Downfall'). • **Explain in brief**, the painting 'Krishna Lifting Mount Govardhana'	6
15.	**Throw light** on the origin and development of Rajasthani School of Miniature Painting and the aesthetic qualities practiced by its Sub Schools. Based on aesthetic parameters, **elaborate** the painting 'Krishna on Swing' observed by you.	6
16.	"The Bengal School gave Indian art an identity and acceptance which was lost due to foreign invasions and the British rule. Mass support for artists work united common people towards our freedom movement." **How** did the origin and development of Bengal School create a benchmark in the formation of Indian Art. What gave it a distinctive and unique identity? **Choose** and describe any one painting from the Bengal School (from your syllabus) which depicts a real-life situation consisting of sadness, pain &	6

agony.

Support your answer through the points mentioned below:

- Origin and Development of Bengal School
- Name of Painting and its Artist
- Medium and Technique of the Painting
- Compositional Arrangement and Subject Matter

नवीनतम CBSE सैंपल पेपर

CBSE कक्षा 12वीं की परीक्षा के लिए नमूना प्रश्न–पत्र

हिंदी केंद्रिक

निर्देश 1. इस प्रश्न-पत्र में दो खंड हैं–खंड 'अ' और खंड 'ब'।
2. खंड 'अ' में 40 वस्तुपरक प्रश्न पूछे जाएँगे। सभी प्रश्नों के उत्तर देने हैं।
3. खंड 'ब' में वर्णनात्मक प्रश्न पूछे जाएँगे। प्रश्नों में उचित आंतरिक विकल्प दिए जाएँगे।

पूर्णांक : 80

समय : 3 घंटे

व्याख्या सहित

खंड 'अ' वस्तुपरक प्रश्न (40 अंक)

अपठित गद्यांश

1. *निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर दिए गए प्रश्नों के सर्वाधिक उपयुक्त उत्तर वाले विकल्पों को चुनकर लिखिए* (10 × 1 = 10)

पश्चिमी सभ्यता मुख मोड़ रही है। वह एक नया आदर्श देख रही है। अब उसकी चाल बदलने लगी है। वह कलों की पूजा को छोड़कर मनुष्यों की पूजा को अपना आदर्श बना रही है। इस आदर्श के दर्शाने वाले देवता रस्किन और टालस्टॉप आदि हैं। पाश्चात्य देशों में नया प्रभात होने वाला है। वहाँ के गंभीर विचार वाले लोग इस प्रभात का स्वागत करने के लिए उठ खड़े हुए हैं। प्रभात होने के पूर्व ही उसका अनुभव कर लेने वाले पक्षियों की तरह इन महात्माओं को इस नए प्रभात का पूर्व ज्ञान हुआ है और हो क्यों न? इंजनों के पहिए के नीचे दबकर वहाँ वालों के भाई-बहन-नहीं नहीं उनकी सारी जाति पिस गई, उनके जीवन के धुरे टूट गए, उनका समस्त धन घरों से निकलकर एक ही दो स्थानों में एकत्र हो गया।

साधारण लोग मर रहे हैं, मजदूरों के हाथ-पाँव फट रहे हैं, लहू बह रहा है! सर्दी से ठिठुर रहे हैं। एक तरफ दरिद्रता का अखंड भी राज्य है, दूसरी तरफ अमीरी का चरम दृश्य। परंतु अमीरी भी मानसिक दुखों से विमर्दित है। मशीनें बनाई तो गई थीं मनुष्यों का पेट भरने के लिए मजदूरों को सुख देने के लिए, परंतु वे काली-काली मशीनें ही काली बनकर उन्हीं मनुष्यों का भक्षण कर जाने के लिए मुख खोल रही हैं। प्रभात होने पर ये काली-काली बलाएँ दूर होंगी। मनुष्य के सौभाग्य का सूर्योदय होगा।

शोक का विषय यह है कि हमारे और अन्य पूर्वी देशों में लोगों को मजदूरी से तो लेशमात्र भी प्रेम नहीं है, पर वे तैयारी कर रहे हैं पूर्वोक्त काली मशीनों का आलिंगन करने की। पश्चिम वालों के तो ये गले पड़ी हुई बहती नदी की काली कमली हो रही हैं। वे छोड़ना चाहते हैं, परंतु काली कमली उन्हें नहीं छोड़ती। देखेंगे पूर्व वाले इस कमली को छाती से लगाकर कितना आनंद अनुभव करते हैं। यदि हममें से हर आदमी अपनी दस उँगलियों की सहायता से साहसपूर्वक अच्छी तरह काम करे तो हम मशीनों की कृपा से बढ़े हुए परिश्रम वालों को वाणिज्य के जातीय संग्राम में सहज ही पछाड़ सकते हैं।

सूर्य तो सदा पूर्व से ही पश्चिम की ओर जाता है। पर आओ पश्चिम से आने वाली सभ्यता के नए प्रभात को हम पूर्व से भेजे। इंजनों की वह मजदूरी किस काम की जो बच्चों, स्त्रियों और कारीगरों को ही भूखा नंगा रखती है और केवल सोने, चाँदी, लोहे आदि धातुओं का ही पालन करती है। पश्चिम को विदित हो चुका है कि इनसे मनुष्य का दुख दिन पर दिन बढ़ता है।

I. "पाश्चात्य देशों में नया प्रभात होने वाला है।" पंक्ति में रेखांकित पद का आशय हो सकता है (1)
(a) नया प्रकाश
(b) नया विचार
(c) नया सवेरा
(d) नया प्रभास

II. संदर्भ के अनुसार गद्यांश में 'विमर्दित' शब्द का सटीक अर्थ क्या हो सकता है? (1)
(a) ठगी हुई
(b) ग्लानिपूर्ण
(c) ईर्ष्यापूर्ण
(d) पीड़ापूर्ण

III. निम्नलिखित कथनों पर विचार कीजिए (1)
कथन (I) मानवीय दक्षता को महत्त्व देना चाहिए।
कथन (II) मनुष्य तथा मानवीयता से प्रेम करना चाहिए।
कथन (III) अपनी चाल को बदल लेना चाहिए।
कथन (IV) मानव जीवन को आदर्श मानना चाहिए।
गद्यांश के अनुसार कौन-सा/से कथन सही है/हैं?
(a) केवल कथन I सही है।
(b) केवल कथन II सही है।
(c) केवल कथन II और III सही हैं।
(d) केवल कथन I और IV सही हैं।

IV. गद्यांश के अनुसार पूर्वी देशों की समस्या क्या है? (1)
(a) मजदूरों के लिए अधिकारों की कमी
(b) मजदूरों का पूँजीपतियों द्वारा शोषण
(c) मजदूरी को कम महत्त्व का आँकना
(d) मजदूरी पर अमीरी का प्रभाव

V. गद्यांश के अनुसार साधारण लोग क्यों मर रहे हैं? (1)
(a) मानव श्रम से ज्यादा मशीनों को महत्त्व मिलने के कारण
(b) हाथ-पाँव फटने, खून रिसने और सर्दी के कारण
(c) कम मजदूरी मिलने के कारण हुई बीमारियों से
(d) कार्य क्षेत्रों के विषैले पर्यावरण व खाने की कमी से

VI. गद्यांश में मशीनों को 'काली मशीनें' कहना किस बात की ओर संकेत करता है? (1)
(a) काला रंग शोक का प्रतीक होता है।
(b) मशीनों द्वारा जनसाधारण में बेरोजगारी बढ़ाने के कारण
(c) माँ दुर्गा के अवतार काली के जैसे भक्षण करने के कारण
(d) मशीनों से अमीरों द्वारा काला धन अर्जन करने के कारण

VII. "इंजनों के पहिए के नीचे दबकर वहाँ वालों के ....." इस प्रक्रिया के क्या परिणाम हुए? (1)
(a) आर्थिक संपदा का अनुचित वितरण
(b) भाई-बहनों व अन्य रिश्तेदारों में दुराव
(c) समस्त जाति द्वारा कठिन परिश्रम
(d) मशीनों द्वारा मनुष्यों का संरक्षण

III. रस्किन और टालस्टॉय का महत्त्व है, क्योंकि इन्होंने (1)
(a) पूर्वी देशों में साम्राज्यवाद के विरुद्ध आवाज उठाई थी
(b) मानवीय संवेदनाओं एवं गुणों को महत्त्व दिया था
(c) धार्मिक कट्टरता के प्रति चेतना जगाई थी
(d) गाँधीजी इन दोनों के विचारों से अत्यधिक प्रभावित थे।

X. मनुष्य के सौभाग्य का सूर्योदय कब होगा? (1)
(a) मजदूरों द्वारा क्रांति करने से
(b) मशीनों के हट जाने से
(c) सभी लोगों को काम मिलने से
(d) मानवीय दक्षताओं को महत्त्व मिलने से

X. मनुष्य के दुःख में निरंतर वृद्धि का क्या कारण बताया गया है? (1)
(a) मशीनों पर अत्यधिक आश्रित हो जाना
(b) मानवीय दक्षता की आलोचना
(c) पूँजीपतियों द्वारा गरीबों का शोषण
(d) काली मशीनों द्वारा मनुष्यों का भक्षण

अपठित पद्यांश

2. *दिए गए पद्यांश पर आधारित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए प्रश्नों के सर्वाधिक उपयुक्त उत्तर वाले विकल्प को चुनकर लिखिए* (5 × 1 = 5)

कुश्ती कोई भी लड़े
ढोल बजाता है सिमरू ही
जिसके सधे हाथ
भर देते हैं जोश पूरे दंगल में
उछलने लगती है मिट्टी पूरे अखाड़े की
ताक धिना-धिन ... ताक धिना-धिन
झाँकने लगते हैं लोग
एक-दूसरे के कन्धों के ऊपर से
उचक-उचक कर
बहुत गहरा है रिश्ता
सिमरू और ढोल का
जैसे साँस और धड़कन का

ढोल खामोश है
तो खामोश है
अखाड़े की माटी
खामोश ढोल को
जगाएँगे हाथ सिमरू के
ढोल बजेगा
जागेगा अखाड़ा
जागेगी माटी अखाड़े की
माटी ही तो है
जो स्वीकारती है सभी को
अच्छे हों या बुरे
हर रूप में।

I. 'ढोल बजाता है सिमरू ही' पंक्ति में 'ही' क्या इंगित करता है?
(a) आदत
(b) महत्त्व
(c) आडंबर
(d) प्रेम

II. कुश्ती में जोश कब भर आता है?
(a) जब हारता हुआ पहलवान जीतने लगता है
(b) जब दोनों पहलवान बराबर की टक्कर वाले होते हैं
(c) जब फाइनल कुश्ती द्वारा राष्ट्रीय विजेता तय होता है
(d) जब सिमरू द्वारा ढोल बजाया जाता है

III. माटी द्वारा अच्छे-बुरे को स्वीकारने का क्या तात्पर्य है?
(a) माटी सबको जीतने का समान अवसर देती है
(b) माटी का न्याय सबको स्वीकार्य होता है
(c) अंत में अच्छे-बुरे सभी माटी में मिल जाते हैं
(d) माटी की गोद में अच्छे-बुरे सभी पलते हैं

IV. ढोल तथा अखाड़े की माटी में क्या समानता बताई गई है? निम्नलिखित कथनों पर विचार कीजिए
कथन (I) दोनों को उपयोग करने से पहले तैयार करना होता है।
कथन (II) दोनों में श्रम की आवश्यकता होती है।
कथन (III) दोनों का प्रयोग कर लोग अपनी कला सिद्ध करते हैं।
कथन (IV) दोनों की परिवर्तन में भूमिका होती है।
निम्नलिखित विकल्पों पर विचार कीजिए तथा सही विकल्प चुनकर लिखिए

कूट
(a) केवल कथन III सही है।
(b) केवल कथन IV सही है।
(c) केवल कथन II और III सही हैं।
(d) केवल कथन I और IV सही हैं।

V. कॉलम I को कॉलम II से सुमेलित कीजिए और सही विकल्प चुनकर लिखिए।

	कॉलम I		**कॉलम II**
A.	सिमरू	1.	श्रमजीवी वर्ग
B.	ढोल	2.	सामाजिक भूमि
C.	अखाड़ा	3.	परिश्रम

कूट

	A	B	C
(a)	3	1	2
(c)	1	2	3

	A	B	C
(b)	1	3	2
(d)	2	1	3

अभिव्यक्ति और माध्यम

3. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर सर्वाधिक उपयुक्त उत्तर वाले विकल्प को चुनकर लिखिए* (5 × 1 = 5)

I. आलेख कुछ-कुछ फीचर जैसा होता है। फिर भी दोनों में पर्याप्त अंतर है। अतः आलेख का निम्नलिखित में से विषय नहीं हो सकता है (1)

(a) ब्रेकिंग न्यूज
(b) राजनीति
(c) खेलकूद
(d) समसामयिकी

II. ऐसा सुव्यवस्थित, सृजनात्मक और आत्मनिष्ठ लेखन, जिसके माध्यम से सूचनाओं के साथ-साथ मनोरंजन पर भी ध्यान दिया जाता है, उसे ····· कहते हैं। (1)

(a) समीक्षा करना
(b) फीचर लेखन
(c) आलेख लेखन
(d) रिपोर्ट बनाना

III. बीट कवर करने वाले रिपोर्टर को कहा जाता है (1)

(a) लेखक
(b) एंकर
(c) संपादक
(d) संवाददाता

IV. रजत एक पत्रकार हैं। वे सामान्य समाचारों से आगे बढ़कर खेल से जुड़ी या इस विषय से जुड़ी घटनाओं, मुद्दों और समस्याओं का बारीकी से विश्लेषण करते हैं। उनकी रिपोर्टिंग को क्या कहा जा सकता है? (1)

(a) बीट रिपोर्टिंग
(b) फ्रीलांसिंग
(c) विशेषीकृत रिपोर्टिंग
(d) एंकरिंग

V. भास्कर पत्रकार हैं। वे आर्थिक जगत की खबरें बड़ी दिलचस्पी और सक्रियता से कवर करते हैं। उनकी रुचि और रुझान के अनुसार वे क्या बन सकते हैं? (1)

(a) लेखक
(b) पाठक
(c) स्तंभ लेखक
(d) विषय विशेषज्ञ

पाठ्यपुस्तक आरोह भाग 2

4. *निम्नलिखित काव्यांश के प्रश्नों को ध्यानपूर्वक पढ़कर सर्वाधिक उपयुक्त उत्तर वाले विकल्प को चुनकर लिखिए* (5 × 1 = 5)

मैं निज उर के उद्‌गार लिए फिरता हूँ
मैं निज उर के उपहार लिए फिरता हूँ
है यह अपूर्ण संसार न मुझको भाता
मैं स्वप्नों का संसार लिए फिरता हूँ।
मैं जला हृदय में अग्नि, दहा करता हूँ
सुख-दुःख दोनों में मग्न रहा करता हूँ
जग भव-सागर तरने की नाव बनाए,
मैं भव-मौजों पर मस्त बहा करता हूँ।

I. कवि के स्वप्नों का संसार है (1)

(a) यथार्थ
(b) आदर्श
(c) स्वप्निल
(d) सुखी

II. निम्नलिखित कथनों पर विचार करते हुए पद्यांश के अनुसार सही कथन को चयनित कर लिखिए (1)

(a) स्मृतियों की नाव में कवि एक यात्री है।
(b) कविता में अग्नि परिवर्तन की इच्छा का प्रतीक है।
(c) यथार्थ संसार से कवि को कोई सरोकार नहीं है।
(d) सुख-दुःख का असर कवि पर होता है।

III. काव्यांश में 'उर' से तात्पर्य है

(a) हृदय
(b) इच्छा
(c) स्मृति
(d) आवेश

IV. निम्नलिखित कथन और कारण को ध्यानपूर्वक पढ़िए और सही विकल्प चुनकर लिखिए

कथन (A) यथार्थ को स्वीकार नहीं करने से कवि के स्पप्न अधूरे रह गए हैं।
कारण (R) कल्पना और वास्तविकता में सामंजस्य की कमी होने से कवि को संसार अधूरा महसूस होता है।

(a) कथन (A) सही है, कारण (R) गलत है।
(b) कथन (A) सही नहीं है, कारण (R) सही है।
(c) कथन (A) तथा कारण (R) दोनों सही हैं, किंतु कारण (R) कथन (A) की सही व्याख्या नहीं करता है।
(d) कथन (A) तथा कारण (R) दोनों सही हैं, कारण (R) कथन (A) की सही व्याख्या करता है।

V. 'भव-मौजों पर मस्त बहने' से तात्पर्य क्या है?

(a) सांसारिक सुख रूपी लहरें
(b) मौज-मस्ती करना
(c) स्वप्न में उपजी सुख-दुःख की लहरें
(d) नाव जैसी बहने वाली भावुकता

5. *निम्नलिखित गद्यांश के प्रश्नों को ध्यानपूर्वक पढ़कर उपयुक्त उत्तर वाले विकल्प को चुनकर लिखिए* (5×1 =

मैंने मन में कहा, ठीक। बाजार आमंत्रित करता है कि आओ मुझे लूटो और लूटो। सब भूल जाओ, मुझे देखो। मेरा रूप और किसके लिए है? मैं तुम्हारे लिए हूँ। नहीं कुछ चाहते हो, तो भी देखने में क्या हरज है। अजी आओ भी। इस आमंत्रण में यह खूबी है कि आग्रह नहीं है, आग्रह तिरस्कार जगाता है, लेकिन ऊँचे बाजार का आमंत्रण मूक होता है और उससे चाह जगती है, चाह मतलब अभाव। चौक बाजार में खड़े होकर आदमी को लगने लगता है कि उसके अपने पास काफी नहीं है और चाहिए और चाहिए। मेरे यहाँ कितना परिमित है और यहाँ कितना अतुलित है, ओह! कोई अपने को न जाने तो बाजार का यह चौक उसे कामना से विकल बना छोड़े विकल क्यों, पागल। असंतोष, तृष्णा और ईर्ष्या से घायल करके मनुष्य को सदा के लिए यह बेकार बना डाल सकता है।

I. गद्यांश में प्रयुक्त 'अतुलित' शब्द का समानार्थी शब्द हो सकता है

(a) अरिहंत
(b) अथाह
(c) अभाव
(d) अक्षय

II. गद्यांश का केंद्रीय भाव है

(a) बाजार के प्रकार बताना
(b) बाजार न जाने की सलाह
(c) मनुष्य की तृष्णा को इंगित करना
(d) मनुष्य पर बाजार के जादू का असर

III. निम्नलिखित कथनों पर विचार करते हुए गद्यांश के अनुसार सही कथन को चयनित कर लिखिए

(a) जब मनुष्य बेचैन हो जाता है, तब वह बाजार की ओर उन्मुख हो जाता है।
(b) जब मनुष्य तुलना करने लगता है, तब असंतोष, तृष्णा और ईर्ष्या के भाव मनुष्य में उभरते हैं।
(c) जब मनुष्य को बाजार आमंत्रित करता है, तब मनुष्य की व्याकुलता इसका कारण होती है।
(d) जब मनुष्य बाजार का तिरस्कार करता है, तब वह इसका सही लाभ ले पाता है।

IV. कॉलम I को कॉलम II से सुमेलित कीजिए और सही विकल्प चुनकर लिखिए।

	कॉलम I		कॉलम II
A.	आग्रह का तिरस्कार जागता	1.	मौन रहकर कार्य करना
B.	बड़े बाजार का जादू	2.	अपनी तृष्णा को रोकना
C.	बाजार के जादू से बचने का उपाय	3.	इच्छा पूर्ण न होना

कूट

	A	B	C
(a)	3	1	2
(b)	1	3	2
(c)	1	2	3
(d)	2	1	3

V. बाजार का आमंत्रण कि, 'आओ मुझे लूटो' से क्या आशय है? (1)
(a) बाजार लुट जाना चाहता है
(b) बाजार के पास वस्तुएँ बहुत अधिक हैं
(c) बाजार केवल खुद का रूप दिखाना चाहता है
(d) बाजार आकर्षित करना चाह रहा है

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6. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर सर्वाधिक उपयुक्त उत्तर वाले विकल्प को चुनकर लिखिए* (10 × 1 = 10)

I. यशोधर बाबू दफ्तर से घर जल्दी क्यों नहीं जाते थे? (1)
(a) पत्नी और बच्चों से हर छोटी-बड़ी बात पर मतभेद होने के कारण
(b) पीढ़ियों के अंतराल के कारण
(c) ईश्वर में मन लग जाने के कारण
(d) आधुनिकता के प्रति नकार की भावना के कारण

II. संसार के प्राचीनतम दो नियोजित शहर किसे माना गया है? (1)
(a) मेसोपोटामिया तथा सिंधु घाटी
(b) मेसोपोटामिया तथा हड़प्पा
(c) हड़प्पा तथा मुअनजो-दड़ो
(d) मुअनजो-दड़ो तथा मेसोपोटामिया

III. मुअनजो-दड़ो की अनूठी मिसाल क्या है? (1)
(a) नगर नियोजन
(b) प्राचीन शहर
(c) अन्न भंडार
(d) मृतकों का टीला

IV. निम्नलिखित कथन और कारण को ध्यानपूर्वक पढ़िए और सही विकल्प चुनकर लिखिए (1)
कथन (A) यशोधर बाबू के बच्चे धर्म, रिश्तेदार तथा समाज को पिछड़ा मानते हैं।
कारण (R) वे महत्त्वाकांक्षी और प्रगतिशील हैं। उनमें समय के साथ बदलाव आ गया है।
(a) कथन (A) सही है, कारण (R) गलत है।
(b) कथन (A) सही नहीं है, कारण (R) सही है।
(c) कथन (A) तथा कारण (R) दोनों सही हैं, किंतु कारण (R) कथन (A) की सही व्याख्या नहीं करता है।
(d) कथन (A) तथा कारण (R) दोनों सही हैं, लेकिन कारण (R) कथन (A) की सही व्याख्या करता है।

V. निम्नलिखित कथनों पर विचार कीजिए (1)
कथन (I) सिंधु सभ्यता में नगर-नियोजन उन्नत नहीं था।
कथन (II) सिंधु घाटी सभ्यता की खूबी सौंदर्यबोध है।
कथन (III) मुअनजो-दड़ो छोटे-मोटे टीलों पर बसा था।
कथन (IV) सिंधु घाटी सभ्यता टीलों पर आबाद थी।
सही कथनों वाले विकल्प को चयनित कर लिखिए
(a) कथन (I) तथा (II) सही हैं।
(b) कथन (I), (II) तथा (III) सही हैं।
(c) कथन (II), (III) तथा (IV) सही हैं।
(d) कथन (II) तथा (III) सही हैं।

VI. कहानी 'सिल्वर वैडिंग' में यह वाक्य 'वह खुशहाली भी कैसी, जो अपनों में परायापन पैदा करे' किसने कहा होगा? (1)
(a) किशन दा
(b) यशोधर बाबू
(c) भूषण
(d) चड्ढा

VII. 'जूझ' कहानी का लेखक पढ़ना क्यों चाहता था? (1)
(a) ज्ञान के लिए
(b) रोजगार के लिए
(c) कवि बनने के लिए
(d) आत्मविश्वास के लिए

VIII. 'जूझ' कहानी में लेखक का मन पाठशाला जाने के लिए तड़पता था। लेखक के पाठशाला न जा पाने का कारण था (1)
(a) दादा का कामचोर स्वभाव
(b) कवि बनने का स्वप्न
(c) खेती की मेहनत से बचना
(d) घर का कर्ज

IX. कहानी 'सिल्वर वैडिंग' में यशोधर बाबू के बच्चों के लिए कहा गया है कि, 'बच्चे आधुनिक युवा हो चले हैं।' इस पंक्ति से लेखक का क्या आशय हो सकता है? (1)

(a) जीवन के सभी सुख प्रिय हैं
(b) पिता की दिनचर्या से नाराजगी
(c) अच्छी पगार मिलना
(d) आधुनिक जीवन-शैली की ओर रुझान

X. 'जूझ' कहानी के शीर्षक का अर्थ क्या है? (1)

(a) मेहनत
(b) कठिनाई
(c) संघर्ष
(d) चालाकी

खंड 'ब' वर्णनात्मक प्रश्न (40 अंक)

जनसंचार और सृजनात्मक लेखन

7. *निम्नलिखित दिए गए 3 विषयों में से किसी 1 विषय पर लगभग 120 शब्दों में रचनात्मक लेख लिखिए* (1 × 6 = 6)

(क) डिजिटल युग और मैं

(ख) परीक्षा तनाव के कारण व इसे रोकने के उपाय

(ग) उच्च शिक्षा हेतु छात्रों का विदेशों को पलायन

8. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर लगभग 40 शब्दों में निर्देशानुसार उत्तर दीजिए* (2 × 2 = 2)

(i) कहानी के नाट्य रूपांतरण में संवादों के महत्त्व पर टिप्पणी कीजिए।

अथवा

नए और अप्रत्याशित विषयों पर लेखन के संदर्भ में 'मैं' शैली के प्रयोग के बारे में क्या मान्यता है?

(ii) नए और अप्रत्याशित विषयों के लेखन के संदर्भ में इस पंक्ति का आशय स्पष्ट करें "इस तरह का लेखन खुले मैदान की तरह होता है, जिसमें बेलाग दौड़ने, कूदने और कुलाँचे भरने की छूट होती है।"

अथवा

टीवी की तुलना में रेडियो माध्यम की कोई दो सीमाएँ बताइए।

9. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए 3 प्रश्नों में से किन्हीं 2 प्रश्नों के लगभग 60 शब्दों में उत्तर दीजिए* (3 × 2 = 6)

(i) आपको श्रोताओं, दर्शकों या पाठकों को बाँधकर रखने की दृष्टि से प्रिंट माध्यम, टीवी और रेडियो में से सबसे सशक्त माध्यम कौन-सा लगता है? अपने उत्तर के पक्ष में तर्क दें।

(ii) डिजिटल मीडिया के उदय ने समाचार लेखन की उल्टी पिरामिड शैली के उपयोग को कैसे प्रभावित किया है?

(iii) समाचार-पत्रों में विशेष लेखन से आप क्या समझते हैं? उदाहरण सहित उत्तर दें।

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10. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए 3 प्रश्नों में से किन्हीं 2 प्रश्नों के लगभग 60 शब्दों में उत्तर दीजिए* (3 × 2 = 6)

(i) बारिशों के बाद, भादो के पश्चात् प्रकृति में परिवर्तन का कवि ने किस प्रकार वर्णन किया है? 'पतंग' कविता के आधार पर अपने शब्दों में वर्णन करें।

(ii) 'छोटा मेरा खेत' कविता में अंधड़ और बीज से कवि का क्या तात्पर्य है?

(iii) व्यक्ति पर प्रशंसा का क्या प्रभाव पड़ता है? 'बात सीधी थी पर' कविता के आधार पर बताइए।

11. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए 3 प्रश्नों में से किन्हीं 2 प्रश्नों के लगभग 40 शब्दों में उत्तर दीजिए* (2×2 = 4)

(i) 'कैमरे में बंद अपाहिज' कविता के आधार पर स्पष्ट करें कि दूरदर्शन वाले कैमरे के सामने कमजोर को ही क्यों लाते हैं?

(ii) 'बादल राग' कविता के आधार पर भाव स्पष्ट कीजिए "विप्लव-रव से छोटे ही हैं शोभा पाते।"

(iii) 'उषा' कविता में 'भोर के नभ' की तुलना किससे और क्यों की गई है?

12. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए 3 प्रश्नों में से किन्हीं 2 प्रश्नों के लगभग 60 शब्दों में उत्तर दीजिए* (3×2 = 6)

(i) "भक्तिन अच्छी है, यह कहना कठिन होगा, क्योंकि उसमें दुर्गुणों का अभाव नहीं" लेखिका ने ऐसा क्यों कहा होगा?

(ii) 'काले मेघा पानी दे' पाठ के आधार पर पानी और बारिश के अभाव में गाँव की दशा का अपने शब्दों में वर्णन कीजिए।

(iii) 'शिरीष के फूल' निबंध में अवधूत रूप में लेखक ने किस महात्मा को याद किया है और क्यों?

13. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए 3 प्रश्नों में से किन्हीं 2 प्रश्नों के लगभग 40 शब्दों में उत्तर दीजिए* (2×2 = 4)

(i) डॉ. आंबेडकर 'समता' को कल्पना की वस्तु क्यों मानते हैं?

(ii) कहानी 'पहलवान की ढोलक' व्यवस्था के बदलने के साथ लोक कला और इसके कलाकार के अप्रासंगिक हो जाने की कहानी है। पंक्ति को विस्तार दीजिए।

(iii) जिन्हें अपनी जरूरत का पता नहीं होता, वे लोग बाजार का बाजारूपन कैसे बढ़ाते हैं?

पूरक पाठ्यपुस्तक वितान भाग 2

14. *निम्नलिखित प्रश्नों को ध्यानपूर्वक पढ़कर दिए गए 2 प्रश्नों में से किसी 1 प्रश्न का लगभग 60 शब्दों में उत्तर दीजिए* (4×1 = 4)

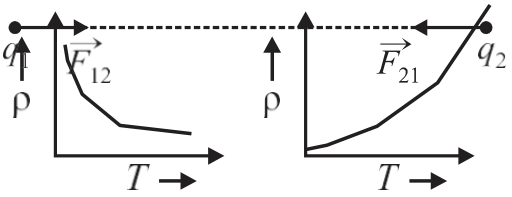
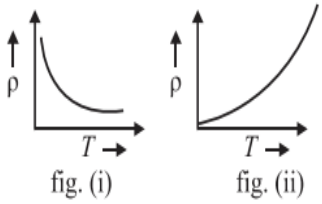
'सिल्वर वैडिंग' कहानी में यशोधर बाबू को अपने बच्चों की आकर्षक आय 'समहाउ इंप्रॉपर' क्यों लगती है? आप यशोधर बाबू के स्थान पर होते तो 'समहाउ इंप्रॉपर' से कैसे सामंजस्य स्थापित करते?

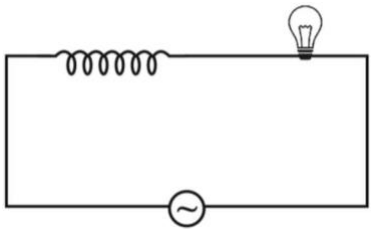
अथवा

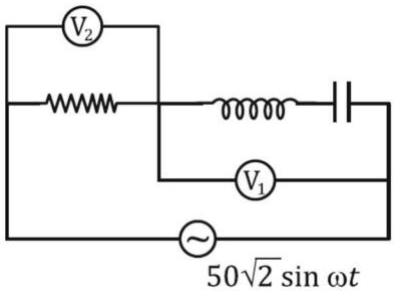
उस घटना का वर्णन अपने शब्दों में कीजिए, जिससे पता चलता है कि लेखक की माँ उसके मन की पीड़ा समझ रही थी? 'जूझ' कहानी के आधार पर बताइए।

NIRJA SAHAY DAV PBLIC SCHOOL , KANKE
HOLIDAY HOMEWORK
SUBJECT: PHYSICS STD – XII SCIENCE

SECTION A

1	**According to Coulomb's law, which is the correct relation for thefollowing figure?**  (i) q1 q2> 0 (ii) q1 q2<0 (iii) q1 q2 =0 (iv) 1> q1/ q2 > 0	1
2	**The electric potential on the axis of an electric dipole at a distance'r from it's centre is V. Then the potential at a point at the same distance on its equatorial line will be** (i) 2V (ii) -V (iii) V/2 (iv) Zero	1
3	**The temperature (T) dependence of resistivity of materials A andmaterial B is represented by fig (i) and fig (ii) respectively.** **Identify material A and material B.**  (i) material A is copper and material B is germanium (ii) material A is germanium and material B is copper (iii) material A is nichrome and material B is germanium (iv) material A is copper and material B is nichrome	1
4	**Two concentric and coplanar circular loops P and Q have their radii in the ratio 2:3. Loop Q carries a current 9 A in the anticlockwise direction. For the magnetic field to be zero at the common centre, loop P must carry** (i) 3A in clockwise direction (ii) 9A in clockwise direction (iii) 6 A in anti-clockwise direction (iv) 6 A in the clockwise direction.	1
5	**A long straight wire of circular cross section of radius a carries asteady current I. The current is uniformly distributed across its cross section. The ratio of the magnitudes of magnetic field at a point distant a/2 above the surface of wire to that at a point distanta/2 below its surface is** (i) 4 :1 (ii) 1:1 (iii) 4: 3 (iv) 3 :4	1
6	**If the magnetizing field on a ferromagnetic material is increased,its permeability** (i) decreases (ii) increases (iii) remains unchanged (iv) first decreases and then increases	1

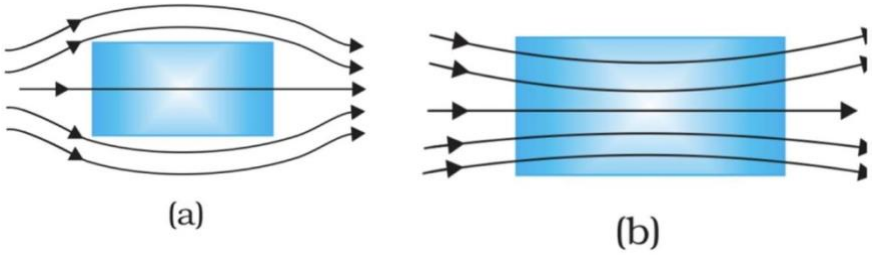
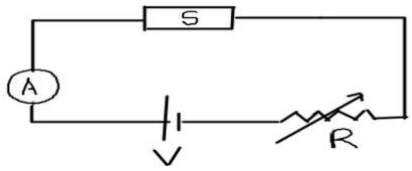
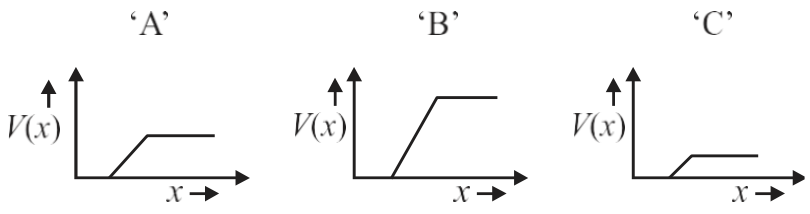
7	**An iron cored coil is connected in series with an electric bulb with an AC source as shown in figure. When iron piece is taken out ofthe coil, the brightness of the bulb will**  **(i)** decrease **(ii)** increase **(iii)** remain unaffected **(iv)** fluctuate	1
8	**Which of the following statement is NOT true about the propertiesof electromagnetic waves?** (I) These waves do not require any material medium for theirpropagation (ii) Both electric and magnetic field vectors attain the maxima andminima at the same time (iii) The energy in electromagnetic wave is divided equally betweenelectric and magnetic fields (iv) Both electric and magnetic field vectors are parallel to each other	1
9	A rectangular, a square, a circular and an elliptical loop, all in the (*x*-*y*) plane, are moving out of a uniform magnetic field with a constant velocity $\vec{v} = v\hat{i}$.The magnetic field is directed along the negative *z*-axis direction. The induced emf, during the passage of these loops, out of the field region, will not remain constant for (i) any of the four loops (ii) the circular and elliptical loops (iii) the rectangular, circular and elliptical loops (iv) only the elliptical loops	1
10	**In a Young's double slit experiment, the path difference at a certainpoint on the screen between two interfering waves is 1/8 th of the wavelength. The ratio of intensity at this point to that at the centreof a bright fringe is close to** (i) 0.80 (ii) 0.74 (iii) 0.94 (iv) 0.85	1
11	**The work function for a metal surface is 4.14 eV. The thresholdwavelength for this metal surface is:** (i) 4125 Å (ii) 2062.5 Å (iii) 3000 Å (iv) 6000 Å	1

12	**The radius of the innermost electron orbit of a hydrogen atom is5.3×10^{-11} m. The radius of the n =3 orbit is** (i) 1.01 x 10^{-10}m (ii) 1.59 X 10^{-10}m (iii) 2.12 x 10^{-10}m (iv) 4.77 X 10^{-10}m	1
13	**Which of the following statements about nuclear forces is nottrue?** **(i)** The nuclear force between two nucleons falls rapidly to zero astheir distance is more than a few femtometres. **(ii)** The nuclear force is much weaker than the Coulomb force. **(iii)** The force is attractive for distances larger than 0.8 fm andrepulsive if they are separated by distances less than 0.8 fm. **(iv)** The nuclear force between neutron-neutron, proton-neutronand proton-proton is approximately the same.	1
14	**If the reading of the voltmeter V1 is 40 V, then the reading ofvoltmeter V2 is**	1
	 (i) 30 V (ii) 58 V (iii) 29 V (iv) 15 V	
15	**Two statements are given-one labelled Assertion (A) and the otherlabelled Reason (R). Select the correct answer to these questionsfrom the codes (a), (b), (c) and (d) as given below.** **a) Both A and R are true and R is the correct explanation of A** **b) Both A and R are true and R is NOT the correct explanation of A**	1
	c) A is true but R is false **d) A is false and R is also false** **ASSERTION(A):** The electrical conductivity of a semiconductor increases on doping. **REASON:** Doping always increases the number of electrons in thesemiconductor.	

16	**Two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.** **a) Both A and R are true and R is the correct explanation of A** **b) Both A and R are true and R is NOT the correct explanation of A** **c) A is true but R is false** **d) A is false and R is also false** **ASSERTION:** In an interference pattern observed in Young's double slit experiment,if the separation (d) between coherent sources as well as the distance (D) of the screen from the coherent sources both are reduced to $1/3^{rd}$, then new fringe width remains the same**.** **REASON:** Fringe width is proportional to (d/D)**.**	1
17	**Two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.** **a) Both A and R are true and R is the correct explanation of A** **b Both A and R are true and R is NOT the correct explanation of A** **c) A is true but R is false** **d) A is false and R is also false** **Assertion(A)** : The photoelectrons produced by a monochromatic light beam incident on a metal surface have a spread in their kinetic energies. **Reason(R)** :	1
	The energy of electrons emitted from inside the metal surface, is lostin collision with the other atoms in the metal.	

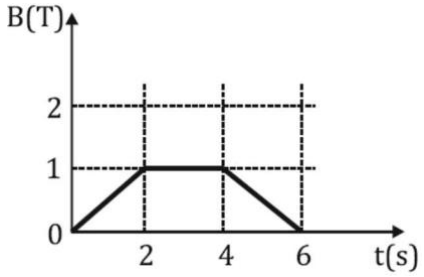
SECTION B

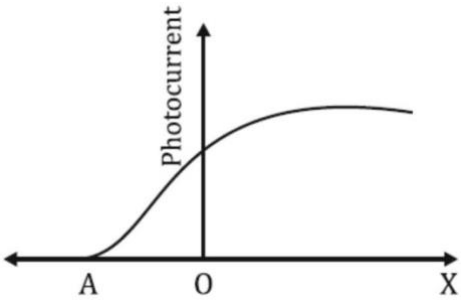
18	Electromagnetic waves with wavelength (i) λ_1 is suitable for radar systems used in aircraft navigation. (ii) λ_2 is used to kill germs in water purifiers. (iii) λ_3 is used to improve visibility in runways during fog and mist conditions. Identify and name the part of the electromagnetic spectrum to which these radiations belong.Also arrange these wavelengths in ascending order of theirmagnitude.	2

19	A uniform magnetic field gets modified as shown in figure when twospecimens A and B are placed in it.  (i) Identify the specimen A and B. **(ii)** How is the magnetic susceptibility of specimen A different fromthat of specim**e**n B**?**	2
20	What is the nuclear radius of ^{125}Fe ,if that of ^{27} Al is 3.6 fermi?. **OR** The short wavelength limit for the Lyman series of the hydrogen spectrum is 913.4 $\mathbf{A^0}$. Calculate the short wavelength limit for the Balmer series of the hydrogen spectrum.	2
21	A biconvex lens made of a transparent material of refractive index 1.25is immersed in water of refractive index 1.33. Will the lens behave as a converging or a diverging lens? Justify your answer.	2
22	The figure shows a piece of pure semiconductor S in series with a variable resistor R and a source of constant voltage V. Should the value of R be increased or decreased to keep the reading of the ammeter constant, when semiconductor S is heated? Justify your answer  **OR** The graph of potential barrier versus width of depletion region for an unbiased diode is shown in graph A. In comparison to A ,graphs B andC are obtained after biasing the diode in different ways .Identify the type of biasing in B and C and justify your answer.  	2
23	A narrow slit is illuminated by a parallel beam of monochromatic light of wavelength λ equal to 6000 Å and the angular width of the central maximum in the resulting diffraction pattern is measured. When the slitis next illuminated by light of wavelength λ', the angular width decreases by 30%. Calculate the value of the wavelength λ'.	2

24	Two large, thin metal plates are parallel and close to each other. On their inner faces, the plates have surface charge densities of opposite signs and of magnitude 17.7×10^{-22} C/m^2. What is electric field intensityE: (a) in the outer region of the first plate, and (b) between the plates?	

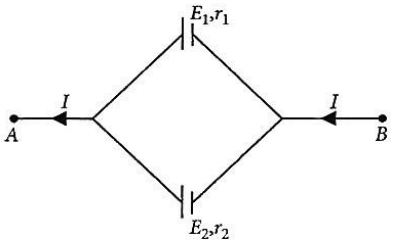
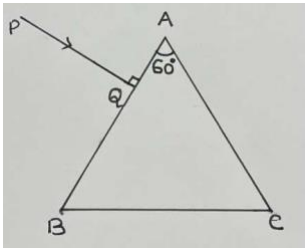
SECTION C

25	Two long straight parallel conductors carrying currents I1 and I2 are separated by a distance d. If the currents are flowing in the same direction, show how the magnetic field produced by one exerts an attractive force on the other. Obtain the expression for this force and hence define 1 ampere.	3
26.	The magnetic field through a circular loop of wire, 12cm in radius and 8.5Ω resistance, changes with time as shown in the figure. The magnetic field is perpendicular to the plane of the loop. Calculate the current induced in the loop and plot a graph showing induced current as a function of time.  	3
27	An a.c. source generating a voltage $\varepsilon = \varepsilon_0 \sin \omega t$ is connected to a capacitor of capacitance C. Find the expression for the current I flowingthrough it. Plot a graph of ε and I versus ωt to show that the current is ahead of the voltage by π/2. **OR** An ac voltage $V = V_0 \sin \omega t$ is applied across a pure inductor of inductance *L*. Find an expression for the current *i*, flowing in the circuit and show mathematically that the current flowing through it lags behindthe applied voltage by a phase angle of π/2 Also draw graphs of *V* and 2 *i* versus ωt for the circuit.	3
28	Radiation of frequency 10^{15} Hz is incident on three photosensitivesurfaces A, B and C. Following observations are recorded: **Surface A**: no photoemission occurs **Surface B**: photoemission occurs but the photoelectrons have zerokinetic energy.	3

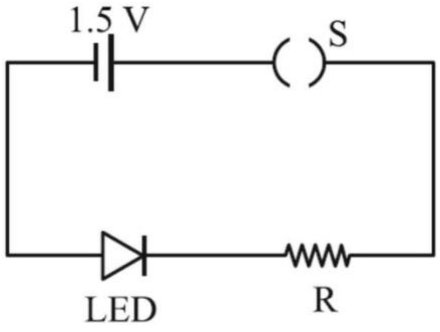
	Surface C: photo emission occurs and photoelectrons have somekinetic energy. Using Einstein's photo-electric equation, explain the threeobservations. **OR** **The graph shows the variation of photocurrent for aphotosensitive metal** (a) What does X and A on the horizontal axis represent? (b) Draw this graph for three different values of frequencies of incidentradiation υ1, υ 2 and υ 3 (υ 3>υ 2>υ1) for the same intensity. (c) Draw this graph for three different values of intensities of incidentradiation I1, I2 and I3 (I3> I2>I1) having the same frequency. 	
29	The ground state energy of hydrogen atom is -13.6 eV. The photon emitted during the transition of electron from n=3 to n=1 state, is incident on a photosensitive material of unknown work function .The photoelectrons are emitted from the material with the maximum kineticenergy of 9eV.Calculate the threshold wavelength of the material used.	3

SECTION D

30	(a) Draw equipotential surfaces for (i)an electric dipole and (ii) two identical positive charges placed near each other. (b) In a parallel plate capacitor with air between the plates, each plate has an area of 6 x $10^{-3}m^2$ and the separation between the plates is 3 mm. (i) Calculate the capacitance of the capacitor. (ii) If the capacitor is connected to 100V supply, what would be thethe charge on each plate? (iii) How would charge on the plate be affected if a 3 mm thick mica sheet of k=6 is inserted between the plates while the voltage supplyremains connected ?.	5
	OR (a)Three charges –q, Q and –q are placed at equal distances on a straight line. If the potential energy of the system of these charges is zero, then what is the ratio Q:q? (b)(i) Obtain the expression for the electric field intensity due to a uniformly charged spherical shell of radius R at a point distant r from the centre of the shell outside it. (ii) Draw a graph showing the variation of electric field intensity E with r, for r > R and r < R.	

31	(a) Explain the term drift velocity of electrons in a conductor .Hence obtain the expression for the current through a conductor in terms of drift velocity. (b) Two cells of emfs E_1 and E_2 and internal resistances $r_1$and $r_2$respectively are connected in parallel as shown in the figure. Deduce the expression for the (i) equivalent emf of the combination (ii) equivalent internal resistance of the combination (iii) potential difference between the points *A* and *B*.  **OR** (a) State the two Kirchhoff's rules used in the analysis ofelectric circuits and explain them. (b) Derive the equation of the balanced state in a Wheatstonebridge using Kirchhoff's laws.	5
33	a) Draw the graph showing intensity distribution of fringes withphase angle due to diffraction through a single slit. What is the width of the central maximum in comparison to that of asecondary maximum? b) A ray PQ is incident normally on the face AB of a triangular prism of refracting angle 60 as shown in figure. The prism is made of a transparent material of refractive index 2 . Trace the path of the ray as it passes through $\sqrt{3}$ the prism. Calculate the angle of emergence and the angle of deviation.  **OR** Write two points of difference between an interference pattern and Diffraction (i) A ray of light incident on face AB of an equilateral glass prism, shows minimum deviation of 30°. Calculate the speed of light through the prism. (ii) Find the angle of incidence at face AB so that the emergent ray grazes along the face AC.	5

SECTION E

33	**Case Study :** ***Read the following paragraph and answer the questions.*** A number of optical devices and instruments have been designed and developed such as periscope, binoculars, microscopes and telescopes utilising the reflecting and refractingproperties of mirrors, lenses and prisms. Most of them are in common use. Our knowledge about the formation of images by the mirrors and lenses is the basic requirement for understanding the working of these devices. (i) Why the image formed at infinity is often considered mostsuitable for viewing. Explain (ii) In modern microscopes multicomponent lenses are used forboth the objective and the eyepiece. Why? (iii) Write two points of difference between a compound microscope and an astronomical telescope **OR** (iii) Write two distinct advantages of a reflecting type telescopeover a refracting type telescope.
35	**Case study: Light emitting diode.** **Read the following paragraph and answer the questions** **LED** is a heavily doped P-N junction which under forward bias emits spontaneous radiation. When it is forward biased, due to recombination of holes and electrons at the junction, energy is released in the form of photons. In the case of Si and Ge diode, the energy released in recombination lies in the infrared region. LEDs that can emit red, yellow, orange, green and blue light are commercially available. The semiconductor used for fabrication of visible LEDs must at least have a band gap of 1.8 eV. The compound semiconductor Gallium Arsenide — Phosphide is used for making LEDs of different colours.
	LEDs of different kinds  **(i)**. Why are LEDs made of compound semiconductor and not of elementalsemiconductors? **(ii)** What should be the order of bandgap of an LED, if it is requiredto emit light in the visible range? **(iii)** A student connects the blue coloured LED as shown in the figure.The LED did not glow when switch S is closed. Explain why ?  **OR** (iii) Draw V-I characteristic of a p-n junction diode in (i) forward bias and (ii) reverse bias

Chemistry

Instructions

Time : **3 hrs** Max. Marks : **70**

Read the following instructions carefully.

1. There are 33 questions in this question paper with internal choice.
2. Section A consists of 16 multiple-choice questions carrying 1 mark each.
3. Section B consists of 5 short answer questions carrying 2 marks each.
4. Section C consists of 7 short answer questions carrying 3 marks each.
5. Section D consists of 2 case-based questions carrying 4 marks each
6. Section E consists of 3 long answer questions carrying 5 marks each.
7. All questions are compulsory.

Section A

The following questions are multiple-choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

1. Major product formed on monochlorination of toluene in sunlight followed by hydrolysis in aqueous NaOH is

(a) *o*-cresol

(b) *m*-cresol

(c) 2, 4-dihydroxytoluene

(d) benzyl alcohol

2. Arrange the following in decreasing order of basic strength in aqueous medium

A. $(CH_3)_2NH$ *B*. CH_3NH_2

C. $C_6H_5NHCH_3$ *D*. $NC—CH_2NH_2$

Choose the correct option.

(a) $A > B > C > D$

(b) $D > C > B > A$

(c) $C > A > B > D$

(d) $B > D > A > C$

3. Which of the following statements concerning methylamine is correct?

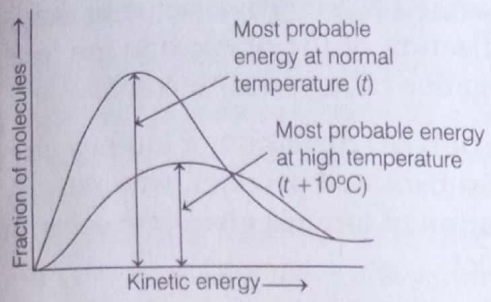
(a) Methylamine is stronger base than NH_3.

(b) Methylamine is less basic than NH_3.

(c) Methylamine is slightly acidic.

(d) Methylamine forms salts with alkali.

4. In the graph showing Maxwell-Boltzmann distribution of energy,



(a) area under the curve remains same with increase in temperature
(b) area under the curve increases with increase in temperature
(c) area under the curve decreases with increase in temperature
(d) with decrease in temperature, curve broadens and shifts to the right hand side

5. The major product formed when acetone is reduced in presence of $NaBH_4$ is
(a) 1-propanol
(b) 2-propanol
(c) propionaldehyde
(d) propanoic acid

6. Cd is not regarded as transition element due to
(a) completely filled *d*-orbital in the excited state.
(b) completely filled orbital in ground state as well as in its common oxidation state.
(c) completely filled *s*-orbital.
(d) completely filled 5*d*-orbital.

7. Match the following columns.

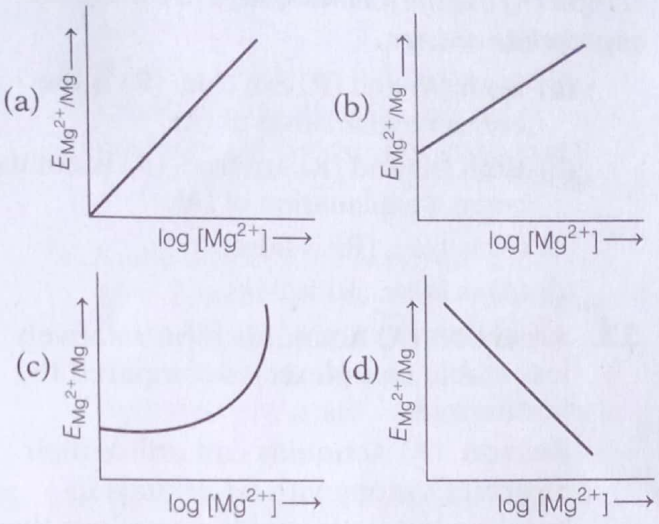
A.	Ethyl Alcohol	1.	Ethanoic acid
B.	Acetic acid	2.	Ethanol
C.	Formic acid	3.	Methanoic acid
D.	Butyl aldehyde	4.	Butanal

Codes
(a) A-2, B-1, C-3, D-4 (b) A-1, B-2, C-3, D-4
(c) A-4, B-3, C-2, D-1 (d) A-2, B-4, C-3, D-1

8. Electrode potential for Mg electrode varies according to the equation:

$$E_{Mg^{2+}/Mg} = E^{\circ}_{Mg^{2+}/Mg} - \frac{0.059}{2} \log \frac{1}{[Mg^{2+}]}$$

The correct graphical representation of $E_{Mg^{2+}/Mg}$ *versus* $\log [Mg^{2+}]$ will be



9. Which one of the following compound is more reactive towards S_N2 reaction?
(a) $CH_3CH_2CH_2CH_2Br$
(b) $CH_3CH_2CH(Br)CH_3$
(c) $(CH_3)_3CBr$
(d) $(CH_3)_2CHCH_2Br$

10. The number of chloride ion produced by complex tetraamminedichloroplatinum (IV) chloride in an aqueous solution is
(a) two (b) four
(c) one (d) three

11. Rate law for reaction $A + 2B \longrightarrow C$ is found to be

$$\text{Rate} = k[A][B]$$

If concentration of the reactant '*B*' is doubled on keeping the concentration of '*A*' constant, then the value of rate constant will be
(a) the same (b) doubled
(c) quadrupled (d) halved

12. When 1 mole $CrCl_3 \cdot 6H_2O$ is treated with excess of $AgNO_3$, 3 moles of AgCl are obtained.
The formula of the complex is
(a) $[CrCl_3(H_2O)_3] \cdot 3H_2O$
(b) $[CrCl_2(H_2O)_4]Cl_2 \cdot H_2O$
(c) $[CrCl(H_2O)_5]Cl_2 \cdot H_2O$
(d) $[Cr(H_2O)_6]Cl_3$

Direction (Q. Nos. 13-16) *In the following questions as Assertion (A) is followed by a corresponding Reason (R) use the following keys to choose the appropriate answer.*

(a) Both (A) and (R) are true, (R) is the correct explanation of (A).

(b) Both (A) and (R) are true, (R) is not the correct explanation of (A).

(c) (A) is true, (R) is false.

(d) (A) is false, (R) is true.

13. **Assertion** (A) Actinoids form relatively less stable complexes as compared to lanthanoids.

Reason (R) Actinoids can utilise their 5*f*-orbitals alongwith 6*d*-orbitals in bonding but lanthanoids do not use their 4*f*-orbital for bonding.

14. **Assertion** (A) *p*-nitrophenol is more acidic than phenol.

Reason (R) Nitro group helps in the stabilisation of the phenoxide ion by dispersal of negative charge due to resonance.

15. **Assertion** (A) Acylation of amines gives a monosubstituted product, whereas alkylation of amines gives polysubstituted product.

Reason (R) Acylation occurs at N-atom, whereas alkylation occurs at *o/p* position.

16. **Assertion** (A) All naturally occurring α-amino acids except glycine are optically active.

Reason (R) Most naturally occurring amino acids have L-configuration.

■ Section B

This section contains 5 questions with internal choice in one question. The following questions are very short answer type and carry 2 marks each.

17. Give reason for the following.

(a) *p*-dibromobenzene has higher melting point than *o*-isomer.

(b) Haloarenes are less reactive than haloalkanes and haloalkenes.

18. Explain how and why the rate of reaction for a given reaction gets affected when

(a) temperature is raised.

(b) reaction progresses.

19. (a) Write the cell reaction of a lead storage battery when it is discharged.

(b) How does the density of the electrolyte change when the battery is discharged?

20. Account for the following.

(a) Sucrose is dextrorotatory but the mixture obtained after hydrolysis is laevorotatory.

(b) Amino acids behave like salts rather than simple amines or carboxylic acids in aqueous solution.

Or

When sucrose is hydrolysed the optical rotation values are measured using a polarimeter and are given in the following table.

Time (Hours)	Specific rotation
0	+ 66.5°
∞	− 39.9°

(a) Account for the two specific rotation values.

(b) What is the specific name given to sucrose based on the above observation?

21. The hexaaquamanganese(II) ion contains five unpaired electrons, while the hexacyano manganese (II) ion contains only one unpaired electron. Explain using crystal field theory.

Section C

This section contains 7 questions with internal choice in one question. The following questions are short answer type and carry 3 marks each.

22. Give reasons of the following observations.

(a) Alkylamine is more basic than ammonia.

(b) Aniline is a weaker base than cyclohexyl amine.

(c) Electrophilic substitution in case of aromatic amines takes place more readily than benzene.

23. Answer the following questions.

(a) Thermodynamic feasibility of the reaction alone cannot decide the rate of the reaction. Explain with the help of one example. (1)

(b) A first order reaction is found to have a rate constant, $k = 5.5 \times 10^{-14}\ s^{-1}$. Find the half-life of the reaction.

(c) If half-life period of a first order reaction is x and $\frac{3}{4}$th life period of the same reaction is y, how x and y related to each other?

24. Using valence bond theory, explain with respect to $[Co(NH_3)_6]^{3+}$, type of hybridisation, magnetic moment value, and type of complex (i.e. inner or outer orbital complex).

25. (a) Identify the major product when chlorobenzene undergoes Friedel-Crafts acylation reaction. Write the reagents which are used to carry out the reaction.

(b) Why is C—X bond in haloarenes extremely less reactive towards nucleophilic substitution reactions?

Or

(a) Name the possible substrate which will give 2-methylpropene on reaction with KOH. Write the reaction involved.

(b) Grignard reagents should be prepared under anhydrous conditions. Why?

26. The partial pressure of ethane over a saturated solution containing 6.56×10^{-3} g of ethane is 1 bar.

If the solution were to contain 5.0×10^{-2} g of ethane, then what will be the partial pressure of the gas?

27. Write the structures of A, B and C in the following reactions.

$$C_6H_6 \xrightarrow[\text{Anhy. } AlCl_3]{CH_3COCl} [A] \xrightarrow{Zn—Hg/\text{Conc. } HCl} [B] \xrightarrow[(ii)\ H_3O^+]{(i)\ KMnO_4,\ KOH/\Delta} [C]$$

28. How are the following conversions carried out?

(a) Benzyl chloride to benzyl alcohol

(b) Ethyl magnesium chloride to propan-1-ol

(c) Propene to propan-2-ol

Section D

The following questions are case-based questions. Each question has an internal choice and carries 4(1+1+2) marks each. Read the passage carefully and answer the questions that follow.

29. Proteins are high molecular mass complex biomolecules of amino acids. The important proteins required for our body are enzymes, hormones, antibodies, transport proteins, structural proteins, contractile proteins etc. Except for glycine, all α-amino acids have chiral carbon atom and most of them have L-configuration.

The amino acid exists as dipolar ion called Zwitter ion, in which a proton goes from the carboxyl group to the amino group. A large number of α-amino acids are joined by peptide bonds forming polypeptides. The peptides having very large molecular mass (more than 10,000) are called proteins. The structure of proteins is described as primary structure giving sequence of linking of amino acids;

secondary structure giving manner in which polypeptide chains are arranged and folded; tertiary structure giving folding, coiling or bonding polypeptide chains producing three dimensional structures and quaternary structure giving arrangement of sub-units in an aggregate protein molecule.

When a protein in its native form, is subjected to physical changes like change in temperature or chemical changes like change in pH, the hydrogen bonds are disturbed. Due to this, globules unfold and helix gets uncoiled and protein loses its biological activity. This is called denaturation of protein. The denaturation causes change in secondary and tertiary structures but primary structures remains intact.

Examples of denaturation of protein are coagulation of egg white on boiling, curdling of milk and formation of cheese when an acid is added to milk.

Answer the following questions.

(a) In which form do amino acids exist? How is the charge distributed in amino acids?

(b) What information is furnished by secondary structure of proteins?

(c) What happens when a protein is subjected to harsh changes? Write the name of the process involved.

Or

How is quaternary structure of proteins formed?

30. Raj is investigating the melting point of different salt solutions. He makes a salt using 20 mL of water with a known mass of KCl salt. He puts the salt solution into a freezer and leaves it to freeze.

He takes the frozen salt solution out of the freezer and measures the temperature when the frozen salt solution melts. He repeats each experiment and gets following observations.

S.No.	Mass of the KCl used in g	Melting point in °C	
		Readings Set 1	Readings Set 2
1	0.6	– 3.8	– 3.8
2	0.8	– 5.0	– 5.2
3	1.0	– 6.0	– 11.0
4	1.2	– 7.6	– 7.6
5	1.6	– 10.2	– 10.0
6	2.0	– 12.8	– 12.6

Assuming the melting point of pure water as 0°C, answer the following questions.

(a) One temperature in the second set of results does not fit the pattern.

Which temperature is that? Justify your answer.

Or

Why did Raj collect two sets of results?

(b) What is the predicted melting point if 2.4 g of salt is added to 20 mL of water? Justify your answer.

(c) In place of KCl, if Raj had used fructose, what would have been the melting point of the solution with 0.6 g fructose in it?

Section E

The following questions are long answer type and carry 5 marks each. All questions have an internal choice.

31. An alkene '*A*' (Mol. formula C_5H_{10}) on ozonolysis gives a mixture of two compounds, '*B*' and '*C*'. Compound '*B*' gives positive Fehling test and forms iodoform on treatment with I_2 and NaOH. Compound '*C*' does not give Fehling test but forms iodoform.

Identify the compounds *A*, *B* and *C* and write all the chemical equations involved.

Or

(a) When liquid '*A*' is treated with a freshly prepared ammoniacal silver nitrate solution, it gives a bright silver mirror. The liquid forms a white crystalline solid on treatment with sodium hydrogen sulphite.
Liquid '*B*' also forms a white crystalline solid with sodium hydrogen sulphite, but it does not give a test with ammoniacal silver nitrate.
(i) Identify *A*. (ii) Identify *B*.
(iii) Will boiling point of *A* and *B* be higher than their counter hydrocarbon?

(b) Draw the structures of the following derivatives.
(i) Propanone oxime
(ii) Semicarbazone of CH_3CHO

32. (a) What are fuel cells? Give an example of a fuel cell.

(b) Calculate the equilibrium constant ($\log K_C$) and $\Delta_r G^\circ$ for the following reaction at 298 K.

$$Cu(s) + 2Ag^+(aq) \rightleftharpoons Cu^{2+}(aq) + 2Ag(s)$$

Given, $E^\circ_{cell} = 0.46\ V$

and $1F = 96500\ C\ mol^{-1}$

(c) Write the anode and cathode reactions and the overall reaction occurring in a lead storage battery.

Or

(a) Write the cell reaction and calculate the emf of the following cell at 298 K.

$$Sn(s)|Sn^{2+}(0.004\ M)\ ||\ H^+(0.020\ M)|H_2(g)\ (1\ bar)|Pt(s)$$

(Given : $E^\circ_{Sn^{2+}/Sn} = -0.14\ V$)

(b) Give reasons.
(i) On the basis of E° values, O_2 gas should be liberated at anode, but it is Cl_2 gas which is liberated in the electrolysis of aqueous NaCl.
(ii) Conductivity of CH_3COOH decreases on dilution.

33. Attempt any five of the following.

(a) Why do transition elements show variable oxidation states?

(b) Generally there is an increase in density of elements from titanium ($Z = 22$) to copper ($Z = 29$) in the first series of transition elements.

(c) Transition elements and their compounds are generally found to be good catalysts in chemical reactions.

(d) Why copper cannot replace hydrogen from acids?

(e) Why first ionisation enthalpy of Cr is lower than that of Zn?

(f) Mn^{3+} is a good oxidising agent.

(g) $E^\circ_{M^{2+}/M}$ values are not regular for first row transition metals.