



General Instructions:

- Answer all the questions.
- Specific instructions, wherever necessary are given. Follow them strictly.
- The question paper is divided into three sections: A, B & C. All the sections are compulsory.
Section A – Reading skills (26 marks)
Section B – Writing skills and Grammar (23 marks)
Section C – Literature (31 marks)
- The question paper consists of 5 printed sides.

Section A – Reading Skills (26 marks)

I. Read the passage given below and answer the questions that follow:

1. A dance which is created or choreographed and performed according to the tenets of the Natya Shastra is called a classical dance. The two broad aspects of classical dancing are the tandava and the lasya. Power and force are typical of the tandava; grace and delicacy, of the lasya. Tandava is associated with Shiva, and lasya with Parvati. Dance which is pure movement is called nritya, and dance which is interpretative in nature is called nritya. The four main school of classical dancing in India are: Bharat Natyam, Kathakali, Manipuri and Kathak.
2. Bharatanatyam is the oldest and most popular dance form of India. Earlier, it was known by various names. Some called in Bharatam, some Natyam, some Desi Attam and some Sadir. The districts of Tanjore and Kanchipuram in Tamil Nadu were the focal points in the development of Bharat Natyam. It was performed as a solo performance by devadasis (temple dancers) on all auspicious occasions. Later, kings and rich people lent their patronage to it and it started shedding its purely sacred character.
3. The dancer is directed by the natwanar, who is a musician and, invariably, a teacher. Another musician plays the cymbals. The music for Bharatnatyam is from the Carnatic School of music. The mridangam (a drum), played on both sides with the hands, provides the rhythm.
4. The home of Kathakali is Kerala. Kathakali literally means 'story-play'. It combines music, dance, poetry. Drama and mime. Its present form has evolved out of older forms such as Ramanattam and Krishnanattam.
5. Kathakali dance-dramas last from dusk to dawn. The artists use elaborate costumes; mask-like make-up and towering head-dresses. The dancers are all males. Female roles are usually played by boys. There is no stage – a few mats are spread on the ground for the audience to sit on. The only 'stage-lighting' is a brass lamp fed with coconut oil.
6. Two singers provide the vocal music. The chenda, a large drum, which is beaten on one side with two slender curved sticks, is an integral part of the Kathakali performance. A metal gong, a pair of cymbals and another drum complete the orchestra. Besides providing the beat, they are also the means by which all the sound-effects are created.

On the basis of your understanding of the passage, answer any 10 of the following questions. (1x10=10)

- (i) What is the Natya Shastra ?
(a) A scientific study of classical dance (b) The science of dances
(c) Shiva's sacred thread (d) None of these
- (ii) When did Bharat Natyam start shedding its purely sacred character?
(a) When the devadasis stopped dancing (b) When it was danced as a solo performance
(c) When kings and the rich patronised it (d) When they used Carnatic music
- (iii) Which of the following lists the elements not present in Kathakali?
(1) Drama (2) Costume (3) Mime (4) Stage (5) Dance (6) Table
(a) 4 and 6 (ii) 1, 2, 3 (c) 3, 4, 5 (d) 1 and 3
- (iv) The phrase 'focal point' indicates
(a) origin (b) popularity (c) teaching center (d) home to popular dancers
- (v) The word 'invariably' in the passage denotes
(a) the temporary nature (b) the unchanging nature (c) the domination (d) the usual
- (vi) Pick the option showing the CORRECT USE OF 'SLENDER' as used in the passage.
(a) She's got a beautiful slender figure.
(b) A slender hope still flickered within him.
(c) These claims are based on slender evidence.
(d) The builders have perched a light concrete dome on eight slender columns.
- (vii) Which of the following statements is true for Kathakali?
(a) Kathakali is performed on drums.
(b) Kathakali performance starts at dusk and ends at dawn.
(c) Kathakali is performed as street plays.
(d) Kathakali is generally based on universal social issues.
- (viii) The 'Natuvanar' in a dance performance is a
(a) Background dancer (b) musician (c) teacher (d) Both (b) and (c)

- (ix) Where is Bharatnatyam most popular in?
- (x) Which two schools of classical dance are described in the passage?
- (xi) In which drama form the dancers are all males.
- (xii) Which word is the synonym of 'delicacy' in paragraph 1.

II. Read the passage given below and answer the questions that follow:

Prime Minister Narendra Modi launched Swachh Bharat Mission on 2nd October, 2014, by wielding a broom on the streets of Delhi. The program, which has Mahatma Gandhi's iconic spectacles as its logo, is one of the most hyped schemes of the Modi Government. Its primary goal is to make India open defecation-free by 2019.

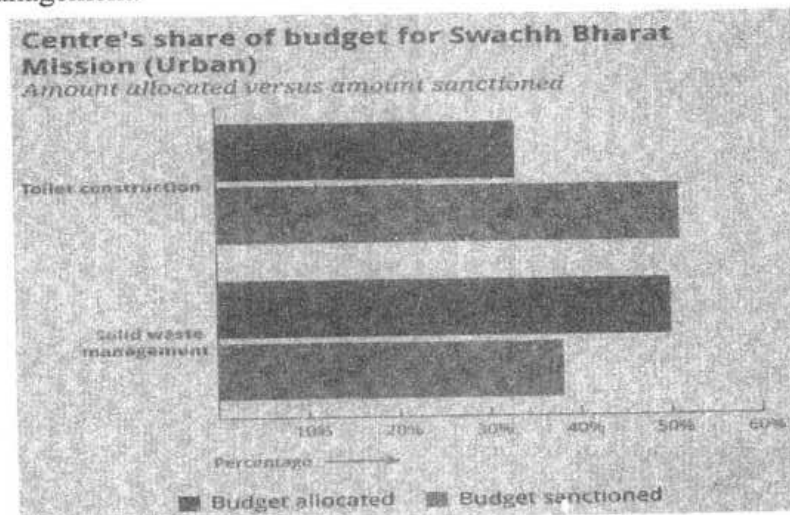
As of 1st February, 2019, the Modi Government claimed that 5.5 lakh villages and 28 of India's 36 states and Union Territories had become open defecation free. But independent surveys show a mixed picture.

The Research Institute for Compassionate Economics surveyed 3,235 households in four states in North India in 2014 and 2018. It found open defecation had reduced by 26% in the four years since Swachh Bharat was launched. But access to toilets does not mean open defecation has ended. The RICE survey found 23% of people who own a toilet continue to defecate in the open, including people in Rajasthan and Madhya Pradesh, which have been declared open defecation-free-states.

To achieve its goals under the Swachh Bharat Mission, the government outlined a three-pronged strategy: using social messaging, education and communication to trigger behaviour change, providing subsidies to vulnerable social groups to help them construct latrines at home and verifying and monitoring the continued use of these latrines through surveys and social audits.

The Mission's objectives also include creating sustainable solid and liquid waste management systems, promoting social inclusion by improving sanitation for women and marginalised communities, and eradicating manual scavenging. In the four years since it was rolled out, the Mission has focused almost entirely on toilet construction and ownership.

In the urban component of Swachh Bharat, toilet construction was meant to take up 33% of the budgetary allocation, while 50% was allocated towards improving solid waste management. However, in the past four year, the Centre has sanctioned 51% of its share of the urban budget towards toilet constructions, and only 38% towards solid waste management.



India generates over 1,50,000 tons of municipal solid waste per day. Only 83% of waste is collected and less than 30% is treated. As noted above, the government has chosen to prioritise toilet construction as the cost of waste management services.

Even though the budget for waste management has increased over the years, at least 23 States/Union Territories were yet to receive that year's funds for it.

On the basis of your reading of the passage, answer any eight of the following questions : (1x8=8)

- (i) What is the goal of the mission?
 1. To make India open-defecation free.
 2. To clean he Indian rivers.
 3. To make oceans completely clean.
 4. To pay respect to sweepers and cleaners.

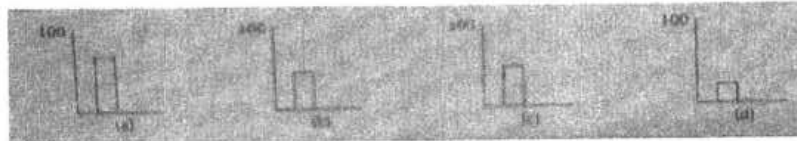
(a) Only 1 (b) 1 and 2 (c) 3 and 4 (d) Only 4
- (ii) Pick the option that lists statement that are NOT TRUE according to the passage.
 1. India is free from open defecation.
 2. Now India needs to focus on solid-waste management.
 3. The success rate of the mission is 97%.
 4. 28 out of 36 Indian states and UTs are open defecation free.

(a) 1 and 2 (b) 2 and 3 (c) 1 and 3 (d) Only 4
- (iii) Which two states has been used as an example to show the contradictory picture of Swachh Bharat Abhiyaan?

(a) Odisha and Maharashtra (b) Rajasthan and Madhya Pradesh

(c) Gujarat and Kerala (d) Assam and Andhra Pradesh

- (iv) Which strategy is the government using to make the mission successful?
 (a) Using social messaging, education and communication to trigger behaviour change.
 (b) Providing subsidies to vulnerable social groups to help them construct toilets.
 (c) Verifying and monitoring the continued use of toilets.
 (d) All of the above
- (v) Which of the following is an objective of the mission?
 (a) Creating sustainable waste management systems. (b) Eradicating manual scavenging.
 (c) Toilet construction (d) Both (a) and (b)
- (vi) The budget allocated for the mission for urban areas is stated by which option?
 (a) Toilet construction had 33% of the budgetary allocation, while 50% was allocated towards improving solid waste management.
 (b) 51% of its share of the budget towards toilet construction, and only 38% towards solid waste.
 (c) toilet construction got 38% of the budgetary allocation, while 51% was allocated towards improving solid waste management.
 (d) Toilet construction got 50% of the budgetary allocation, while 33% was allocated towards improving waste management.
- (vii) What does the data show?
 (a) Solid waste management budget needs to be increased.
 (b) Budget should focus on eradicating manual scavenging.
 (c) The Government prioritise toilet construction.
 (d) All of the above
- (viii) Which of the following figure shows the CORRECT percentage of treatment of solid waste in India?



- (ix) How many States/UTs have not received the year's fund for waste management?
 (x) Which word in the 4th para of the passage means 'checks'?

III. Read the following passage and answer the questions that follow :

(8)

- The work of the heart can never be interrupted. The reason is that the heart's job is to keep oxygen rich blood flowing through the body. All the body's cells need a constant supply of oxygen, especially those in the brain. The brain cells live only for four to five minutes after their oxygen is cut off, and then brain death occurs, leading to the entire body dying.
- The heart is specialized muscle that serves as a pump. This pump is divided into four chambers, two called atria and two called ventricles, connected by tiny doors called valves. The chambers work to keep the blood flowing round the body in a circle with a detour to the lungs to purify the blood by removing carbon dioxide from it and adding oxygen to it.
- At the end of each circuit, veins carry the blood to the right atrium, the first of the four chambers. Two-fifths of the oxygen by then is used up and it is on its way back to the lungs to pick up a fresh supply and to give up the carbon dioxide it has accumulated. From the right atrium the blood flows through the tricuspid valve into the second chamber, the right ventricle. The right ventricle contracts when it is filled, pushing the blood through the pulmonary artery, which leads to the lungs. In the lungs the blood gives up its carbon dioxide and picks up fresh oxygen. Then it travels to the third chamber, the left atrium. When this chamber is filled, it forces the the blood through the mitral valve to the left ventricle. From here it is pushed into a big blood vessel called aorta, the main artery, and sent round the body through the various arteries.
- Heart disease can result from any damage to the heart muscle, the valves or the 'natural pacemaker' of the heart. Electrical impulses from the heart muscle cause our heart to beat (contract). This electrical signal begins in the sino-atrial (SA) node, located at the top of the heart's upper-right chamber (the right atrium). The SA node is sometimes called the heart's 'natural pacemaker'.
- If the muscle is damaged, the heart is unable to pump properly. If the valves are damaged blood cannot flow normally and easily from one chamber to another, and if the pacemaker is defective, the contractions of the chambers will become un-coordinated.
- Until the twentieth century, few doctors dared to touch the heart. In 1953 all this changed. After twenty years of work, Dr. John Gibbon in the USA had developed a machine that could take over temporarily from the heart and lungs. Blood could be routed through the machine, bypassing the heart so that surgeons could work inside it and see what they were doing. The era of open surgery had begun.
- In the operating theatre, it gives surgeons the chance to repair or replace a defective heart. Many parties have had plastic valves inserted in their hearts when their own was faulty. Many people are being kept alive with tiny battery operated pacemakers; none of these repairs could have been made without the heart-lung machine. But valuable as it is to the surgeons, the heart-lung machine has certain limitations. It can be used only for a few hours at a time because its pumping gradually damages the blood cells.
 - On the basis of your reading of the above passage make notes on it using headings and sub-headings. Use recognizable abbreviations wherever necessary (Min. 4 Max. 6). Supply an appropriate title to it. **(5)**
 - Write a summary of the above passage in 50 words. **(3)**

Section B – Grammar and Writing Skills (23 marks)

IV. (i) Choose the correct option to fill in the blanks. (3)

1. The room is extremely tiny is mine.
2. I will see you next it snows in Manali.
3. When I visited him in Mumbai, he there for five years.

1.	(a) that	(b) what	(c) which	(d) both (a) and (b)
2.	(a) when	(b) where	(c) then	(d) why
3.	(a) have been teaching	(c) is teaching	(c) had been teaching	(d) has been teaching

(ii) The questions given below consist of certain sentences. Rearrange these sentences in proper sequence. Choose the correct option. (2)

- (1) (i) The English exploited the Indian farmers.
 (ii) The poor farmers had to pay very high taxes.
 (iii) Even in times of natural disasters the farmers had to pay their share of taxes.
 (iv) They had to cultivate those crops also which the English asked them to.
 (a) (ii) (iii), (iv) (i) (b) (iii) (i) (iv) (ii) (c) (iv) (iii) (i) (ii) (d) (i) (ii) (iii) (iv)
- (2) (i) Though a foreigner, Mother Teresa settled in Kolkata and made it her home.
 (ii) She was an apostle of the unwanted.
 (iii) She dedicated her entire life to the service of the poorest of the poor.
 (iv) Mother Teresa was one of the greatest missionaries of our time.
 (a) (iv) (iii) (i) (ii) (b) (iv) (iii) (ii) (i) (c) (iii) (i) (iv) (ii) (d) (ii) (iii) (i) (iv)

(iii) Change the voice of the following: (2)

- (i) The administrative of the school is being looked after by the Principal.
- (ii) Why has he left his post vacant?

(V) (i) You want to sell your old car as you are planning to buy a new one. Draft a suitable advertisement in 50 words to be published in a national daily under the classified columns. (3)

OR

A 26-year old highly qualified software engineer seeks suitable alliance with an educated bride. Draft a suitable matrimonial advertisement in 50 words for a match for him to be published in the classified columns of a newspaper.

(ii) Draft an attractive poster in not more than 50 words for 'Save trees, Save earth' campaign. (3)

OR

Draft a thought-provoking poster in not more than 50 words on the topic "Stop Child Abuse". Use catchy slogans and visuals.

(iii) Migration from village to cities has led to the spread of urban slums. People living in these slums lead a miserable life. Economic disparity leads to the problem of law and order. Write a debate in 120-150 words on "Solution to the problem of misery in the urban slums lies in creating jobs in village." You are Naveen/Neeta. Write your debate either for or against the motion. (5)

OR

"Our large population is not a cause of poverty but an asset, a resource. Write a debate in 120-150 words either for or against the motion.

(iv) Games play an important role in our lives. They are not only the means of entertainment but also keeps us physically fit. Some like indoor games and others outdoors. Write a speech in 120-150 words for your school's morning assembly on the topic. Importance of games in our lives." (5)

OR

The Tourism Industry in India is a fast growing sector. Write a speech in 120-150 words on the reasons for the growth of this sector.

Section C – Literature (31 marks)

(VI) Read the given extracts carefully and answer the following questions: (10)

- (i) When did my childhood go?
 Was it the day I ceased to be eleven,
 Was it the time I realised that Hell and Heaven,
 Couldn't be found in Geography,
 And therefore could not be,
 Was that the day!

1. Who is the poet addressing in the given lines?
 (a) His mother (b) His friends (c) Readers (d) His father
2. When does the poet think he lost his childhood?
 (a) At the age of 10 (b) At the age of 11 (c) At the age of 12 (d) At the age of 13
3. What does the poet realise about Hell and Heaven?
 (a) They can be found in his Geography book. (b) They do not exist in reality.
 (c) They are found only in stories. (d) They are created by humans.

OR

I do not understand this child
 Though we have lived together now
 In the same house for year. I know
 Nothing of him, so try to build
 Up a relationship from how
 He was when small

1. What problem do the given lines highlight?
(a) Communication gap (b) Generation gap (c) Conflict (d) both (a) and (b)
 2. What does the speaker of the given lines want?
(a) His son to talk to him (b) To build a new relationship with his son
(c) His son to forgive him (d) To forgive his son
 3. How old is the son when his father rants about his agony to his son?
(a) teenager (b) grown-up (c) child (d) just became an adult
- (ii) Now, leaving his tomb for first time in almost 80 years.
Tut has undergone a CT scan that offers new clues about his life and death-and provides precise data for an accurate forensic reconstruction of the boyish pharaoh.
- (a) Why was CT scan performed on Tut's Mummy?
 - (b) In which year did Tut undergo CT scan?
 - (c) Name the lesson.

OR

"I will try to rationalise your experience on the basis of two scientific theories as known today. You have passed through a fantastic experience or, more correctly, a Catastrophic experience."

- (a) Name the speaker of the above lines.
 - (b) Which two scientific theories are being referred to by the speaker?
 - (c) What is the catastrophic experience mentioned in the extract.
- (iii) Mrs. Fitzgerald : How do you know? Ever tried it?
Mrs. Person : No, of course not
Mrs. Fitzgerald : (coolly) I have. Not for some time but still it ought to work. Won't last long, but long enough for what we want to do. (1x4=4)
- (a) Name the lesson and the author.
 - (b) What does the question "How do you know?" refer to ?
 - (c) What do they want to do ?
 - (d) How does Mrs. Fitzgerald plan to help Mrs. Pearson?

OR

Andrew, abruptly recalled from contemplation of his own affairs told Morgan to wait. He went inside for his bag, then together they set out for Number 12 Blaina Terrace. The night air was cool and deep with quiet mystery. Usually so perceptive, Andrew now felt dull and listless. He had no premonition that this night call would have prove unusual, still less that it would influence his whole future in Blaenelly. The two men walked in silence until they reached the door of Number 12, then Joe drew up short. "I'll not come in." he said, and his voice showed signs of Strain. But, Man, I know he'll do well for us.

- (a) Name the lesson from which this extract is taken.
- (b) What was odd about Andrew that night?
- (c) How would this night call influence Andrew's future in Blaenelly?
- (d) Why did Joe refuse to enter the house?

(VII) Write short answers in 40-50 words. (3x2=6)

Answer any one of the following :

- (i) What finally happened to Gaintonde at the Azad Maidan lecture?

OR

How did Norbu become an ideal companion for the author?

- (ii) What does the father mean by "Silence surround us"?

OR

How did the poet conclude that Hell and Heaven were imaginary places?

(VIII) Attempt any one of the following questions in 40-50 words. (1x3=3)

How was Annie Pearson responsible for her own fate?

OR

How was Dr. Andrew successful in reviving the apparently lifeless child?

(IX) Attempt any one of the following questions in 120-150 words. (1x6=6)

"Nick Middleton's experience of "HOR" was a stark contrast to the accounts he had read of the earlier travellers." Explain the statement on the basis of "Silk Road".

OR

What was the purpose of Professor Gaitonde's visit to Bombay? Was his purpose fulfilled? Why? Why not?

(X) Attempt any one of the following questions in 120-150 words. (1x6=6)

Bookish knowledge is theoretical. It is practice and observation which makes a man perfect in his field. Dr. Andrew did so in Chapter 'Birth'. Elucidate.

OR

It is essential to possess intelligence and common sense to rule over others. Comment in the context of the chapter "The Tale of Melon City".



Name.....

Roll No.....

DELHI PUBLIC SCHOOL, BHILAI

DATE : 03.03.2023

ANNUAL EXAMINATION – 2022 – 23

Time : 3 Hrs.

CLASS : XI

SUBJECT – PHYSICS

Max. Marks : 70

General Instructions :**Read the following instructions carefully.**

- There are 35 questions in all. All questions are compulsory.
- This question paper has 35 sections : Section – A, Section – B, Section – C, Section – D and Section – E.
- All questions are compulsory.
 - Section A contains 18 MCQs of 1 mark each,
 - Section B contains 7 questions of 2 marks each,
 - Section C contains 5 questions of 3 marks each,
 - Section D contains three long questions of five marks each and
 - Section E contains two case study based questions of 4 marks each.
- There is no overall choice. However, an internal choice has been provided in section B, C, D and E. You have to attempt only one of the choice in such questions.
- Use of calculator is not allowed.

SECTION – A

01. The dimensions of bulk modulus are : (1)
 (a) $M^2L^2T^2$ (b) MLT^2 (c) ML^2T^{-2} (d) $ML^{-1}T^{-2}$
02. The displacement of a body is given to be proportional to the cube of time elapsed. The magnitude of the acceleration of the body is (1)
 (a) Increasing with time (b) Decreasing with time
 (c) Constant but not zero (d) Zero
03. What is the angle between two vectors, if the ratio of their dot product and magnitude of cross product is $\sqrt{3}$. (1)
 (a) $\pi/4$ (b) $\pi/2$ (c) $\pi/6$ (d) π
04. What is the angle between velocity vector and acceleration vector in uniform circular motion. (1)
 (a) $\pi/4$ (b) $\pi/2$ (c) π (d) $\pi/6$
05. Angle of repose for the rough inclined plane is 60° . The coefficient of friction is - (1)
 (a) $\sqrt{3}$ (b) $\frac{1}{\sqrt{3}}$ (c) 1 (d) zero
06. Which of the following is **not** applicable to represent impulse? (1)
 (a) kg m/s. (b) N s (c) dyne – sec (d) N/m^2
07. Moment of inertia does not depend upon a - (1)
 (a) Mass of object (b) Mass distribution (c) Angular velocity (d) Axis of rotation
08. If V_e and V_p denote the escape velocity from earth and another planet having twice the radius and the same mean density as the earth then - (1)
 (a) $V_e = V_p$ (b) $V_e = V_p/2$ (c) $V_e = 2V_p$ (d) $V_e = V_p/4$
09. Two satellites of mass m and $9m$ are orbiting a planet in orbits of radius R . Their period of revolution will be in the ratio of - (1)
 (a) $a:1$ (b) $3:1$ (c) $1:1$ (d) $1:3$
10. In the given figure if the dimensions of two wires are the same and material are different, the young's modulus is (1)
 (a) more for A than B
 (b) more for B than A
 (c) equal for A and B
 (d) none of the above
-
11. The wavelength of radiation emitted by a body depends on - (1)
 (a) nature of surface (b) area of surface (c) temperature (d) all of the above
12. Compared to burn due to water at 100°C , a burn due to steam at 100°C is (1)
 (a) more dangerous (b) less dangerous (c) equally dangerous (d) none of the above
13. Temperature of a certain mass of gas is doubled, the rms speed of its molecules becomes n times where n is - (1)
 (a) $\sqrt{2}$ (b) 2 (c) $\frac{1}{\sqrt{2}}$ (d) $\frac{1}{2}$
14. Some real gases behave as nearly perfect gases (1)
 (a) low pressure, high temperature (b) low pressure, low temperature
 (c) high pressure, high temperature (d) high pressure, low temperature

Contd...2

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15. The body is moving uni-directionally under the influence of a source of constant power its displacement in time t is proportional to (1)

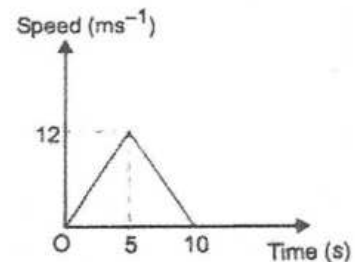
(a) $t^{1/2}$ (b) t (c) $t^{3/2}$ (d) t^2

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 but R is not the correct explanation of A.**
(c) **A is true but R is false.**
(d) **A and R both are false.**
16. **Assertion (A) :** Torque on a body can be zero, even if there is a net force on it.
Reason (R) : Torque and force on a body are always perpendicular. (1)
17. **Assertion (A) :** Two systems which are in thermal equilibrium with a third system, are in thermal equilibrium with each other.
Reason (R) : The heat flows spontaneously from a system at a higher temperature. (1)
18. **Assertion (A) :** Aeroplanes are made to run on the runway before takes off, so that they acquire the necessary lift.
Reason (R) : According to Bernoulli's theorem, as velocity increases pressure decreases and vice versa (1)

SECTION – B

19. A calorie is a unit of heat energy and it equals about 4.2 J where $1J = 1kgm^2s^{-2}$ suppose, we employ a system of units in which the unit of mass equals ' αkg ' and unit of length equals ' βm ' and the unit of time is γsec . Show that a calorie has a magnitude of $4.2\alpha^{-1} \beta^{-2} \gamma^2$ in terms of the new unit. (2)
20. The speed time graph of a particle moving along a fixed direction is shown in figure. Obtain the distance travelled and average speed of particle between $t=0$ and $t=10$ sec. (2)



21. **Read each statement below carefully and state with reason or examples if it is true or false;** (2)
(a) With zero speed at an instant, may have non-zero acceleration at that instant.
(b) With zero speed may have non-zero velocity.
22. Draw a well labelled diagram of body taking turn on a banked circular rough road and write expression for safe speed to take turn. (2)
23. A ball is suspended by a cord from ceiling of car. What will be the effect on the position of ball if – (2)
(a) The car is moving with uniform velocity.
(b) Car is turning towards left.
24. Define : (a) Permanent Set (b) Elastic fatigue for an elastic body. (2)
OR
(a) What is more elastic : water or air. Why?
(b) Two identical spring of copper and steel are equally stretched. On which more work will have to be done.
25. Explain any 4 factors affecting speed of sound in air (2)
OR
(a) What are beats?
(b) Write any two applications of beats.

SECTION – C

26. Draw diagram for a projectile fired with a velocity u making an angle θ with the horizontal. Derive an expression for its maximum height and also show that projectile returns to the ground at same angle with same speed with which it was projected. Draw diagram. (3)
27. (a) State law of conservation of linear momentum.
(b) A shell of mass 0.02 kg is fired by a gun of mass 100 kg if the muzzle speed of shell is 80 m/s. What is the recoil speed of the gun. (1+2)
OR
(a) Define concurrent forces.
(b) A monkey of mass 40 Kg climbs on a rope which can withstand a maximum tension of 600 N. In which of the following cases will rope break? The monkey
(a) climbs up with an acceleration $6m/s^2$
(b) climbs down with acceleration of $4m/s^2$.
28. (a) Define co-efficient of restitution.
(b) Write difference between elastic and inelastic collision.
(c) Two bodies of mass m_1 and m_2 where $m_1 > m_2$ have same kinetic energy. Which one has greater linear momentum. (3)

29. State any two postulates of kinetic theory of gas and hence derive expression for pressure of gas. (3)

OR

- (a) Define degree of freedom and state law of equipartition of energy.
- (b) Write degree of freedom of (i) monoatomic (ii) triatomic linear molecule.

30. (a) Write general formula for frequency of standing waves in stretched string.
 (b) Write no. of nodes and antinodes in 6th mode of vibration in stretched string.
 (c) Name two properties of a medium should have for wave propagation. (3)

31. (a) By using $F = nA \frac{dv}{dx}$ define coefficient of viscosity symbols has their usual meaning.
 (b) Write two points of similarities and two points of differences between viscous force and solid friction.
 (c) A square metal plate with 10 cm side moves parallel to another plate with velocity of 10 cm/s, both plates immersed in water. If the viscous force is 200 dyne and viscosity of water is 0.01 poise. What is their distance apart. (2+2+1)

OR

- (a) Define surface energy.
- (b) Derive ascent formula.
- (c) The excess pressure inside a soap bubble is thrice the excess pressure inside another soap bubble. What is ratio between the volume of 1st and 2nd bubble. (1+3+1)

32. (a) What is simple harmonic motion?
 (b) Show that simple pendulum executes SHM and hence derive expression for its time period.
 (c) Draw a graph showing variation of K.E. and P.E. of pendulum with displacement. (1+3+1)

OR

- (a) Define phase of any SHM.
- (b) Derive expression for displacement and velocity in a uniform circular motion as an example of SHM.
- (c) What is the phase difference between (i) displacement and velocity (ii) displacement and acceleration

33. (a) What is torque? Write its relation in vector form.
 (b) (i) A child stands at the centre of turntable with his two arms out stretched. The turntable is set rotating with an angular speed of 40 rpm. How much is the angular speed of the child if he folds his hands back and reduces his moment of Inertia to 2/3 times the initials value? Assume that the friction is zero.
 (ii) In above question find the ratio of new K.E. and initial kinetic energy of rotation. (1+3+1)

OR

- (a) What is radius of gyration? Write two factors affecting radius of gyration.
- (b) A hoop of radius 2m weighs 100 kg. It rolls along a horizontal floor so that its centre of mass has speed of 20 cm/s. How much work has to be done to stop it. (2+3)

SECTION – E

Q.34 Case Study – Gravitation

Read the following paragraph and answer the following questions:

If a body is freely falling under the effect of gravity then the acceleration in the body is called acceleration due to gravity. It is denoted by 'g'. 'g' is a vector and its direction is always towards the centre of the earth. At a given place the value of 'g' is constant however it differs from place to place on surface of earth.

- (i) Plot a graph showing variation of 'g' with respect to 'r' where 'r' is the distance from centre of earth.
- (ii) If gravity suddenly disappears all the bodies on earth their weights. (Fill in the blank).
- (iii) A body weights 63 N on the surface of earth. What is the gravitational force on it due to earth at a height equal to half the radius of the earth. (1+1+2)

OR

- (iii) The escape speed of a projectile on earth's surface is 11.2 km/s. A body is projected out with thrice this speed. What is the speed of the body far away from earth ignore the presence of sun and other planets.

Q.35 Case Study – Thermodynamics

Read the paragraph and answer the following questions:

When a gas undergoes expansion/compression isothermally there is no change in temperature and internal energy of gas. When a gas expands isothermally heat equivalent to the work done by the gas has to be supplied to it. When a gas is compressed isothermally heat equivalent to the work done on the gas has to be taken out from it. When a gas undergoes adiabatic expansion or compression no heat enters or leaves it. When the gas expands adiabatically the decrease in internal energy of the gas is equal to the work done by it. When the gas is compressed adiabatically the increase in internal energy of the gas is equal to the work done on it.

- (i) Write two conditions for a process to be isothermal.
- (ii) What is the specific heat of a gas during adiabatic process.
- (iii) A gas is compressed isothermally to half its volume. By what factor does the pressure of gas increase.

OR

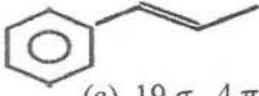
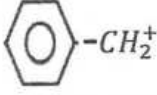
- (iii) An electric heater supplies heat to a system at a rate of 100 W. If system performs work at a rate of 75 J/s. At what rate is the internal energy increasing?

**General Instructions :**

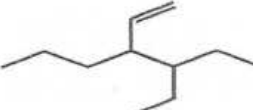
Read the following instructions carefully.

- There are 35 questions in this questions paper with internal choice.
- Section A consists of 18 multiple-choice questions carrying 1 mark each.
- Section B consists of 7 very short answer questions carrying 2 marks each.
- Section C consists of 5 short answer questions carrying 3 marks each.
- Section D consists of 2 case-based questions carrying 4 marks each.
- Section E consists of 3 long answer questions carrying 5 marks each.
- All questions are compulsory.
- Use of log tables and calculators is not allowed.

SECTION – A

- The empirical formula of a compound is CH_2 . One mole of this compound has a mass of 42 g, its molecular formula is :
 (a) C_3H_6 (b) C_3H_8 (c) CH_2 (d) C_2H_2
- Which of the following pairs of d-orbitals will have electron density along the axis ?
 (a) d_{z^2} , d_{xy} (b) d_{xy} , d_{yz} (c) d_{z^2} , $d_{x^2-y^2}$ (d) d_{xy} , $d_{x^2-y^2}$
- The correct decreasing order of first ionization enthalpies of five elements in the second period is
 (a) $\text{Be} > \text{B} > \text{C} > \text{N} > \text{F}$ (b) $\text{N} > \text{F} > \text{C} > \text{B} > \text{Be}$
 (c) $\text{F} > \text{N} > \text{C} > \text{Be} > \text{B}$ (d) $\text{N} > \text{F} > \text{B} > \text{C} > \text{Be}$
- How many σ bond and π bond are there in 
 (a) 14 σ , 8 π (b) 18 σ , 8 π (c) 19 σ , 4 π (d) 14 σ , 2 π
- A chemical reaction is spontaneous at 298 K but non spontaneous at 350 K. Which one of the following is true for this reaction?
 (a) $\Delta G - ve, \Delta H + ve, \Delta S - ve$ (b) $\Delta G - ve, \Delta H - ve, \Delta S - ve$
 (c) $\Delta G + ve, \Delta H + ve, \Delta S + ve$ (d) $\Delta G - ve, \Delta H + ve, \Delta S - ve$
- What is the conjugate base of OH^- ?
 (a) O_2 (b) H_2O (c) O^- (d) O^{2-}
- The reaction $(\text{CH}_3)_3\text{C} - \text{Br} \xrightarrow{\text{H}_2\text{O}} (\text{CH}_3)_3\text{C} - \text{OH}$ is :
 (a) Elimination reaction (b) Substitution reaction
 (c) Free radical reaction (d) Addition reaction
- One mole of a substance present in 1 Kg of the solvent. The correct term regarding the solution is :
 (a) strength (b) Molarity (c) Molality (d) Normality
- The order of the stability of the following carbocation :
 (I) $\text{CH}_2 = \text{CH} - \text{CH}_2^+$ (II) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2^+$ (III) 
 (a) III > I > II (b) III > II > I (c) II > III > I (d) I > II > III
- What is the total number of orbitals associated with the Principal Quantum number $n=3$?
 (a) 3 (b) 6 (c) 9 (d) 12
- Hyper conjugation involves overlap of the following orbitals
 (a) $\sigma - \sigma$ (b) $\sigma - p$ (c) $p - p$ (d) $\pi - \pi$
- The correct sequence of decrease in the bond angle of the following hydrides is
 (a) $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3$ (b) $\text{NH}_3 > \text{AsH}_3 > \text{PH}_3 > \text{SbH}_3$
 (c) $\text{SbH}_3 > \text{AsH}_3 > \text{PH}_3 > \text{NH}_3$ (d) $\text{PH}_3 > \text{NH}_3 > \text{AsH}_3 > \text{SbH}_3$

:: 2 ::

13. The correct IUPAC name for the compound  is
- (a) 4-ethyl-3-propylhex-1-ene (b) 3-ethyl-4-ethenylheptane
(c) 3-ethyl-4-propylhex-5-ene (d) 3-(1-ethylpropyl)hex-1-ene

14. Predict in which of the following entropy increases.
- (i) A liquid crystallise in to a solid.
(ii) $2\text{NH}_4\text{NO}_3(\text{s}) \rightarrow 2\text{N}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g}) + \text{O}_2(\text{g})$
(iii) Temperature of the crystalline solid is raised from 0K to 115 K.
(iv) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$
- (a) (i) and (ii) (b) (iii) and (iv) (c) (i) and (iii) (d) (ii) and (iii)

15. For the reaction $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$ $\Delta H = -45.2 \text{ K Cal}$
Which of the following factor favours the formation SO_3 ?
- (a) Increasing temperature (b) Increasing pressure
(c) Removal of Oxygen (d) Increase in volume

In each of the following question no 16 to 18 a statement of Assertion (A) is given followed by a corresponding statement of Reason (R) just below it. Of the statement mark the correct answer as

- (a) If both Assertion and Reason are true and reason is the correct explanation of the assertion.
(b) If both Assertion and Reason are true and reason is not the correct explanation of the assertion.
(c) If Assertion is true but Reason is false.
(d) If both Assertion and Reason are false.
16. (A) All decomposition reactions are redox reactions.
(R) H_2O on decomposition give H_2 and O_2 .
17. (A) The terminal hydrogen in ethyne is acidic in nature.
(R) Hydrogen attached to a sp hybridized carbon and is acidic in nature.
18. (A) A substance which get reduced can act as oxidizing agent.
(R) In the reaction $3\text{ClO}^- \rightarrow \text{ClO}_3^- + 2\text{Cl}^-$, Cl atom oxidized as well as reduced.

SECTION - B

19. Which will weigh more 0.1 mole of CO_2 or 6.022×10^{22} molecules of H_2O ?
20. Discuss by giving reasons the possibility of the atom existing in the following electronic configuration. (2)
- (i) $1s^2 2s^2 2p_x^1$ (b) $1s^2 2s^1 2p_x^1 2p_y^1 2p_z^1$ (iii) $1s^2 2s^2 2p_x^2 2p_y^1$ (iv) $1s^2 2s^2 3s^2$

OR

What is photoelectric effect ? What is the effect of intensity of incident radiation and frequency of the incident radiation on the ejected electron during photo electric effect? (2)

21. Out of O and S which has higher negative electron gain enthalpy and why? (2)
22. (a) In which C-C bond in $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$, the inductive effect is least and why? (1)
(b) Out of ethyl amine and ammonia which is more basic and why? (1)
23. Calculate the wave length of a photon emitted during a transition from $n=5$ to $n=2$ state in the hydrogen atom. (2)

OR

Derive an expression for de-brogilie wavelength of the electron which is accelerated by applying potential of V volt. (2)

24. Give reason : Cis but - 2 - ene have higher boiling point than trans but - 2 - ene whereas trans - but - 2 - ene has higher melting point than cis - but - 2 - ene (2)
25. What happens when (write equations only) (1)
- (a) Propyne is treated with H_2O in presence of HgSO_4 and H_2SO_4 (1)
(b) Sodium ethanoate is heated with Soda lime (1)

SECTION – C

26. (a) Define limiting reagent. (1)
 (b) In combustion of methane in air identify the limiting reagent. (1)
 (c) In the reaction $2A+4B \rightarrow 3C+4D$ when 5 moles of A react with 6 moles of B then evaluate the amount of C formed. (1)

27. (a) State Heisenberg's uncertainty principal. (1)
 (b) A table tennis ball has mass of 10 g and a speed of 90 m/s. If speed can be measured with in an accuracy of 4% what will be the uncertainty of its position. (2)

OR

- (a) An atomic orbital has $n=3$. What are the possible values of l and m . (1)
 (b) Using s, p, d notation describe the orbitals with following quantum numbers: (1)
 (i) $n = 4, l = 3$ (ii) $n = 3, l = 0$
 (c) How many electrons in an atom may have the following quantum numbers: (1)
 (i) $n = 4, l = -1/2$ (ii) $n = 3, l = 0$

28. For the reaction :



- (i) Is the reaction favoured by entropy, enthalpy, both or none? (1)
 (ii) Find the ΔG if $T = 300 \text{ K}$ (2)

29. (a) On the reaction $NO_3^- + H^+ + xe^- \rightarrow NO + H_2O$ what is the value of x (1)

- (b) Identify the element undergoing oxidation and reduction in the following reaction : (1)
 $(NH_4)_2 Cr_2 O_7 \rightarrow N_2 + Cr O_3 + 4H_2O$

- (c) In the reaction $3Br_2 + 6NaOH \rightarrow NaBrO_3 + 5NaBr + 3H_2O$ which element loses as well as gains the electron. What is the name of the reaction? (1)

OR

- (a) In the below reaction identify the oxidizing agent and reducing agent (1)
 $Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$

- (b) Balance the following redox reactin by ion-electron method in the acidic medium (2)
 $MnO_4^-(aq) + SO_2(g) \rightarrow Mn^{2+}(aq) + HSO_4^-(aq)$

30. (a) Which elements of the following belonging to the same period. Al (13) , Ba (56) , O (8) and Si (14) (1)
 (b) Which among Cu^+ , Cu^{2+} , and Cu is the largest in size and why? (1)
 (c) First members of each representative elements in the periodic table shows anomalous behavior why? (1)

SECTION – D

31. **Read the text carefully and answer the questions :**

There are two types of macroscopic properties. They are extensive properties and intensive properties. They are based on its dependence on the quantity of the substances. There are many thermo dynamic process as well. Isothermal process, adiabatic process isochoric process, Isobaric process, Cyclic process, reversible processes are some of them. The total energy of the system is called internal energy (u). It is the total of internal potential energy and internal Kinetic energy. Internal potential energy is due to the intermolecular force while the molecular motion contribute to the internal Kinetic energy.

- (a) Classify the following in to extensive and intensive properties. Temperature, Enthalpy and Volume. (1)
 (b) What do you mean by a thermodynamic state function? (1)
 (c) Name the state variable remain constant during (2)
 (i) Isothermal process (ii) adiabatic process (iii) Isobaric process (iv) Isochoric process

OR

- What happens to the internal energy of the system if
 (i) Work is done on the system ?
 (ii) Matter is taken out of the system?
 (iii) heat is given in to the system?
 (iv) work is done by the system?

32. Read the passage given below and answer the following questions : (2)

The phenomenon of existence of two or more compound possessing the same molecular formula but different properties is known as isomerism. Isomerism is broadly classified into Structural I. Isomerism and Stereo Isomerism. Under the Structural Isomerism we have chain Isomerism, position Isomerism, functional Isomerism and Metamerism where as in Stereo Isomerism we have Geometrical Isomerism and Optical Isomerism. Existence of various Isomerism is the reason for the large no of organic compounds.

- (a) Write the metamer of Diethyl ether. (1)
 (b) How O-cresol, m-cresol and p-cresol are related? (1)
 (c) Write the functional Isomer of butanal. (1)
 (d) Write Geometrical Isomers of DHC=CHD. (1)

OR

Classify the following pairs as position, chain functional Isomers or metamers

- (i) Diethyl amine and methyl propyl amine. (½)
 (ii) Ethanol and Dimethyl ether. (½)

SECTION – E

33. (a) Draw Lewis Structure of CO_3^{2-} (1)
 (b) Indicate which one from O_2^- and O_2^{2-} may exhibit paramagnetism. (1)
 (c) Draw the orbital diagram of C_2H_4 . (1)
 (d) Although geometries of NH_3 and H_2O molecules are distorted tetrahedral, bond angle in water is less than that of ammonia. Give reason. (2)

OR

- (a) Predict the shape of $SiCl_4$ using VSEPR model. (1)
 (b) State the type of hybrid orbitals associated with O in H_2O and P in PCl_5 . (1)
 (c) Why H_2O is liquid but H_2S is a gas at room temperature though they have same geometry. (1)
 (d) Explain using MO theory why N_2 has greater bond dissociation energy than O_2 ? (2)

34. (a) In which one of the following reactions the yield of the product will be maximum. Give reason for your choice. (1)

- (i) $2A + B \rightleftharpoons C ; K = 10^{-5}$
 (ii) $C + 2D \rightleftharpoons E ; K = 10^5$
 (iii) $D + 3B \rightleftharpoons F ; K = 10^3$

(b) The equilibrium constant for a reaction is 2×10^{-3} at $25^\circ C$ and 2×10^{-2} at $50^\circ C$. Is this reaction exothermic or endothermic? Why? (1)

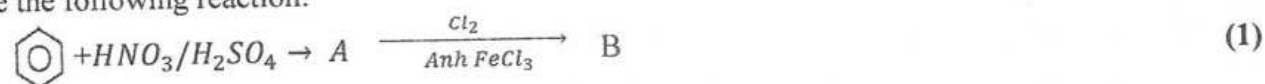
(c) For the reaction $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ at 400 K K_p is 49. Find the value of K_p for each of the following reaction at the same temperature.

- (i) $2NH_3(g) \rightleftharpoons N_2(g) + 3H_2(g)$
 (ii) $1/2 N_2(g) + 3/2 H_2(g) \rightleftharpoons NH_3(g)$
 (iii) $2N_2(g) + 6H_2(g) \rightleftharpoons 4NH_3(g)$ (3)

OR

- (a) Why ammonia is termed as a base though it doesn't contain OH^- ions. (1)
 (b) What is the ratio of K_c and K_p for the reaction $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ at 298 K. (2)
 (c) If K_w is 49×10^{-14} at a particular temperature then what will be the concentration of H_3O^+ ion? Also calculate pH if $\log 7 = 0.8451$ (2)

35. (a) Complete the following reaction:



- (b) What are the condition necessary for a organic compound to be aromatic nature. (Any two) (1)
 (c) Write the mechanism for the Friedel Crafts alkylation of benzene. (3)

OR

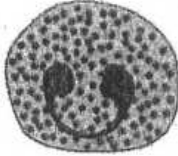
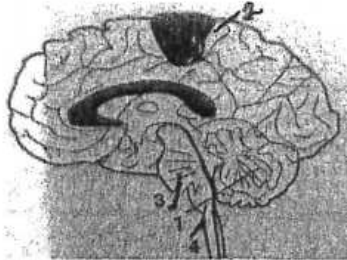
- (a) Why branched chain hydrocarbon have lower boiling point than straight chain hydrocarbon. (1)
 (b) Write the structure and IUPAC name of the products obtained by the ozonolysis of 2-methyl but 2-ene. (2)
 (c) When propene is treated with HBr , 2-bromo propane is the major product. State the rule and write the mechanism to support your answer. (2)



General Instructions:

- All questions are compulsory.
- The question paper has five sections and 33 questions.
 - Section A has 16 questions of 1 mark each.
 - Section B has 5 questions of 2 marks each.
 - Section C has 7 questions of 3 marks each.
 - Section D has 2 case-based questions of 4 marks each and
 - Section E has 3 questions of 5 marks each.
- There is no overall choice. However, internal choices have been provided in some questions. Students has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labelled diagram should be drawn.

SECTION – A

01. Red tide is caused by (a) Gonyaulax (b) Ceratium (c) Taceratum (d) Sphagnum (1)
02. Which one of the following is called living fossil. (a) Balanus (b) Limulus (c) Daphnia (d) Euglena (1)
03. Stomata of grass leaf are (a) Dumb-bell shaped (b) Kidney shaped (c) Rectangular (d) Barrel shaped (1)
04. Electron Transport System (ETS) is located in mitochondrial (a) Outer membrane (b) Inner membrane (c) Matrix (d) None of these (1)
05. Identify the cell given  (1)
- (a) Neutrophil (b) Basophil (c) Eosinophil (d) RBC
06. Insulin is a polymer of (a) Glucose (b) Fructose (c) Alanine (d) Sucrose (1)
07. The important site for formation of glycoprotein and glycolipids are (a) Lysosome (b) Mitochondria (c) Golgi apparatus (d) Ribosomes
08. The number of cranial nerves arising from brain of frog is (a) Five Pairs (b) Eight Pairs (c) Nine pairs (d) Ten pairs (1)
09. Copulatory pad in male frog is present on (a) First digit of forelimb (b) Second limb of fore limb (c) Third limb of hind limb (d) First digit of hind limb (1)
10. Dissolution of synaptonemal complex take place during which stage of meiosis. (a) Leptotene (b) Zygotene (c) Pachytene (d) Diplotene (1)
11.  (1)
- (a) 1. cerebrum 2. cerebellum 3. gyrus 4. medulla
 (b) 1. cerebrum 2. cerebellum 3. medulla 4. gyrus
 (c) 1. cerebrum 2. cerebrum 3. pons 4. medulla
 (d) 1. pons 2. cerebrum 3. medulla 4. cerebellum
12. One of the natural Auxin is (a) GA (b) 2,4-D (c) NAA (d) IAA (1)

Question No. 13 to 16 consists of two statements –

Assertion (A) and Reason (R) Answer these questions selecting the appropriate option 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 but R is true.

- 13. Assertion A : The inner most layer of cortex is called endodermis.
Reason R : The cells of endodermis are non living and bear casparian strips. (1)
- 14. Assertion A : All motor neurons are efferent neurons.
Reason R : Motor neurons conduct nerve impulse from the spinal cord to brain. (1)
- 15. Assertion A : SA node produces excitatory impulses in heart.
Reason R : SA node is self excitatory. (1)
- 16. Assertion A : Some cells from the G₁ phase enter G₀ phase where they start differentiation instead of mitosis.
Reason R : The cells which enter G₀ never divide again. (1)

SECTION – B

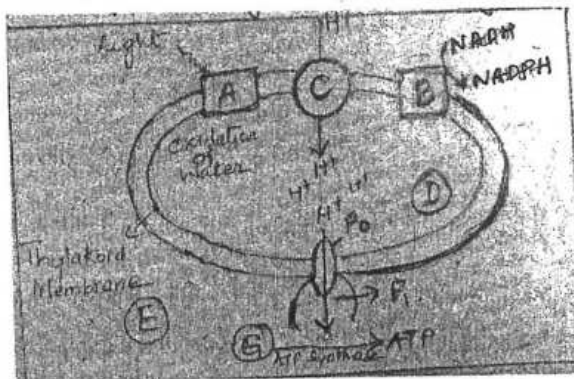
- 17. Diatoms are the chief producers in the ocean. Write any two features of its cell wall. (2)
- 18. What are trichomes? State its function. (2)
- 19. Define oxygen dissociation curve? Suggest reasons for its sigmoidal curve. (2)
- 20. What causes the following disease:
(a) Graves disease (b) Addison's disease (2)
- 21. What kind of reactions do the following group of enzymes catalyse
(a) Lyases (b) Ligases (2)

OR

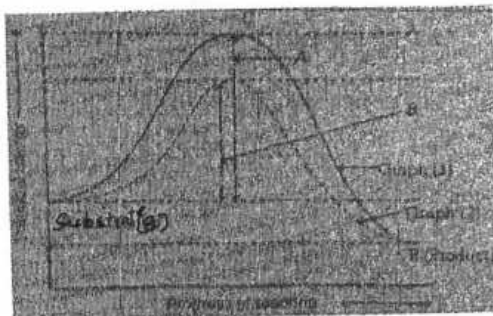
Explain the role of Na⁺ in the generation of action potential.

SECTION – C

- 22. Identify A, B, C, D, E and F from the given figure of ATP synthesis through chemiosmosis in Chloroplast.



- 23. Plant Growth hormones have innumerable practical applications. Name the hormone that can be used to
(a) Increase yield of sugar cane. (b) Sprouting of potato tuber. (3)
(c) Inhibit seed germination. (d) Delay of leaf senescence.
- 24. In the given figure



- (a) Identify A, B and C.
- (b) Which of the following graph represents lower activation energy.
- (c) If the product is at lower level than substrate, the reaction is an Reaction.
- 25. What is phyllotaxy? Explain the different types of it with examples. (3)

OR

Explain the following with examples:

- (a) Prop roots (b) Stilt roots (c) Pneumatophores
- 26. In dicotyledonous stem where is cambium present? State the difference between open and closed vascular bundles. With the help of diagram explain conjoint closed and conjoint open vascular bundle. (3)
- 27. State the Blackman's Law of limiting factor. How do C₃ and C₄ plant respond to different CO₂ concentration? (3)

Give Reason :

- (a) Human heart is myogenic in nature.
- (b) The members of Phaeophyceae are called brown algae.
- (c) Mango fruit is known as drupe.

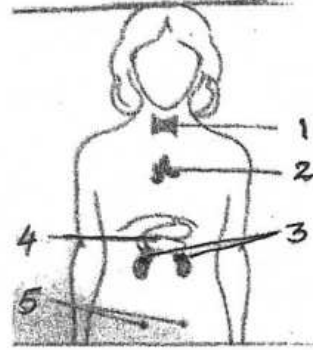
(3)

SECTION – D

29. Given below is an outline of the human body showing the important glands. (4)

Answer the following

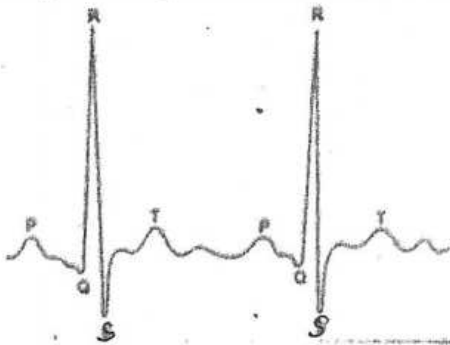
- (a) Name the glands marked 1 to 5.
- (b) Name the hormone secreted by 1.
Give one important function of this hormone.
- (c) Name the endocrine cells present in 4.
Give one function of it.



OR

- (c) Name the hormone secreted by part 5.
Give one important function of this hormone.

30. Study the diagram and answer the following questions :



- (a) What does ECG represent?
- (b) What does QRS complex represent?
- (c) What does T wave represent?
- (d) State the difference between P wave and Q wave?

OR

How can one determine the heart beat rate of an individual by ECG? (4)

SECTION – E

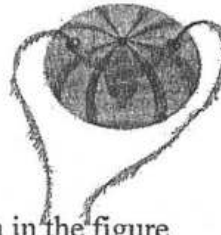
- 31. (a) Illustrate the pathway of glycolysis with the help of flowchart?
- (b) Calculate how many ATP molecules are directly synthesized from one Glucose molecule in glycolysis.

OR

Explain the stages of Calvin cycle with the help of flow chart.

For every CO₂ molecule entering the Calvin cycle how many molecules of ATP and NADPH are required. (5)

- 32. (a) Identify the animal given in the figure.
- (b) Name the phylum to which it belongs.
- (c) Write any three features of this phylum.



OR



- (a) Identify the animal given in the figure.
- (b) Name the phylum to which it belongs.
- (c) Write any three distinguishing features of this phylum.

(5)

- 33. (a) Draw a well labelled diagram of Nephron.
- (b) Define GFR. How is it regulated?
- (c) Explain the role of PCT and DCT in urine formation.

OR

- (a) Name the contractile proteins present in the muscles.
- (b) State any two differences of Red Fibre and White Fibre.
- (c) With the help of diagram explain cross bridge cycle in muscle contraction.



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)

01. In the binomial expansion of $(2x - \frac{1}{x})^{10}$, the 5th term is
(a) $13440x^2$ (b) $13440x^6$ (c) $210x^2$ (d) $210x^4$
02. If $(\frac{1+i}{1-i})^m = 1$, then the least integral value of 'm' is
(a) 2 (b) -2 (c) 4 (d) -4
03. $(A \cup B)'$ is equal to
(a) $A' \cap B'$ (b) $U - (A \cup B)$ (c) Both a and b (d) None of these
04. The radian measure of $20^\circ 10'$ is
(a) $\frac{121\pi}{180}$ (b) $\frac{121\pi}{1080}$ (c) $\frac{120\pi}{108}$ (d) $\frac{121\pi}{1800}$
05. The solution set of the inequality $6 \leq -3(2x - 4) < 12$ is
(a) (0, 1] (b) [0, 1) (c) [0, 1] (d) (0, 1)
06. If $y = \frac{2x+3}{(x^2-5)}$, then $\frac{dy}{dx}$ at $x = 1$ is equal to
(a) $9/8$ (b) $-3/2$ (c) $3/2$ (d) $-9/8$
07. The equation of the parabola, passing through (2,3), with vertex at (0,0) and having axis along X-axis is
(a) $x^2 = \frac{9}{2}y$ (b) $y^2 = \frac{9}{2}x$ (c) $y^2 = \frac{3}{2}x$ (d) $x^2 = \frac{3}{2}y$
08. The range of the function $1 - |x + 2|$ is
(a) $(-\infty, 0)$ (b) $[-\infty, 1]$ (c) $(-\infty, 1]$ (d) $(-\infty, 1)$
09. The length of a rectangle is three times the breadth. If the minimum perimeter of the rectangle is 160 cm, then
(a) breadth > 20 cm (b) length ≥ 20 cm (c) length < 20 cm (d) breadth ≥ 20 cm
10. Seven persons are to be seated in a row. The probability that two particular persons sit next to each other is
(a) $\frac{1}{3}$ (b) $\frac{1}{6}$ (c) $\frac{2}{7}$ (d) $\frac{1}{2}$
11. Which of the following is not true ?
(a) $\{0\} \subset \{0\}$ (b) $0 \in \{0\}$ (c) $\emptyset \subset \{0\}$ (d) $0 \subset \{0\}$
12. The number of ways in which a team of eleven players can be selected from 22 players, always including 2 of them and excluding 4 of them is
(a) ${}^{16}C_{11}$ (b) ${}^{22}C_{11}$ (c) ${}^{16}C_9$ (d) ${}^{20}C_9$
13. A die is rolled. Let E be the event 'die shows 4' and F be the event 'die shows even number'. Then E and F are
(a) mutually exclusive (b) exhaustive (c) mutually exclusive and exhaustive (d) none of these
14. If a, b and c are in GP with common ratio 'r', then the value of $\frac{a-b}{b-c}$ is
(a) $\frac{1}{r}$ (b) $\frac{b}{c}$ (c) $\frac{a}{b}$ (d) all of the above
15. The number of elements in the sample space of an experiment "two cards are drawn one after the other, from a deck of 52 cards, the first card being replaced before the second is drawn" is
(a) 52×52 (b) 52×51 (c) ${}^{52}C_2$ (d) 2×52
16. If \bar{x} is the mean of 'n' observations x_1, x_2, \dots, x_n then $\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})$ is equal to
(a) MD about mean (b) zero (c) SD (d) None of these

:: 2 ::

17. If $\cot x = -5/12$ and x lies in IInd quadrant then choose the correct answer:

- (a) $\sec x = \pm \frac{13}{5}$ (b) $\tan x = \frac{12}{5}$
(c) $\sin x = \frac{-13}{12}$ and $\operatorname{cosec} x = \frac{12}{13}$ (d) $\cos x = -5/13$

18. $\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2}$ is equal to

- (a) $\frac{1}{2}$ (b) 1 (c) 0 (d) None of these

ASSERTION – REASONING 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 :

- (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) : Domain of $f(x) = \sqrt{x-4}$ if $x > 4$

Reason (R) : $y = \sqrt{f(x)}$ is defined if $f(x) \geq 0$

20. Assertion (A) : $\lim_{x \rightarrow 0} \frac{ax + x \cos x}{b \sin x} = \frac{a+1}{b}$

Reason (R) : $\lim_{x \rightarrow 1} 5x^3 + 5x + 1 = 11$

SECTION B

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

21. Is $g = \{(2, 3), (4, 5), (6, 7)\}$ a function? If this is described by the formula $g(x) = ax + 2\beta$, then find the values of ' α ' and ' β '.

OR

Let R be a relation from N to N defined by $R = \{(a, b) : a, b \in N \text{ and } a = b^2\}$. Does $(a, b) \in R$ imply $(b, a) \in R$? Justify your answer.

22. Solve the inequality : $\frac{2x-3}{4} + 6 \geq 2 + \frac{4x}{3}$ and represent the solution on a number line.

23. Find the equation of a hyperbola whose vertices are at $(\pm 7, 0)$ and $e = 4/3$.

OR

Find the equation of a circle which passes through $(3, 6)$ and touches the axes.

24. Draw the graph of the Greatest Integer Function.

25. Differentiate $\frac{a+b \sin x}{c+d \cos x}$ w.r.t x

SECTION C

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

26. In a class of 60 students, 30 opted for NCC, 32 opted for NSS and 24 opted for both NCC and NSS. If one of these students is selected at random, find the probability that

- (i) The student opted for NCC or NSS.
(ii) The student opted for neither NCC nor NSS.
(iii) The student has opted NSS but not NCC.

27. Prove that : $\cos \theta \cos \frac{\theta}{2} - \cos 3\theta \cos \frac{9\theta}{2} = \sin \frac{7\theta}{2} \sin 4\theta$

OR

Prove that : $\cos^2 x + \cos^2(x + \frac{\pi}{3}) + \cos^2(x - \frac{\pi}{3}) = 3/2$

28. Using first principle, differentiate $f(x) = \frac{x+1}{x-1}$ w.r.t. x

OR

Differentiate $\frac{x}{\sin^n x}$ w.r.t. x

29. Reduce $(\frac{1}{1-4i} - \frac{2}{1+i})(\frac{3-4i}{5+i})$ to the standard form.

OR

If $(x + iy)^3 = u + iv$, then show that $\frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2)$

30. Of the members of three sports teams in a certain school 23 are in the cricket team, 27 in the hockey team and 30 in the football team. 15 play both hockey and cricket, 16 play both hockey and football, 14 play football and cricket and 9 play all the three games. Find the total number of members in all three teams.
31. If $\tan x = \frac{3}{4}$, $\pi < x < \frac{3\pi}{2}$, find the value of $\sin \frac{x}{2}$, $\cos \frac{x}{2}$ and $\tan \frac{x}{2}$.

SECTION D

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

32. The coefficients of the $(r - 1)^{th}$, r^{th} and $(r + 1)^{th}$ terms in the expansion of $(x + 1)^n$ are in the ratio 1:3:5. Find 'n' and 'r'.
33. Find the image of the point (3, 8) with respect to the line $x + 3y = 7$ assuming line to be a plane mirror.

OR

Two lines passing through the point (2, 3) intersect each other at an angle of 60° . If slope of one line is 2, find equation of the other line.

34. Calculate mean and variance of the following distribution

Classes	30 - 40	40 - 50	50 - 60	60 - 70	70-80	80-90	90-100
Frequency	3	7	12	15	8	3	2

OR

The mean of 5 observations is 4.4 and their variance is 8.24. If three of the observations are 1, 2 and 6, find the other two observations.

35. The sum of the first three terms of a GP is 16 and the sum of the next three terms is 128. Determine the first term, the common ratio and the sum to 'n' terms of the G.P.

SECTION E

Question 36 to 38 are Case Study based questions.

36. In a class, the teacher asked the students to consider $A+B=\pi/4$, where A and B are acute angles. Based on the above information answer the following questions.

- (i) Find the value of $\sin(A + B) - \cos(A + B) + \tan(A + B)$
 (ii) Find the value of $(1 + \tan A)(1 + \tan B)$

- 37.



There are 4 red, 5 blue and 3 green marbles in a basket.

Based on the above information, answer the following :

- (i) If two marbles are drawn at random, then what is the probability that both are red marbles.
 (ii) If two marbles are drawn at random, then find the probability that both are not blue.
 (iii) If three marbles are drawn at random, then find the probability that at least one of them is blue.

OR

If three marbles are drawn at random, then find the probability that either all are red or all are green.

- 38.



Jogging is a type of running that takes place at a slow and steady pace. It is a great type of exercise suitable for people of all fitness levels.

Abhay and Manoj are jogging in a circular ground. At a moment their positions are $A(2, 1, -3)$ and $B(5, -8, 3)$. A and B are the vertices of the diameter of a circle.

Using the above information, answer the following questions.

- (i) Find the co-ordinates of the centre.
 (ii) Find the co-ordinates of the point which divides AB in the ratio 3:1 internally.

OR

Find the length of diameter of the circle.

- (iii) In which octant do the points A and B lie.



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 study/passage based/integrated units of assessment (4 marks each) with sub parts.

Section – A

(Q. Nos. 1 to 20 are MCQs. Each 4 question carries 1 Mark)

01. The decimal number equivalent to the binary number 10101 is
(a) 21 (b) 12 (c) 22 (d) 31
02. Everybody in a room shakes hands with everybody else. The total number of hand shakes is 21. The total number of persons in the room is
(a) 6 (b) 7 (c) 8 (d) 9
03. Number of proper subsets of a set containing 4 elements is
(a) 4^2 (b) $4^2 - 1$ (c) 2^4 (d) $2^4 - 1$
04. The value of $\left[\{(625)^{-1/2}\}^{-1/4}\right]^2$ is
(a) 5 (b) 6 (c) 5.5 (d) 6.5
05. The first and second terms of a GP are x^{-4} and x^m respectively. If its 8th term is x^{52} , then the value of 'm' is
(a) 8 (b) 6 (c) 4 (d) 2
06. If $\log_x 243 = -5$, then the value of x is
(a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) 1
07. If $y = \sqrt{x} + \frac{1}{\sqrt{x}}$, then dy/dx at $x = 1$ is
(a) 1 (b) $\frac{1}{2}$ (c) $\frac{1}{\sqrt{2}}$ (d) 0
08. Equation of the line whose slope is $-2/7$ and y intercept is -3 is
(a) $2x + 7y + 21 = 0$ (b) $7x + 2y + 21 = 0$
(c) $x + 7y + 12 = 0$ (d) $2x + y + 15 = 0$
09. The letters of the word SOCIETY is placed at random in a row. The probability that three vowels occur together is
(a) $\frac{1}{7}$ (b) $\frac{2}{3}$ (c) $\frac{3}{7}$ (d) $\frac{4}{7}$
10. The mean, median and Karl Pearson's coefficient of skewness of a frequency distribution are 50, 54 and -0.5 respectively. The standard deviation of the distribution is
(a) 25 (b) 24 (c) 12 (d) 15
11. A and B are two mutually exclusive event of an experiment. If $P(\text{not } A) = 0.65$, $P(A \cup B) = 0.65$ and $P(B) = p$, then the value of p is
(a) 0.35 (b) 0.25 (c) 0.30 (d) 0.40
12. If the lines $\frac{x}{3} + \frac{y}{4} = 5$ and $3x + ky = 9$ are perpendicular each other, then the value of k is
(a) -4 (b) -3 (c) $-\frac{1}{2}$ (d) 2
13. The derivative of the function $f(x) = 2^{5x^2}$ is
(a) $2^{5x^2} \log 2$ (b) $10x \log 2$ (c) $10x \cdot 2^{5x^2} \cdot \log 2$ (d) $2^{10x} \log 2$
14. In an AP if $a_4 : a_7 = 2 : 3$, then $a_6 : a_8$ is
(a) 1:2 (b) 2:3 (c) 3:4 (d) 4:5
15. If the parabola $y^2 = 4ax$ passes through the point (3, 2) then the length of its latus and rectum is
(a) $\frac{2}{3}$ (b) $\frac{4}{3}$ (c) $\frac{1}{3}$ (d) 4
16. The number of signals that can be made by 4 flags of different colours taking one or more at a time is
(a) 64 (b) 52 (c) 48 (d) 56
17. If a cone, a hemisphere and a cylinder have equal bases and have same height, then the ratio of their volumes is
(a) 1:3:2 (b) 2:3:1 (c) 2:1:3 (d) 1:2:3
18. The mean of 6 observations is 17.5. If five of them are 14, 9, 23, 25 and 10, then the sixth observation is
(a) 42 (b) 24 (c) 31 (d) None of the above

ASSERTION – REASON Based Questions

In the following question, 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)** : If the line $y = \sqrt{3}x + k$ touches the circle $x^2 + y^2 = 16$, then the values of k are 8 and -8 .
Reason (R) : The perpendicular distance 'd' of a point $P(x_1, y_1)$ from the line $ax + by + c = 0$ is given by $\left| \frac{ax_1 + by_1 + c}{\sqrt{a^2 + b^2}} \right|$
20. **Assertion (A)** : The average height of 10 students is 151.8 cm. Two more students of heights 157.6 cm and 154.4 cm join the group, then the new average height is 152.5 cm.
Reason (R) : If each observation is multiplied by x , then the average also gets multiplied by x .

Section – B

(Question Nos. 21- 25 comprises short answer type questions of 2 marks each.)

21. One end of a diameter of the circle $x^2 + y^2 - 3x + 5y - 4 = 0$ is (2, 1). Find the co-ordinates of the other end.
OR
 Find the equation of the parabola with vertex at origin, symmetric with respect to y axis and passing through (2, -3).
22. Determine the rate of interest per annum for a sum that is $729/625$ of itself in one year compounded half yearly.
23. Find the mean and the variance of first 10 multiples of 3.
OR
 Find the mean and standard deviation of the first n natural numbers.
24. Evaluate the limit : $\lim_{x \rightarrow 5} \frac{3^x - 3^5}{x - 5}$
25. Two cards are drawn at random one by one without replacement from a pack of 52 playing cards. Find the probability that both the cards are black.

Section – C

(Q. Nos. 26 to 31 comprises short answer type questions of 3 marks each.)

26. In a survey of 600 students in a school, 150 students were found to be drinking tea and 225 drinking milk and 100 students were drinking both tea and milk. How many students were drinking neither tea nor milk?
27. Find r if ${}^{22}P_{r+1} : {}^{20}P_{r+2} = 11:52$
OR
 If ${}^{2n}C_3 : {}^nC_3 = 11:1$, find n.
28. Find the domain and range of the function $f(x) = \frac{1}{\sqrt{9-x^2}}$
29. How many terms of the arithmetic progression $-6, -\frac{11}{2}, -5, \dots$ are needed to give the sum -25 ? Explain the double answer.
OR
 The sum of three numbers in geometric progression is $\frac{13}{12}$ and their product is -1 . Find the numbers.
30. If $\log 7 - \log 2 + \log 16 - 2\log 3 - \log \frac{7}{45} = 1 + \log n$, find n.
31. The cost of papering the walls of the room 12 m long at the rate of ₹ 1.35 per sq. m. is ₹ 340.20 and cost of matting the floor at the rate of ₹ 0.85 per sq. m. is ₹ 91.80. Find the height of the room.
OR
 The internal and external diameters of a hollow hemispherical vessel are 14 cm and 21 cm respectively. The cost of silver plating of 1 sq. cm surface area is ₹ 0.40. Find the total cost of silver plating the vessel all over.

Section – D

(Q. Nos. 32 to 35 comprises long answer type questions of 5 marks each.)

32. If $y\sqrt{x^2 + 1} = \log(\sqrt{x^2 + 1} - x)$, then prove that $(x^2 + 1)\frac{dy}{dx} + xy + 1 = 0$
33. Find Karl Pearson's coefficient of correlation between X and Y for the following data

X :	16	18	21	20	22	26	27	15
Y :	22	25	24	26	25	30	33	14

OR

The mathematical aptitude score of 10 computer programmes with their job performance is given. Calculate Spearman's rank correlation.

Person	A	B	C	D	E	F	G	H	I	J
Mathematics Score	7	5	1	4	3	0	2	6	8	9
Job Performance Rating	8	16	8	9	5	4	3	8	17	12

34. A man borrows ₹ 5000 at 12% compound interest per annum, interest payable after six months. He pays back ₹ 1800 at the end of every six months. Calculate the third payment he has to make at the end of 18 months in order to clear the entire loan.

OR

- A bank pays 8% interest per annum compounded half-yearly. What equal amount should be deposited at the end of each half-year for 1 ½ years to get an amount of ₹ 2,000 at the end of 18 months. (Use logarithm)
35. Show that the perpendicular drawn from the point A (4, 1) on the line joining the points B (6, 5) and C (2, -1) divides the line segment BC internally in the ratio 8:5.

Section – E

(Q. Nos. 36 to 38 comprises 3 case study based questions of 4 marks. First two case study questions have three sub parts of marks 1, 1, 2 respectively. The third case study question has two sub parts of 2 marks each.)

36.



A building contractor has undertaken a building construction job. The probability that there will be a construction worker's strike is 0.65. If there is a strike and still construction work will be completed on time, the probability is 0.32. The construction work will be completed on time in absence of any strike has the probability 0.80.

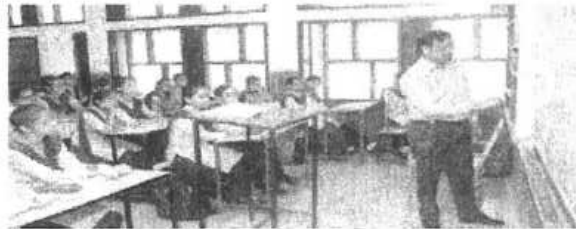
Based on the above information, answer the following questions :

- (a) What is the probability that there will be no strike?
- (b) What is the probability that the construction job will be completed in time?
- (c) What is the probability that there is a strike and construction work is completed in time?

OR

If the construction job is completed on time, what is the probability of no strike?

37.



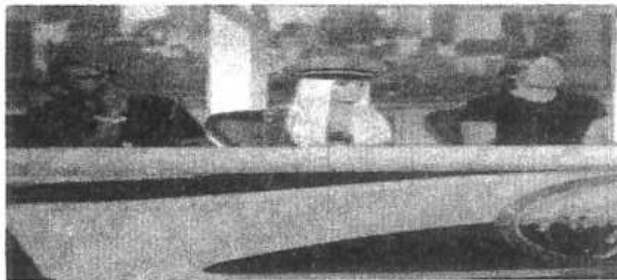
During the mathematics class, a teacher clears the concept of permutation and combination to the 11th standard students. After the class he asks the students some questions. One of the questions was in how many ways numbers between 99 and 1000 (both excluding) can be formed such that

- (a) every digit is either 3 or 7.
- (b) there is no restriction
- (c) the digit at hundred's place is 7.

OR

no digit is repeated.

38.



One of the best measures of variability, which is independent of units is called Karl Pearson's co-efficient of variation and it is defined as $CV = \frac{\sigma}{\bar{x}} \times 100$ where σ is the standard deviation and \bar{x} in the mean of the given distribution. For comparing the variability or dispersion of two series, we calculate the co-efficient of variation of each series. The series having higher CV is called more variable than the other, while series having lesser CV is called more consistent or more stable.

A panel of two judges P and Q graded seven dramatic performances by independently awarding marks as follows :

Performance	1	2	3	4	5	6	7
Marks by P	46	42	44	40	43	41	45
Marks by Q	40	38	36	35	39	37	41

Based on the above information, answer the following questions:

- (a) Mean of the marks given by judge P.
- (b) Standard deviation of the marks given by judge Q.



General Instructions :

1. This question paper has 7 pages.
2. This question paper contains five sections, Section A to E.
3. All questions are compulsory.
4. **Section A** has **18 questions** carrying **01 mark** each.
5. **Section B** has **07 Very Short Answer** questions carrying **02 marks** each.
6. **Section C** has **05 Short Answer type** questions carrying **03 marks** each.
7. **Section D** has **03 Long Answer type** questions carrying **05 marks** each.
8. **Section E** has **02 questions** carrying **04 marks** each.
9. All programming questions are to be answered in Python Language only.

SECTION – A

1. The physical components of computer system are known as _____
(a) Software (b) Hardware (c) Humanware (d) Drivers
2. 8 bits makes _____
(a) 1 Byte (b) 1 KB (c) 1 MB (d) 1 Nibble
3. Which of the following is not a logical gate?
(a) AND (b) OR (c) NOT (d) NONE
4. When python was developed?
(a) 1990 (b) 1991 (c) 1992 (d) 1993
5. To run python program which of the following key is used?
(a) Ctrl + F5 (b) Alt + F5 (c) Ctrl + F9 (d) F5
6. Which of the following is not a python tokens?
(a) Keyword (b) Literals (c) List (d) Operator
7. What will be the output of the following code segment?
a,b=5,6
b,a=a,b
print(a,"+",b)
(a) 5 + 6 (b) 6 + 5 (c) // (d) None
8. Kriza wants to divide a number and store the result without decimal places into an integer variable. Suggest her an appropriate operator from the following:
(a) / (b) % (c) // (d) Both (a) and (b)
9. What will be the output of following code:
if True:
 print("true")
else:
 print("false")
(a) True (b) False (c) true (d) false
10. Dhanya wants to terminates the while loop at the end of program. Suggest her a suitable keyword from the following:
(a) terminate (b) break (c) continue (d) stop
11. Observe the given code and select an appropriate output:
a='hello'
b=str(30)
print(a+b)
(a) h (b) hello (c) 30 (d) hello30
12. Aditya wants to access a second last list element of list object L. Help him to select an appropriate option to accomplish his task.
(a) L[2] (b) L[-2] (c) L[len(L)-2] (d) L-2

13. Consider these statements:

```
a=56,78,32,12
```

```
print(type(a))
```

What will be the output?

- (a) <class 'int'> (b) <class 'tuple'> (c) <class 'list'> (d) <class 'str'>

14. Observe the given declarations:

- i. d={}
- ii. d=dict()
- iii. d=Dict()
- iv. d=dict.fromkeys()

Which of the following are correct ways to create an empty dictionary?

- (a) i and ii (b) i, ii and iv (c) i, iii and iv (d) i and iii

15. Jay forgot to sign off from his email account on his laptop. Later, his classmate Rishi started using the same computer. He is now logged in as Jay. He sends inflammatory email messages to few of his classmates using Jay's email account. Rishi's activity is an example of which of the following cybercrime? Justify your answer.

- (a) Hacking (b) Identity theft (b) Cyber Bullying (d) Plagiarism

16. Which act protects against cyber crime in India?

- (a) Indian IT Act
- (b) India Computer Security Act
- (c) Indian Cyber Law
- (d) Indian Data Security Law

17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as

- (A) Both (A) and (R) are true and (R) is the correct explanation (A)
- (B) Both (A) and (R) are true and R is not the correct explanation (A)
- (C) (A) is True but (R) is False
- (D) (A) is false but (R) is True

17. Assertion(A) : Data submitted online intentionally known as active digital foot print.
Reasoning(R) : Active digital footprints includes emails, replies, comments of posts made on different websites or apps.

18. Assertion(A) : Python lists allows to modify their elements by indexes easily.
Reasoning(R) : Python lists are mutable.

SECTION – B

19. Write equivalent ASCII code for the following:

- (a) CAB (b) Dad (c) FUN (d) ego

20. Draw logical circuit for the following equation:

- (a) $AB'+C'$ (b) $P'Q' + R$

21. What do you mean by tokens? List out python tokens.

22. Consider the following string mySubject:
mySubject = "Computer Science"

What will be the output of:

- (a) print(mySubject[:3]) (b) print(mySubject[-5:-1])
(c) print(mySubject[::1]) (d) print(mySubject*2)

OR

Differentiate between append() and extend() methods with example.

23. Create a dictionary to assign day number as key and day name as value.

24. List any four benefits of e-waste management.

OR

Mention any four net etiquettes.

25. Differentiate between copyright and plagiarism.

SECTION – C

- 26. Draw the basic architecture of computer system. Explain memory unit in detail.
- 27. Explain the numeric data types used in python with example.

OR

Explain the following string operations in detail with example.

- (a) String Concatenation
 - (b) String Replication
 - (c) Membership
28. Find the output of the given code:

```
l = [6, 3, 8, 10, 4, 6, 7]
print('@', l[3] - l[2])

for i in range(len(l)-1, -1, -2):

    print('@', l[i], end=" ")
```

OR

What will be the output of the following code?

```
tuple1 = (11, 22, 33, 44, 55, 66)

list1 = list(tuple1)
new_list = []
for i in list1:
    if i%2==0:
        new_list.append(i)
    new_tuple = tuple(new_list)
print(new_tuple)
```

- 29. What are the characteristics of dictionary?
- 30. Pranjal has downloaded an image from internet and used it in his PowerPoint presentation. But the owner of image does not permit the free uses of it.
 - (a) What do you mean by IPR?
 - (b) Which type of violation of IPR has been done by Pranjal here?
 - (c) Can he use this image legally? Explain how?

SECTION – D

- 31. Write an algorithm and flow chart to find the square of given number.

OR

Write a program to print the following pattern up to n terms:

```
1
1 2
1 2 3
1 2 3 4
```

- 32. Write a program to accept n number of elements and add them into a list. Find the maximum and minimum values and print them.

OR

Write a program to create a dictionary as follows:

```
d={'empno':123,'ename':'Smit','salary':45000}
```

Print the names of employees who earns more than 20000 salary.

33. Prakash has created a group on whatsapp to share the study material. But his friend Jahan is posting rumours in the group.
- (a) Which term is used for the task done by Jahan?
 - (b) Write any three safety measures Prakash has to follow for this situation.
 - (c) What do you mean by cyberstalking?
 - (d) What do you mean by cyberbullying?
 - (e) Which government portal helps to control cybercrime in India?

SECTION – E

34. Observe the code given below and write answer of the following questions:

```
a,b=0,1
n=_____# Statement 1
if_____: #Statement 2
    print("Please enter a positive number")
    elif_____: #Statement 3
        print("You have entered 0")
else:
    _____#Statement 4
    c = a+b
    a = b
    b = c
print(b)
```

- (i) Write input statement to accept n number of terms – Statement 1
- (ii) Write if condition to check whether input is positive number or not - Statement 2
- (iii) Write if condition to check whether input is 0 or not -Statement 3

OR (For iii Only)

Write for loop for to iterate the values up to n terms

35. Dhruvin is learning python modules. Help him to complete the given partial code:

```
import_____# Statement 1
TEXT="Class XI"
COUNT=_____# Statement 2
C=9
while TEXT[C]!='L':
    print(TEXT[C]+TEXT[COUNT]+'*')
    COUNT=COUNT+1
C=C-1
```

- (i) Write the name of module required to be imported – Statement 1
- (ii) Write the random function to generate random number between 0 and3 – Statement 2
- (iii) Write the possible output for the given code
- (iv) What are the minimum and maximum values can be generated fromthis module



Name

Roll No.

DELHI PUBLIC SCHOOL, BHILAI**DATE : 03.03.2023****ANNUAL EXAM 2022-23****Time: 3 HOURS****CLASS : XI****SUBJECT – ACCOUNTANCY (055)****Max. Marks : 80****GENERAL INSTRUCTIONS:**

1. This question paper consists of 34 questions. All questions are compulsory.
2. This question paper is divided into two parts, Part A and B.
3. Both the Parts are **compulsory for all the candidates.**
4. Question 1 to 17 and 27 to 29 carries 1 mark each.
5. Question 18 to 20 and 30 to 32 carries 3 marks each.
6. Question 21 to 23 carries 4 mark each.
7. Question 24 to 26, 33 and 34 carries 6 mark each.
8. There is no overall choice. However, an internal choice has been provided in 7 questions of **one mark**, 2 question of **three marks**, 1 question of **four marks**, and 2 questions of **six marks**.

PART – A**FINANCIAL ACCOUNTING – I**

1. If accounting information is based on facts and it is verifiable by documents, it has the quality of (1)

(a) Relevance	(b) Reliability
(c) Understandability	(d) Comparability

(OR)

Which of the following limitations of accounting states that accounts may be changed to conceal vital facts?

- | | |
|--|---|
| (a) Accounting is not fully exact | (b) Accounting may lead to window dressing |
| (c) Accounting ignores price level changes | (d) Accounting ignores qualitative elements |
2. Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R): (1)

Assertion (A): Accounting is often regarded as the language of the business.

Reason (R): Accounting communicates the result of business activities to its internal and external users.

In the context of the above two statements, which of the following is correct?

(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) Both (A) and (R) are false.
(d) (A) is false, but (R) is true.
 3. Goods used from stock of the business for business purposes are treated as the of business but similar goods used by the proprietor for his personal use are treated as (1)

(a) Inventory, Expenditure	(b) Drawings, Expenditure
(c) Drawings, Inventory	(d) Expenditure, Drawings

(OR)

The term sales is used only for the sale of and is never used for the sale of

- | | |
|-------------------------|-------------------|
| (a) Assets, Investments | (b) Assets, Goods |
| (c) Investments, Goods | (d) Goods, Assets |
4. Consider the following items: (1)

(P) Prepaid Salary	(Q) Accrued Interest
(R) Short-term Loan	(S) Bank Overdraft

Current Liability will include:

(a) (P), (Q), (R)	(b) (Q), (R), (S)
(c) (R), (S)	(d) (Q), (S)

Question No. 5 and 6 are based on the given text. Read the text carefully and answer the questions:

Krishna Tyres, a sole proprietorship firm, is running trading business in Bargarh District of Odisha for last 30 years. In the last 30 years, the firm has earned a reputation in the market by supplying high quality products at reasonable price and customer friendly service. This has enabled the firm to earn huge profits and good industrial relations. The owner of the firm wanted the accountant to record the good industrial relations in the books of accounts. He also wants the accountant to record the assets of the firm at their current market price as it is very high as compared to the book value. But the accountant has denied to do so.

5. Which of the following principles of accounting was overlooked by the owner when he asked his accountant to record the good industrial relations in the books of accounts? (1)

(a) Dual Aspect Principle	(b) Business Entity Principle
(c) Money Measurement Principle	(d) Revenue Recognition Principle

Contd....2

6. On the basis of which of the following principles, the accountant denied to record the assets at their current market price: (1)

- (a) Money Measurement Principle (b) Conservatism Principle
(c) Accounting Period Principle (d) Historical Cost Principle

7. Which equation is incorrect out of the following: (1)

- (a) Assets = Liabilities + Capital (b) Assets = Liabilities – Capital
(c) Liabilities = Assets – Capital (d) Capital = Assets – Liabilities

8. A's capital on 1st April, 2021 was ₹ 3,00,000. His Assets on 31st March, 2022 are ₹ 4,50,000 and Liabilities ₹ 90,000. His profit for the year 2021-22 is: (1)

- (a) ₹ 60,000 (b) ₹ 90,000 (c) ₹ 1,50,000 (d) ₹ 2,10,000

(OR)

If total Assets of a business are ₹ 10,00,000 and outside liabilities are 40% of the total assets, the amount of owner's equity is:

- (a) ₹ 6,00,000 (b) ₹ 4,00,000 (c) ₹ 14,00,000 (d) ₹ 10,00,000

9. Drawings Account is a: (1)

- (a) Personal Account (b) Real Account (c) Nominal Account (d) Revenue Account

(OR)

Goodwill Account is:

- (a) Asset Account (b) Expense Account (c) Revenue Account (d) Liability Account

10. Read the following two sentences and state whether they are true or false: (1)

- (i) In a liability account, increase is shown on the debit side.
(ii) Carriage inwards and Carriage Outwards have debit balances.

- (a) (i) is True and (ii) is False. (b) Both (i) and (ii) are True.
(c) (i) is False and (ii) is True. (d) Both (i) and (ii) are False.

11. When a trader sells goods on credit, he/she prepares which contains the name of the party to whom goods are sold, the rate, quantity and the total amount of sale. (1)

- (a) Cash Memo (b) Invoice (c) Debit Note (d) Receipt

12. Credit purchase of furniture is recorded through: (1)

- (a) Cash Voucher (b) Debit Voucher (c) Credit Voucher (d) Transfer Voucher

13. On selling the goods for cash of the list price ₹ 40,000 at 15% trade discount and 4% cash discount, Cash Account will be debited by: (1)

- (a) ₹ 32,640 (b) ₹ 32,400 (c) ₹ 34,000 (d) ₹ 38,400

(OR)

Sold goods for cash of the list price of ₹ 80,000 at 10% trade discount and 3% cash discount. Posting will be made in Discount Account:

- (a) ₹ 2,160 on Debit Side (b) ₹ 2,160 on Credit Side
(c) ₹ 2,400 on Debit Side (d) ₹ 2,400 on Credit Side

14. When a cheque deposited into bank is dishonoured by bank, it will be recorded in Cash Book in: (1)

- (a) Bank Column on Debit Side (b) Bank Column on Credit Side
(c) Cash Column on Debit Side (d) Cash Column on Credit Side

15. Goods taken away by the proprietor from business for his personal use will be recorded through: (1)

- (a) Purchases Book (b) Sales Book (c) Journal Proper (d) Cash Book

16. Profit on sale of assets is used to create: (1)

- (a) General Reserve (b) Specific Reserve (c) Secret Reserve (d) Capital Reserve

17. Provision of the year in which it is created. (1)

- (a) Increases the Profit (b) Decreases the Profit
(c) Does not affect the Profit (d) May increase or decrease the Profit

18. From the following transactions prepare ledger accounts of Harshit and Nitin: (3)

2022

- November, 01 Started business with cash ₹ 1,50,000 and Goods ₹ 50,000.
November, 03 Purchased Goods from Harshit ₹ 30,000.
November, 05 Sold goods for cash to Nitin ₹ 12,000.
November, 10 Cash paid to Harshit on account ₹ 15,000.
November, 18 Deposited into bank ₹ 5,000.
November, 20 Goods sold to Nitin ₹ 7,000.
November, 22 Cash paid to Harshit in full settlement of account ₹ 14,700.
November, 29 Received cash from Nitin ₹ 6,800; Discount allowed ₹ 200.

19. Explain any two of the following terms:

- (a) Non-Current Assets (b) Contingent Liabilities (c) Trade Receivables

(OR)

Distinguish between Debtors and Creditors on the basis of any three points.

(3)

Contd....3

20. During the financial year 2021-22, Raja, a Lawyer earned ₹ 8,00,000; out of which he received ₹ 7,00,000 in cash. He incurred an expense of ₹ 3,40,000, out of which ₹ 80,000 are outstanding. He also received fee relating to previous year ₹ 90,000 and also paid ₹ 40,000 expenses of last year. You are required to determine his income for the year if he follows:

- (a) Cash Basis of Accounting; and
- (b) Accrual Basis of Accounting.

(OR)

Name the accounting concept of principle associated with the following:

- (a) Everything a firm owns, it also owes out to somebody.
- (b) If a firm believes that some of its debtors may 'default', it should act on this by making sure that all possible losses are recorded in the books.
- (c) Personal transactions are distinguished from business transactions. (3)

21. Enter the following transactions in the Double Column Cash Book: (4)

2022

- | | |
|-----------|--|
| April, 1 | Bank Overdraft ₹ 30,000 |
| | Cash in Hand ₹ 5,750 |
| April, 7 | Cheque received from Vinay ₹ 10,000. |
| April, 7 | Discount allowed ₹ 500 |
| April, 9 | Cheque of Vinay deposit into Bank. |
| April, 12 | Paid by cheque to Amit ₹ 6,250 and discount received ₹ 250. |
| April, 15 | Vinay's cheque dishonoured. |
| April, 20 | Money withdrawn from bank for office use ₹ 7,500. |
| April, 21 | Paid the school fee of children ₹ 1,180. |
| April, 25 | Cheque received from Amar and endorsed it to Anand ₹ 11,250. |
| April, 27 | Bank Charges ₹ 500. |
| April, 30 | Paid into Bank the entire balance after retaining ₹ 750 in office. |

(OR)

Enter the following transactions in the Purchase Book of Anjali Electric Stores, New Delhi:

2022

- | | |
|------------|--|
| August, 2 | Purchased goods from Ansh Electric Store, Gandhi Circle, Delhi on credit (Invoice No. 480):
80 Tubelights @ ₹ 500 each
30 Table Fans @ ₹ 2,000 each
Trade Discount 20% |
| August, 10 | Bought goods from Bhavesh Traders, Sahadra, New Delhi on credit (Invoice No. 2310):
20 Ceiling Fans @ ₹ 3,000 each
40 Electric Irons @ ₹ 500 each
Trade Discount 10% |
| August, 20 | Purchased goods from Ayan Electric Co., Patel Nagar, New Delhi on credit (Invoice No. 1508):
100 Dozen Bulbs @ ₹ 600 Per Dozen
20 Water Heaters @ ₹ 1,000 each
Less: Trade Discount 25% |
| August, 22 | Bought from Roshan Lamp, Karol Bagh, New Delhi for cash (Cash Memo No. 705):
10 Dozen Tube lights @ ₹ 1,200 per Dozen
30 Table Fans @ ₹ 1,800 each |
| August, 28 | Bought from Tejas Furniture House, Dwarka, New Delhi on credit (Invoice No. 3450):
20 Chairs @ ₹ 1,500 each
5 Tables @ ₹ 8,000 each |

22. Prepare Trial Balance from the following:

Cash ₹ 3,000; Capital ₹ 24,000; Sales ₹ 30,000; Purchases ₹ 20,000; Returns Inward ₹ 6,000; Returns Outward ₹ 4,000; Salaries ₹ 5,000; Provision for Bad Debts ₹ 2,000; Taxes and Insurance ₹ 1,000; Bad Debts ₹ 600; Creditors ₹ 3,700; Unearned Commission ₹ 1,000; Bills Payable ₹ 5,000; Sundry Debtors ₹ 10,400; Patents ₹ 8,000; Opening Stock ₹ 6,000; Drawings ₹ 2,800; Interest on investment ₹ 300; Depreciation ₹ 1,200; Bills Receivable ₹ 1,000; Furniture ₹ 5,000; Closing Stock ₹ 6,000. (4)

23. Prepare a Bank Reconciliation Statement from the following Particulars:

- (a) On 31st March 2022, the Cash Book showed a credit bank balance (i.e., bank overdraft) of ₹ 1,000.
- (b) Out of the total cheques amounting to ₹ 5,000 drawn, cheques of ₹ 1,500 were encashed in March, cheques totalling ₹ 2,000 were presented in April and the rest have not been presented at all.
- (c) Out of the total cheques amounting to ₹ 2,500 deposited, cheques totalling ₹ 750 were credited in March, cheques of ₹ 1,000 were credited in April and the rest have not been collected at all.
- (d) The bank has debited ₹ 250 on account of interest on overdraft and ₹ 50 as bank Charges.

Contd....4

- (e) The bank has credited ₹ 350 on account of interest collected on securities.
- (f) A Bills Receivable of ₹ 500 (discounted with the bank in January) dishonoured on 31st March (but not yet recorded in the Cash Book).

(OR)

Prepare a Bank Reconciliation Statement as on 31st December, 2022, showing balance as per the Cash Book:

- (a) Debit balance shown by the Pass Book ₹ 1,78,000.
 - (b) Cheques of ₹ 2,16,000 were issued in the last week of December but only cheques of ₹ 1,48,000 were presented for payment.
 - (c) Cheques of ₹ 1,07,500 were presented to the bank. Out of them, a cheque of ₹ 42,000 was credited in the first week of January 2023.
 - (d) A cheque of ₹ 12,000 was debited in the Cash Book but was not presented in the bank.
 - (e) Insurance premium paid by the bank ₹ 14,500.
 - (f) A Bill of Exchange of ₹ 62,000 (which was discounted with the bank) was returned dishonoured but no entry was made in the Cash Book.
 - (g) Bank charges and interest charged by the bank are ₹ 3,500. (4)
24. A second hand machinery was purchased by Premium Furniture House for ₹ 3,20,000 on 1st July, 2019 and ₹ 30,000 was spent on its repairs and overhauling. Depreciation is charged @ 15% p.a. on straight line method. On December 31st 2020 ₹ 8,000 were again spent on its repairs. Finally on 1st October, 2021, the machinery was sold for ₹ 1,80,000. You are required to prepare Machinery Account when the books are closed on 31st March every year. Show your workings clearly.

(OR)

On 1st January 2019, Indore Golden Transport purchased four trucks for ₹ 4,00,000 each. On 1st July 2021, one of the truck was involved in an accident and was completely destroyed and ₹ 3,00,000 were received from Insurance Company in full settlement. On the same date another truck was purchased by the Co. for ₹ 5,00,000. The Company writes off depreciation @ 20% p.a. on Written Down Value Method. Accounts are closed on 31st March every year. Give the Truck Account from 2019 to 2022. (6)

25. Rectify the following errors found in the books of Rahul. The Trial Balance showed ₹ 2,500 as excess debit. The difference has been posted to the Suspense Account.
- (a) The total of debit side of Travelling Expenses Account has been cast in excess by ₹ 1,500.
 - (b) The Sales Account has been totalled short by ₹ 2,000.
 - (c) One item of purchase of ₹ 250 has been posted from the Purchases Book to the ledger as ₹ 3,500.
 - (d) The sales return of ₹ 2,000 from a party has not been posted to that account, though the Party's Account has been credited.
 - (e) A cheque of ₹ 6,000 issued to Vinod's Account (shown under Sundry Creditors) towards his dues had been wrongly debited to the Purchases Account.
 - (f) A credit sale of ₹ 1,000 has been credited to the sales and also to the Sundry Debtors' Account.
- You are required to Pass the necessary Journal entries for correcting the above.

(OR)

Pass the rectifying entries from the following particulars:

- (a) Purchase of equipment, from Mohan & Co., worth ₹ 2,000, in cash, was entered through the purchase day book and accordingly, credited to the supplier's account.
 - (b) Discount ₹ 500 allowed by Vijay, a creditor, has not been entered in the books of account.
 - (c) ₹ 350 paid for carriage on sale of goods was credited to carriage inward account when posted from the cash book.
 - (d) Bill receivable worth ₹ 1,800 received from a debtor was entered in the Bills Payable Book though correctly entered in the debtor's account.
 - (e) A sum of ₹ 2,500 collected from Suraj, a debtor, whose dues were already written off as bad debt, was posted to the credit side of Suraj's account.
 - (f) Goods worth ₹ 1,500 bought by the Proprietor Mr. Singh for his personal use without any payment being made as yet, was wrongly entered in the purchase day book. (6)
26. Record the following transactions in the Journal of Krishna Furniture Mart, Balangir: (6)
- 2022
- July, 1 Started business with cash ₹ 6,00,000 and deposited ₹ 90,000 out of it into bank on the same day.
 - July, 8 Purchased Machinery for ₹ 5,00,000 from Aditya Machinerics and gave him a cheque for 10% of the amount and paid installation charges in cash ₹ 1,000.
 - July, 20 Purchased timber from Vaibhav of the list price ₹ 2,00,000. He allowed 10% trade discount.
 - July, 23 Purchased an iron make file cabinet for office use of ₹ 50,000 and paid in cash ₹ 600 as cartage on it.
 - July, 25 Sold furniture to Yashvardhan of the list price ₹ 1,00,000, allowed him 5% trade discount.

- July, 28 Received a cheque from Yashvardhan for ₹ 92,500 in full settlement and sent the cheque to bank on the same day.
 July, 29 Sent to Vaibhav, in full settlement, a cheque for the amount after deducting 3% cash discount.
 July, 31 Paid wages ₹ 35,000 and salaries of ₹ 20,000.

PART – B
FINANCIAL ACCOUNTING – II

27. If Cost of Goods Sold is ₹ 1,50,000; Closing Stock ₹ 40,000; and Opening Stock ₹ 60,000, then amount of Purchases will be: (1)
 (a) ₹ 1,30,000 (b) ₹ 1,70,000 (c) ₹ 50,000 (d) ₹ 1,10,000
28. "Salaries and Wages" appearing in Trial Balance is shown: (1)
 (a) on the Debit Side of Trading Account (b) on the Debit Side of Profit and Loss Account
 (c) on the Assets Side of Balance Sheet (d) on the Credit Side of Profit and Loss Account

(OR)

If Closing Stock is given outside the Trial Balance, it will be shown in:

- (a) Trading Account and Profit and Loss Account (b) Trading Account and Balance Sheet
 (c) Trading Account only (d) Balance Sheet only
29. Rent paid on 1st October, 2021 for one year upto 30th September, 2022 amounted to ₹ 24,000. Rent paid on 1st October, 2022 for the year upto 30th September, 2023 was ₹ 32,000. Rent shown in the Profit and Loss Account for the year ended 31st December, 2022 would be: (1)
 (a) ₹ 56,000 (b) ₹ 32,000 (c) ₹ 24,000 (d) ₹ 26,000

(OR)

Sundry Debtors given in the Trial Balance are ₹ 20,000. Further Bad Debts amounted to ₹ 1,000 and it is desired to create a provision of 5% on Debtors for Doubtful Debts and 2% for Discount. Sundry Debtors will appear in the Balance Sheet at a figure of:

- (a) ₹ 18,620 (b) ₹ 18,600 (c) ₹ 17,670 (d) ₹ 17,689
30. Calculate the amount of Gross Profit and Operating Profit on the basis of the following balances extracted from the books of M/s Rana and Sons for the year ended 31st March, 2022:
 Opening Stock ₹ 50,000; Net Sales ₹ 11,00,000; Net Purchases ₹ 6,00,000; Direct Expenses ₹ 60,000; Administration Expenses ₹ 45,000; Selling and Distribution Expenses ₹ 65,000; Loss due to Fire ₹ 20,000; and Closing Stock ₹ 70,000. (3)
31. An extract from a Trial Balance on March 31st, 2022 is given below:

Particulars	Debit	Credit
	₹	₹
Sundry Debtors	3,20,000	
Bad Debts	20,000	
Provision for Doubtful Debts		35,000

Additional Information:

- (a) Write off further bad debts ₹ 10,000.
 (b) Create a provision for doubtful debts @ 5% on debtors.
 You are required to pass necessary journal entries for the above transactions while preparing financial statements. (3)
32. Explain the treatment of the following items of adjustments in financial statements when they are appearing inside the Trial Balance:
 (a) Prepaid Rent ₹ 15,000;
 (b) Depreciation on Machinery ₹ 20,000; and
 (c) Closing Stock at Cost Price ₹ 1,10,000. (3)
33. (i) Distinguish between capital expenditure and revenue expenditure on the basis of treatment in 'financial statements'.
 (ii) State whether the following statements are items of capital or revenue expenditure:
 (a) Expenditure incurred on repairs and whitewashing at the time of purchase of an old building in order to make it usable.
 (b) Expenditure incurred to provide one more exit in a cinema hall in compliance with a govt. order.
 (c) Registration fees paid at the time of purchase of a building.
 (d) Expenditure incurred in the maintenance of a tea garden which will produce tea after four years.
 (e) The expenditure incurred in erecting a platform on which a machine will be fixed. (1+5=6)

34. M/s Rohit Plastics provides you the following Trial Balance as at 31st March, 2022:

Debit Balances	Amount	Credit Balances	Amount
	₹		₹
Drawings	6,000	Creditors	16,802
Sundry Debtors	38,200	Capital	60,000
Carriage Outwards	2,808	Loan on Mortgage	17,000
Establishment Expenses	16,194	Provision for Bad Debts	1,420
Interest on Loan	400	Sales	2,22,486
Cash in Hand	6,100	Purchases Return	2,692
Stock	11,678	Discount	880
Motor Vehicle	18,000	Bills Payable	5,428
Cash at Bank	9,110	Rent Received	500
Land and Buildings	24,000		
Bad debts	1,250		
Purchases	1,34,916		
Sales Return	15,642		
Advertisement	4,528		
Carriage Inwards	7,858		
Rates, Taxes and Insurance	7,782		
General Expenses	8,978		
Bills Receivable	13,764		
	<u>3,27,208</u>		<u>3,27,208</u>

Adjustments:

- (i) Depreciate Land and Building at @ 5% and Motor Vehicle at @ 15%.
- (ii) Interest on Loan is @ 5% taken on 1st April, 2021.
- (iii) Salaries amounting to ₹ 1,400 and Rates amounting to ₹ 800 are due to be paid.
- (iv) The Provision for Bad Debts is to be brought up to @ 5% on Sundry Debtors.
- (v) Closing Stock was ₹ 13,700.
- (vi) Goods costing ₹ 1,000 were taken away by the proprietor for his personal use but no entry has been made in the books of account.
- (vii) Insurance Prepaid ₹ 350.

Prepare the Trading and Profit and Loss Account for the year ended 31st March, 2022 and a Balance Sheet as at that date. (6)



General Instructions-

1. Question no. 1-10 and 18-27 is MCQ of 1 mark each.
2. Question no. 11-12 and 28-29 is short answer of 3marks each which can be answered in 60-80 words.
3. Question no. 13-15 and 30-32 are short answer questions of 4 marks each which can be answered in 80 to 100 words.
4. Questions no. 16-17 and 33-34 is long answer of 6 marks each and can be answered in 100 to 150 words.

SECTION – A (STATISTICS)

01. Statistics is related to which type of data- (1)
(a) Quantitative (b) Qualitative (c) Descriptive (d) All the above
02. Choose the correct alternative from the following- (1)
Statement I – Statistical error is the difference between the observed and the true value.
Statement II – Statistical error can be sampling error or non- sampling error.
(a) Statement I is true and statement II is false (b) Statement I is false and statement II is true
(c) Both statements are true (d) Both statements are false
03. Which of the following method is mostly used for data collection— (1)
(a) Census method (b) Sample method (c) Mixed method (d) Any of these
04. What is shown in head-note of a table- (1)
(a) Title of a table (b) Subject matter of a table (c) Body of the table (d) None of these
05. How can we show the very large and small value in a diagram- (1)
(a) Multiple bar diagram (b) Broken bar diagram (c) Deviation bar diagram (d) Any of these
06. The algebraic sum of deviation of observations from their arithmetic mean is- (1)
(a) 1 (b) 2 (c) -1 (d) 0
07. If the value of mean and median of a series are 26.8 and 27.9 respectively, what will be the value of mode- (1)
(a) 30.1 (b) 37.8 (c) 42.6 (d) 27.7
08. Assertion (A) – Scatter diagram method is a graphical expression of the degree and direction or absence of correlation. (1)
Reason(R) – Scatter diagram method fails to produce trend.
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true and reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false
(d) Assertion is false but reason is true
09. When correlation is linear- (1)
(a) when X and Y variable vary with different ratio (b) when X and Y variable vary with same ratio
(c) any of these (d) none of these
10. By index number we mean- (1)
(a) technique of measuring price changes (b) technique of measuring changes
(c) technique of measuring political changes (d) none of these
11. Prove by giving an example the sum of the deviation from actual mean is always zero. (3)

OR

Define mean. Find the arithmetic mean for following- (1+2=3)

S No.	1	2	3	4	5	6	7	8	9	10
Income	120	150	180	200	250	300	220	350	270	260

12. Calculate upper and lower quartile from the following- (3)

CI	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
f-	4	6	8	12	12	8	6	4

13. Calculate mode from the following- (Grouping Method) (4)

C I	10-19	20-29	30-39	40-49	50-59	60-69	70-79
f	10	12	18	30	16	6	8

14. Marks the following statement as true or false. Also give reasons- (4)
- (a) Statistics can only deal with quantitative data.
 (b) Statistics solve economic problems.
 (c) Statistics is of no use to economics without data.

OR

“The government and policy makers use statistical data o formulae suitable policies of economic development.” Illustrate with two examples.

15. What are the desirable properties of the base year? Explain any three utility of index number. (4)

16. When here is a perfect correlation? Calculate coefficient of correlation for the following- (1+5=6)

X-	65	66	57	67	68	69	70	72
Y-	67	56	65	68	72	72	69	71

17. (a) Draw a table. Mention different parts. (2)
 (b) Draw the histogram for the following- (4)

C I	1-5	6-10	11-15	16-20	21-25
f-	2	5	10	7	2

OR

- (a) Differentiate between exclusive series and inclusive series. (2)
 (b) Your teacher wants select five students as class representative by giving an equal chance of being selected to all. Suggest him a suitable method for such a suitable method for such a selection. (4)
 Also write two merits and two demerits of the method.

SECTION – B (MICROECONOMICS)

18. In a free market economy the allocation of resources is determined by- (1)
 (a) Votes taken by consumer (b) A central planning authority
 (c) Consumer preference (d) The level of profits of the firms
19. Point of satiety is referred to a situation in which- (1)
 (a) The TU is rising (b) The TU is falling (c) MU is zero (d) MU is negative
20. An indifference curve slopes down towards the right since more units of one commodity consumed and less unit of another commodity consumed would result in- (1)
 (a) Same level of satisfaction (b) Greater level of satisfaction
 (c) Maximum level of satisfaction (d) Decreased level of satisfaction
21. In case of short-run production function the factor ratio remains- (1)
 (a) Constant (b) Variable
 (c) Either constant or variable (d) Neither constant nor variable
22. Estimate the value of marginal revenue when you are given that the total revenue changes from Rs. 25000 to Rs.28000 if 20 more units are sold by a seller. (1)
23. A firm is faced with a downward sloping demand curve. As it sells more quantity, its TR will- (1)
 (a) Always increases (b) Always falls (c) Remains unchanged (d) Any of the above
24. From point of view of an economy the supply of land is always- (1)
 (a) Perfectly inelastic (b) Less than unitary elastic
 (c) More than unitary elastic (d) Perfectly elastic
25. If the price elasticity of supply is 0.8 and the percentage change in the price of the commodity is 15%, then percentage change in quantity supplied is- (1)
 (a) 10% (b) 1% (c) 12% (d) 8%

26. Which of the following represents per labour unit of output- (1)
(a) Total physical product (b) Physical product
(c) Marginal physical product (d) Average physical product
27. In which of the following market form marginal revenue is equals to average revenue- (1)
(a) Perfect competition (b) Monopoly (c) Oligopoly (d) Monopolistic competition
28. If production possibility curve moves to the right will it always be parallel to original curve. (3)
OR
Explain how scarcity and choice go together. Give example.
29. What do you mean by a price taker firm? Explain with the help of an example. (3)
30. Explain consumer's equilibrium under single commodity case. (Use diagram and schedule) (4)
31. Calculate price elasticity of demand of good X if its quantity demanded at a price of Rs.8 per unit is 800 units and with a fall in its price to the magnitude of 25% the quantity demanded rises by 120 units. Also comment whether the demand is elastic or inelastic. Give valid reason. (4)
OR
Discuss any three determinants which bring changes in the demand of a commodity. Use diagram.
32. In economics, equilibrium price is that price at which forces of market demand and market supply are in balance or equal to each other. It can also be known as market equilibrium. It is a stable price that tends to remain constant till market forces do no change. At equilibrium price quantity demanded equals quantity supplied, known as equilibrium quantity. A firm is a single unit of an organization producing goods whereas an industry comprises several firms producing identical goods. Thus a firm is a part of industry. Industry is a price maker, which determines price with the help of market demand and market supply. A firm is simply a price taker. Equilibrium is based upon the assumptions like demand curve slopes downward, supply curve has a positive slope, no government interference in price determination, excess demand results in price rise and excess supply causes a fall in price. When at a given price quantity demanded of a commodity exceeds its supply, it is known as situation of excess demand. Excess demand leads to rise, as a result higher price inspire sellers that further bring the demand equal to supply. Excess supply on the other hand, is a situation where quantity supplied of a commodity exceeds quantity demanded. It results into a fall in price. With the fall in price, the number of buyers increases and hence brings the demand equal to supply.
- (a) Equilibrium price is also known as (1)
(i) Demand equilibrium (ii) Supply equilibrium
(iii) Market equilibrium (iv) None of these
- (b) Which of the following is not the assumption of equilibrium price (1)
(i) No government interference in price determination
(ii) Excess demand result in price rise
(iii) Demand curve slopes downwards
(iv) All are assumptions of equilibrium price
- (c) Excess demand is a situation where (1)
(i) Quantity demanded = quantity supplied (ii) Quantity demanded > quantity supplied
(iii) Quantity demanded < quantity supplied (d) None of these
- (d) Excess supply lead to fall in price which results into (1)
(i) The number of buyers increases (ii) Number of sellers increases
(iii) No change in number of buyers and sellers (iv) None of these
33. Give the behavior of marginal product and total product as more and more unit of only one input are employed while keeping other input as constant. (6)
OR
(a) Discuss the nature of total cost curve with help of the diagram. (2)
(b) Establish relationship between marginal cost curve, average cost and average variable cost curve. (4)
34. (a) Discuss the condition of firm's equilibrium using marginal cost and marginal revenue approach. Give schedule and diagram. (4)
(b) Draw TR, AR and MR curve when more can be sold by lower price for a commodity in market. (2)



DELHI PUBLIC SCHOOL, BHILAI

DATE : 21.02.2023

ANNUAL EXAMINATION 2022 – 2023

Time : 3 Hrs.

CLASS : XI

SUBJECT – BUSINESS STUDIES

Max. Marks : 80

General Instructions

1. This question paper contains 34 questions.
2. Marks are indicated against each question.
3. Answer should be brief and to the point.
4. Answers to the questions carrying 3 marks may be from 50 to 75 words.
5. Answers to the questions carrying 4 marks may be about 150 words.
6. Answers to the questions carrying 6 marks may be about 200 words.
7. Attempt all parts of the questions together.

1. Support services to industrial business activities are clubbed under
(a) commercial industries (b) secondary industries (c) primary industries (d) tertiary industries (1)
2. Harsh insured his factory for ₹ 5 lakhs against fire. Due to fire in his factory, he suffered a loss of stock worth ₹ 3 lakhs. He is of the opinion that he can recover the entire policy amount of ₹ 5 lakhs from the insurance company. Identify the relevant insurance principle in this regard.
(a) Subrogation (b) Mitigation (c) Indemnity (d) Proximate cause (1)
3. Literary work is protected under
(a) Patent (b) Trademark (c) Crowd Funding (d) Copyright (1)
4. If the cash flow position of the company is strong, the company can raise the required capital by issuing _____ to enjoy tax benefits.
(a) shares (b) debentures (c) bonds (d) retained earnings (1)
5. Tejas and Ayan are doing separate business of installing centralized air conditioner units in Meerut. They enter into a partnership contract to install centralized AC unit in a hotel in Patna. Identify the type of partnership being highlighted in the given case.
(a) Particular partnership (b) General partnership (c) Partnership at will (d) Limited partnership (1)
6. Sending quotation of supplying raw material by one businessman to another is called
(a) B2B commerce (b) B2C commerce (c) C2C commerce (d) Intra – B (1)
7. Nature's Beauty is a company with cosmetic stores all over the country. The procurement of raw materials and manufacturing of merchandise for all the retail units is centralized. Which type of store is highlighted here?
(a) Departmental stores (b) Chain stores (c) Speciality stores (d) Super markets (1)
8. Match the 'forms of public enterprises' in Column I with their respective forming statement in Column II.

COLUMN I	COLUMN II
Departmental Undertaking	i. Department of Ministry
Statutory Corporation	ii. Indian Companies Act, 2013
Government Company	iii. Special Act of the Parliament

- (a) A(i) B(iii) C(ii)
(c) A(i) B(ii) C(iii)
- b) A(ii) B(iii) C(i)
d) A(ii) B(i) C(iii) (1)
9. Star Ltd. uses rocks, trees, electric poles, walls of historical monuments to advertise its products. This advertising policy has made their products known to the public. Identify the group whose responsibility is ignored by Star Ltd.
(a) Government (b) Consumer (c) Society (d) Investors (1)
10. Which of the following is not a part of export documents?
(a) Commercial invoice (b) Bill of Entry (c) Certificate of Origin (d) Mate's Receipt (1)
11. Name the two broad categories of business activities.
(a) Trade and Commerce (b) Trade and Industry
(c) Trade and Auxiliaries to Trade (d) Industry and Commerce (1)
12. Pranshu is an individual with surplus cash and interested to invest in upcoming start-ups. Which method is suitable for him?
(a) Crowd funding (b) Angel Investment (c) Venture Capital (d) Boot strapping (1)

13. Mr. Aditya Sinha desires to have two benefits from his bank account. First, to earn higher interest on balance and second, to face minimum risk of dishonouring a cheque. Which type of account should be opened by him in Index Bank?
(a) Current account (b) Savings account (c) Recurring account (d) Multiple Option account (1)

14. Assertion (A) – Payment of dividend on equity shares is compulsory.
Reason (R) – Voting rights are conferred upon equity shareholders and they participate in the affairs of the business. (1)
(a) Both Assertion (A) and Reason (R) are true and (R) is the correct explanation of (A).
(b) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).
(c) Assertion (A) is true, but Reason (R) is false.
(d) Assertion (A) is false, but Reason (R) is true.

15. Anjali and Shourya want to start a shop to sell Rajasthani sweets. They did not know how to develop the agreement for this purpose. So, they approached a Chartered Accountant who advised them to prepare a document which may stipulate the terms and conditions of the agreement. On the basis of given information name the document about which the Chartered Accountant advised Anjali and Shourya.
(a) MOA (b) AOA (c) Partnership Deed (d) Prospectus (1)

16. Which of the following long term source of finance is also known as ploughing back of profits?
(a) Preference shares (b) Retained earnings (c) Lease financing (d) Debt Capital (1)

17. Name the Apex bank set up to provide direct and indirect financial assistance to small scale sector.
(a) SIDBI (b) RSBDC (c) NABARD (d) NSIC (1)



Identify the above itinerant trader:
(a) Cheap jacks (b) Hawkers and Peddlers (c) Market traders (d) Street trader (1)

19. The document containing the guarantee of a bank to honour Usance or Sight drafts drawn on it by an exporter is
(a) Letter of Hypothecation (b) Bill of lading (c) Letter of Credit (d) Bill of Exchange (1)

20. The risk of bad debts in this business is eliminated particularly when the payment is received by VPP.
(a) Mail order house (b) Departmental Stores (c) Tele shopping (d) Chain stores (1)

21. The two friends, Vinita and Mahi started a business by the name of 'Vinimay Fancy Dress Shoppy'. Both of them invested equal capital in the business. At the start of the business, Vinita had placed one condition before Mahi that if unfortunately, they suffered a heavy loss in their business, she would not be able to give anything except the capital invested in the business. Mahi had accepted this condition on the terms and condition that Vinita would not enjoy the right to participate in the management of the firm. Their business was gradually growing well and they were fully satisfied with their business.
(a) What form of business organization is referred to in the above para? (1+2)
(b) Identify and explain the type of the form of organization identified in (a). (2+1)

OR

What is the difference between Certificate of Incorporation and Certificate of Commencement? When can a Private company start its operations? (2+1)

22. Explain the following terms:
(a) Bank overdraft (b) Cash credit (c) RTGS (3)

23. Name any six sources of raising long term finances. (3)
OR
What are Preference shares? Write about the preferential rights enjoyed by preference shareholders. (1+2)

24. Identify the type of retailer in the following cases:
(a) Krishna pays a monthly charge to a bank to put up his stall in the evening and sell readymade garments.
(b) It is Palak's mother's birthday. She ordered a saree through mail and asked them to deliver as VPP.
(c) McDonalds is an example of which type of retail store? (3)
25. Marvel Pvt. Ltd. is a reputed company manufacturing computers. The company is earning a considerable profit. Both the proprietors and the employees are putting their best efforts to make good quality products available to the customers at a low price, paying its shareholders a good amount of dividends and the employees a reasonable remuneration. This contributes to the successful operations of the business. With increased profits over time, the company's foundation becomes strong, and it earns a good reputation in the society. It utilises its profits to finance its growth and expansion requirements.
Explain the role of profit in the business of Marvel Pvt. Ltd. by quoting the lines from the above para. (4)
26. What are the features of a Departmental Undertaking? (4)
OR
Write about the features of Multi national Corporations. (4)
27. Jayashree wanted to sell her mobile phone but did not get any buyer. On her friend's suggestion she posted the mobile on sale on www.olx.com and found a buyer within two days. Name and explain the type of e-business. Give two more examples of this type. (2+2)
28. Explain briefly the social responsibilities of business towards the Government. (4)
OR
Write briefly the social responsibilities of business towards consumers. (4)
29. After completing her Masters in medicine, Kokila has opened a small nursing home in the hilly area of Valparai. Valparai is a Taluk and hill station in the Coimbatore district of Tamil Nadu. It is located 3,500 ft above sea level on the Annamalai Hills range of the Western Ghats. What are the incentives that are likely to be made available to her from the Government of India for promoting small business? (4)
30. Explain briefly the following :
(a) DGFT (b) Mate's receipt (c) Indent (d) Bill of entry (4)
31. Vaibhav runs a garment shop in a mall. Three years back he had taken a loan of Rs. 20 lakhs from ICICI bank for the renovation of his shop. However, due to his poor health for the past one year his earnings have reduced considerably as he is not able to devote sufficient time to the business. He now plans to sell off his shop.
In the context of the above case.
(a) Identify the form of business organisation and explain the limitation of the form being discussed above.
(b) Discuss briefly any three other limitations of the same form of business. (3+3)
32. Explain the principles of insurance. (6)
OR
What is banking? Explain the various types of bank accounts available. (1+5)
33. Krishna and his brother Narayan own a large scale retail outlet at a central location in Amritsar. They deal in varied kinds of products like textiles, footwear, cosmetics, groceries etc. which are sold through different divisions within the establishment.
(a) Identify and explain the type of retail outlet being described in the above lines.
(b) State any two merits and two demerits of the type of retail outlet as identified in part(a) of the question. (2+4)
34. Explain briefly the various sources of Owned funds. (6)
OR
What do you mean by debentures? Explain the features of debentures. (6)



Name :
Roll No.:

DELHI PUBLIC SCHOOL, BHILAI

Date : 07.03.2023
Class : XI

ANNUAL EXAMINATION – 2022 – 23
SUBJECT : ENGINEERING GRAPHICS

Time : 3 Hrs.
Max. Marks : 70

General Instructions:

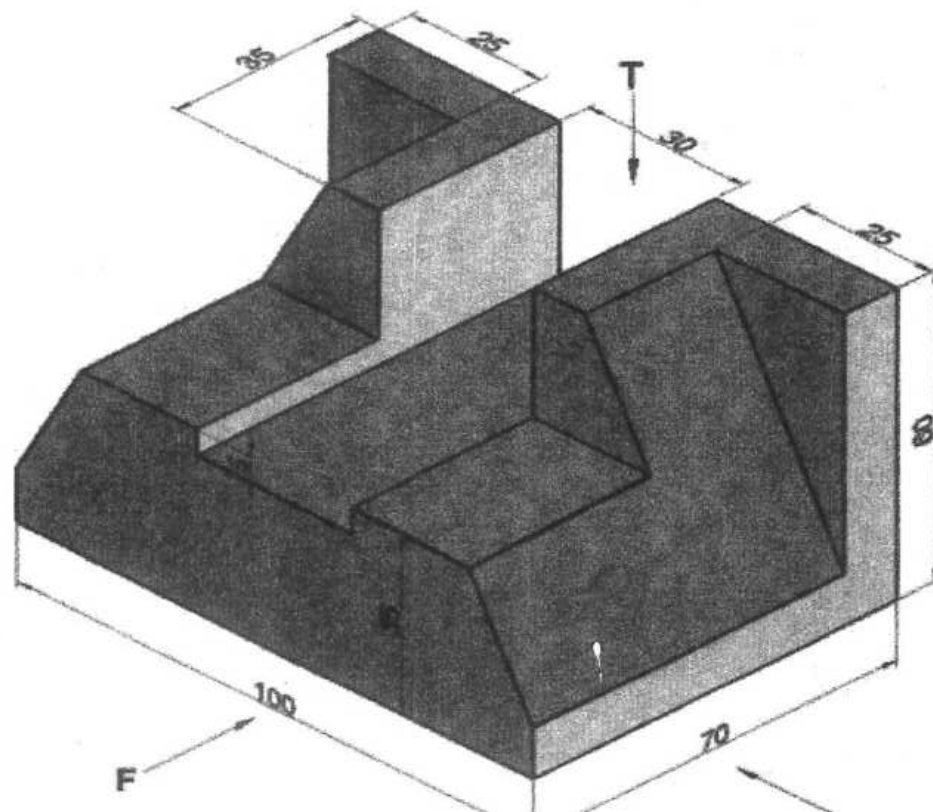
- i. Attempt any two question from part A and all the questions of Part B are compulsory.
- ii. Use both side of drawing sheet if necessary.
- iii. All dimensions are in mm.
- iv. Missing and mismatching dimension if any may be suitably assumed.
- v. Follow the SP: 46-2003 revised codes with first angle method of projection.
- vi. Give your answer according to question.

PART-A (Attempt Any Two)

1. (a) Write the given sentence in single stroke letter writing in 10 mm letter height. 'ENGINEERING GRAPHICS IS THE LANGUAGE OF ENGINEERS'. (04)
- (b) Draw the given hexagon of side = 40 mm. Inscribe a circle in it. (06)
- (c) Construct a parallelogram ABCD with AB=50 mm, BC=60 mm and $\angle D = 85^\circ$. (05)
- (d) Draw an internal tangent to two circles, each of radius 20 mm when their centres are 60 mm apart. (05)
- 2.(a) A point is 45 mm from both the reference planes. Draw the orthographic projections of the point in all possible combinations. (08)
- (b) A straight line AB of 50 mm length is parallel to the H.P. and inclined at 30° to the V.P. Its end point A is 15 mm from the H.P. and 20 mm from the V.P. Draw the projection of the line AB assuming it to be located in all the four quadrants by turn. (12)
- 3.(a) Draw the projections of a circular plate of 50 mm diameter when its plane is inclined at an angle of 45° to H.P. and perpendicular to the V.P. (10)
- (b) A triangular prism having a 45 mm edge of its base and an axis of 65 mm length is resting on one of its rectangular face in the H.P. Draw the projections of the prism if its axis is parallel to both the reference planes. (10)

PART-B

4. A square prism with 30 mm base side and length of axis = 80 mm is resting on its base on HP such that all the vertical faces are equally inclined to VP. A section plane parallel to VP and perpendicular to HP, and 10 mm away from the axis, cuts the prism. Draw Top View and sectional Front View. (10)
5. Draw front view, top view and side view of the given machine block. (10)
- 6.(a) Construct an isometric scale which can convert length upto 100 mm. (04)
- (b) Draw isometric projection of a regular pentagon of 45 mm long side in Horizontal position if one of its edge is parallel and near to V.P. (06)





General Instructions :

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each.
8. All programming questions are to be answered using Python Language only.
9. Internal choice is given in Sections B-E .

SECTION – A

- Q.1 _____ component connects the processor to the other hardware. 1
a. System Bus b. Control Bus c. RAM d. ROM
- Q.2 A disk fragmentor is an example of – 1
a. Application software b. System Software c. Utility Software d. None
- Q.3 Flash Memory and Blue Ray disk are examples of – 1
a. Storage device b. Volatile memory c. CPU d. all of these
- Q.4 Which of the following is an escape sequence for tab character – 1
a. \n b. \r c. \t d. \x
- Q.5 Which of the following symbol is used for single line comment – 1
a. \$ b. @ c. # d. None
- Q.6 Which of the following is not an logical operator – 1
a. and b. or c. id d. not
- Q.7 _____ function gives data type of an identifier – 1
a. type() b. id() c. int() d.str()
- Q.8 Expression ' True and False' will evaluate – 1
a. True b. False c. Can't Predict d. None
- Q.9 math.ceil(25.2) will evaluate – 1
a. 25 b. 26 c. 24 d. 28
- Q.10 Repetition of data is called – 1
a. Inconsistency b. Redundancy c. Isolation d. None
- Q.11 _____ refers data about data. 1
a. Instance b. Metadata c. Schema d. Relation
- Q.12 Which of the following attribute can not be considered as primary key for a student table – 1
a. Admission_no b. Name c. Class d. both b and c
- Q.13 _____ clause is used to remove repeated data of an attribute – 1
a. Null b. Like c. Distinct d. order by
- Q.14 What does DML stand for – 1
a. Data Manipulation Language b. Data maintain Language c. Both a and b d. None
- Q.15 IaaS, SaaS, PaaS are the types of – 1
a. Cloud Service b. block chain c. IoT d. WoT
- Q.16 _____ is a distributed ledger across a peer – to – peer network - 1
a. Machine Learning b. Cloud Computing c. Blockchain Technology d. None

Q17 and 18 are ASSERTION AND REASONING based questions.

Select the correct option from the given choices after reading question 17 and 18 both the statements.

- a Both A and R are true and R is the correct explanation for A
- b Both A and R are true and R is not the correct explanation for A
- c A is True but R is False
- d A is false but R is True

Q.17 **Assertion (A)** – A database is a collection of data and a database system is basically a computer-based record keeping system.

Reason (R) – MySQL is a database system. 1

Q.18 **Assertion(A)** – A relation is a table of a relational database -

Reasoning (R) – In a database table is the only object which stores data in systematic manner. 1

Section – B

Q.19 Distinguish between Augmented Reality and Virtual Reality. 2

OR

Distinguish between IoT or WoT.

Q.20 What is the access time of a storage device ? Name a storage device with faster access time. 2

Q.21 Expand the following terms – 2
 a. OSS b. FLOSS c. CPU d. SSD

Q.22 Distinguish between DDL and DML commands with suitable example of each. 2

OR

Distinguish between Alternate key and Candidate key.

Q.23 Define the following terms – (any 2) 2
 a. Attribute b. Degree c. Cardinality d. Domain

Q.24 Predict the output of the given code snippets – (Any one) 2

```
a) for i in range(4):
    print(i+5, end=' ')
b) a,b,c=10,5,20
    a,b=a+b, b*c
    print('a=',a,'c=',c,'b=',b)
```

Q.25 Write a program to print all even numbers between the given range when start and stop value of the range is given by user. 2

Section – C

Q.26 Describe the terms – 1x3=3
 a. Open Source Software b. Proprietary Software c. Freeware

Q.27 Give Python code to calculate tax and net income when monthly income is taken from user. Taxable income is calculated on annual Income as follows - 3

Net Income= Annual Income - Tax

<u>Total Annual Taxable Income</u>	<u>Rate of Taxation</u>
Up to 300000	0%
> 300000 - <=1500000	5%
>1500000 - <= 5000000	10%
Above 5000000	15%

Q.28 Write a program to input a list of numbers and swaps elements at the even location with the elements at the odd location. 3

OR

Write a program to find the largest, smallest and sum of all elements of a list given by user.

Q.29 Consider the table given below and give SQL for i) to v) (any 3) 1x3=3

TABLE: BUS

Busno	Origin	Destination	Rate	KM	Time	Type
210	Delhi	Jaipur	455	210	9.50	AC
198	Delhi	Amritsar	NULL	250	10.00	NULL
101	Chandigarh	Delhi	125	250	22.00	NON
491	Mumbai	Pune	350	205	11.00	NON
120	Delhi	Agra	800	330	6.00	AC
251	Delhi	Hardwar	205	250	5.00	NON
241	Delhi	Agra	250	330	8.30	NON

- i. Display all bus numbers which are starting from "Delhi"
- ii. List all information about "AC" buses.
- iii. Display all destination ending with letter 'r'
- iv. Display all information about buss in ascending order of Rate of bus.
- v. Display Bus number and its origin place for which Type of the bus is not given.

Q.30 Give output for the given SQL commands – 1x3=3

Customer

CNO	CNAME	CITY	QUANTITY	DOP
C01	GURPREET	NEW DELHI	150	2022-06-11
C02	MALIKA	HYDERABAD	10	2022-02-19
C03	NADAR	DALHOUSIE	100	2021-12-04
C04	SAHIB	CHANDIGARH	50	2021-10-10
C05	MEHAK	CHANDIGARH	15	2021-10-20

- i. Select distinct city from Customer;
- ii. Select Cname from customer order by cname desc;
- iii. Select Cname, City where Qunatity>100 and DOP >'2021-01-01';

Section – D

- Q.31 Write a program to input your 5 friend's name and their phone number and store them in a dictionary as the key-value pair. Perform the following questions on the dictionary created. 2+1+1+1=5
- Display name and phone number of all friends.
 - Modify the phone number of an existing friend whose name (key) and new number will be given by user.
 - Display the dictionary in sorted order of names.

- Q.32 Mr. Saket, a HR Manager in a multinational company "Star-X world" has created the following table to store the records of employees: 1x5=5

Table : Employee

Eid	EName	Department	DOB	DOJ
Star1	Ivan	Sales	1994-08-28	2020-02-14
Star2	Melinda	IT	1997-10-15	2021-11-19
Star3	Raj	Accounts	1998-10-02	Null
Star4	Michael	Sales	2000-02-17	2020-05-01
Star5	Sajal	IT	2001-12-05	2018-06-13
Star6	John	Accounts	1995-01-03	2019-07-15
Star7	Julia	Sales	1985-11-13	2020-08-19

He wants to perform some queries based on the above given table. Help him to write SQL commands to perform his queries and manipulation –

- To display those employee's name who are working in 'IT' department
- Display only those tuples who joined after '2019-01-01' .
- Change Department from 'IT' to 'AI'
- Display only those employees information whose DOJ is not given
- Remove all records working in 'Sales' department.

- Q.33 Answer the following - 1x5=5

- Write SQL command to display structure of a table 'PUPIL'.
- Name the dummy table used in MySQL to perform non table based query.
- Write SQL command to add a new column 'Email' of data type VARCHAR and size 30 to the table 'Consumer'.
- What output will be obtained by the given below SQL command –
Select 5% 4 ;
- In the given query which keyword to be inserted to work successfully –
Update employee _____ department='HR' where Eid='Star1';

OR

- a) Create a table named 'Vision' as given instance chart – 2

Column Name	ID	Category	Pay	Skills
Data type	integer	Varchar	integer	Char
Length	3	25	4	15
Key	Primary			

- Add a new record with the data – 11, 'Analogy', 5000, 'Professional' 1
- Increase pay by rs 2000. 1
- Remove the entire table 1

Section – E

- Q.34 Give output for the following Python code snippet - 1x4=4

```
S='MY CITY BHILAI'
S1='DPS'
print(S[1:7:2])
print(S1*3)
print(S1[-5:-1])
print(S1>S)
```

OR

Explain the following operators with suitable python code example of each –

- Identity operator
- Membership operator
- Assignment operator
- Logical operator

- Q.35 Give SQL commands for the following – 1x4=4

- Display name of all databases of the system
- Display name of all the tables of opened database
- Open the database 'SCHOOL'
- Remove / Delete the database 'SECURITY'



General Instructions:

1. All questions are compulsory.
2. There are total 35 questions.
3. Question paper is divided into 3 sections-A, B and C.
4. **Section A** has question no. 1 to 18 (multiple choice questions) and are of 1 mark each.
5. **Section B** has question no. 19 to 25 and are of 2 marks and question no.26 to 29 of 3 marks each
6. **Section C** has question no. 30 to 33 of 4 marks each and question no 34 and 35 of 5 marks each.
7. Internal choices are given in some questions.
8. Support your answers with suitable examples wherever required.

SECTION A

01. One gram of carbohydrate releases _____ energy. (1)
(a) 4 Kcal (b) 8 Kcal (c) 9 Kcal (d) 3 Kcal
02. In which stage of finishing with colours, stripes or woven pattern are created? (1)
(a) At fibre stage (b) At yarn stage (c) At garment stage (d) At fabric stage
03. Third requirement for ironing is: (1)
(a) Moisture (b) Pressing (c) High temperature (d) Rightly padded ironing table
04. At which stage of cognitive development, the child is less ego-centric? (1)
(a) Sensori Motor Stage (b) Pre-operational stage
(c) Formal operational stage (d) Concrete operational stage
05. Process of separation of seeds from fibres is known as: (1)
(a) Ginning (b) Retting (c) Combing (d) Attenuation
06. Soft drinks are high in energy as they contain _____ calories per serving. (1)
(a) 150-170 (b) 170-190 (c) 120-150 (d) 190-210
07. Unit of capital which is pledged as a security for given loan is known as: (1)
(a) Character (b) Capacity (c) Collateral (d) Capital means
08. The short-lived fashion that affects a specific part of society is known as: (1)
(a) Trend (b) Fads (c) Style (d) Classic
09. First TV transmitter was acquired in which village of Gujarat? (1)
(a) Kavi (b) Unai (c) Hodka (d) Pij
10. Nutritional blindness is caused due to deficiency of: (1)
(a) Vitamin B (b) Vitamin K (c) Vitamin A (d) Vitamin C
11. By the age of 7 years, which of the following milestone is achieved by the child: (1)
(a) Skipping and pedalling a tricycle. (b) Balancing and pedalling a bicycle.
(c) Jumping from low platform with both feet. (d) Can balance on one foot.
12. Fourth step in planning is: (1)
(a) Identifying the problem (b) Putting the plan into action
(c) Evaluation (d) Identifying different alternatives.
13. Which of the following income is termed as “Hidden Income”. (1)
(a) Direct Income (b) Money Income (c) Real Income (d) Psychic Income

Case Study Based Questions:

Read the passage carefully and answer question no 14 to 18.

Healthy eating is vital for the teenager’s health and well-being. The nutritional needs of adolescents vary tremendously, but generally increase due to rapid growth and changes in body composition that occur during puberty. Adequate nutrition is vital for ensuring overall emotional and physical health. Good eating habits help prevent chronic illness in the future, including obesity, heart disease, cancer and diabetes.

Studies of nutrient intakes have shown that adolescents are likely to obtain less vitamin A, thiamine, iron, and calcium than recommended. They also ingest (consume) more fat, sugar, protein, and sodium than is currently thought to be optimal.

14. Which of the following is a macro nutrient: (1)
(a) Carbohydrate (b) Iodine (c) Mineral (d) Fibre

15. Cow peas belong to the group of: (1)
(a) Milk, Meat and Products (b) Pulses and Legumes
(c) Fats and Sugars (d) Fruits and Vegetables
16. The external factor which affects the food behaviour of adolescents is: (1)
(a) Body image and self-concept (b) Parenting practices
(c) Social-economic-political system (d) Physiological needs and characteristics
17. Eating disorder anorexia, in adolescent girls can result into: (1)
(a) Osteoporosis (b) Renal failure (c) Irregular heartbeats (d) Dental erosion
18. For vegetarians replacement of meat can be made with which food group in order to provide protein in the diet: (1)
(a) Cereals, Grains and Products (b) Pulses and Legumes
(c) Fruits and Vegetables Fruits (d) Fats and Sugars

SECTION B
(SHORT ANSWER QUESTION)

19. Classify real income. (1+1)
20. What are elastomeric fibres? (2)
21. (i) Define the term "milestones of development". (1+1)
(ii) What is babbling?
22. Why is interpersonal communication considered as the most effective method of communication? Give reason. (1+1)
23. What role does nutrition play in growth and development? (2)
24. List down the problems faced by low birth weight babies. (2)
- OR**
- Write about the two eating disorders that may arise at adolescence.
25. (i) Why is dry cleaning considered a safe method for cleaning delicate fabrics? (1+1)
(ii) How does pedesis helps in removal of non-greasy dirt?
26. (i) What do you understand by the term 'Budget'? (1+2)
(ii) Mention the factors on which success of budget depends?
27. Briefly explain the different stages of colour application. (1×3)
28. How does involvement of children in meal planning help to develop healthy eating habits in them? (1×3)
29. List down three changes that makes self-evaluation more complex during middle childhood. (1×3)

SECTION C
(LONG ANSWER QUESTION)

30. Explain the process of communication with SMCRE model of communication. (4)
31. Which factors should be considered while selecting garments for children with special needs? (1×4)
32. (i) How does child rearing practices help in shaping an all-round personality in children? (2+2)
(ii) Enumerate two child rearing practices based on the type of disciplinary technique?
33. What are the guidelines for using the basic food groups. (1×4)
OR
Discuss the factors that influence eating behaviour in adolescence.
34. What are the different methods of fabric construction? Explain. (1×5)
35. Discuss the principles underlying sound investment. (1×5)



Name

Roll No.

DELHI PUBLIC SCHOOL, BHILAI

DATE : 07.03.2023

ANNUAL EXAMINATION – 2022 – 23

Time : 3 Hrs.

CLASS : XI


SUBJECT – PHYSICAL EDUCATION (048)

Max. Marks : 70

GENERAL INSTRUCTIONS:

- The questions paper consists of 5 sections and 37 Questions.
- Section A** consists of questions 1-18 carrying 1 mark each and is multiple choice questions. All questions are compulsory.
- Section B** consists of questions 19-24 carrying 2 marks each and are very short answer type and should not exceed 60-90 words. **Attempt any 5.**
- Section C** consists of questions 25-30 carrying 3 marks each and are short answer type and should not exceed 100-150 words. **Attempt any 5.**
- Section D** consists of questions 31-33 carrying 4 marks each. Question no. 31 and 32 should not exceed 150-180 words and question no. 33 is case base study. **All questions are compulsory.**
- Section E** consists of Questions 34-37 carrying 5 marks each and are long answer type and should not exceed 200-300 words. **Attempt any 3.**

SECTION A**(18x1=18)**

- Q.1 Which of the following is NOT a technological advancement in the field of sports?
(a) Instant replays. (b) Sensor tools. (c) RFID chips. (d) Digital Contact Tracing.
- Q.2 The Olympic Games were revived in _____
(a) 1800 (b) 1996 (c) 1896 (d) 1894
- Q.3 Dhyana is a process of complete constancy of _____
(a) Mind (b) Soul (c) Limbs (d) Heart
- Q.4 _____ refers to the permanent reduction in physical and mental capacity of an individual
(a) Deficiency (b) Disability (c) Dysfunction (d) None of these
- Q.5 Identify the kriyas
(a) Vastra-dhauti (b) Danda dhauti
(c) Neti (d) Kapalbhata
- 
- Q.6 Strength and endurance are the components of :
(a) Physical fitness (b) Wellness (c) Health (d) Recreation activity
- Q.7 Tool for the collection of information in numeric form:
(a) Test (b) Measurement (c) Evaluation (d) Assessment
- Q.8 The _____ joints are also called synovial joints.
(a) Slightly movable (b) Freely moveable (c) fixed (d) hinge
- Q.9 Which of the following movement is the opposite of pronation:
(a) Circumduction (b) Supination (c) Adduction (d) Abduction
- Q.10 The term flexion refers to:
(a) Turning (b) Bending (c) Twisting. (d) Straightening
- Q.11 Sports Training means :
(a) Training to the body builder (b) Training to player for high performance
(c) Teaching the skills (d) Finding mistakes in skills
- Q.12 Match the following with their functions:
(a) Development in shape (i) Mental development
(b) Alertness and concentration (ii) Social development
(c) Team spirit and co-ordination (iii) Emotional development
(d) Pleasure and Hope (iv) Physical development
(a) a-i, b-iv, c-ii, d-iii (b) a-iii, b-I, c-iv, d-ii
(c) a-iii, b-i, c-ii, d-iv (d) a-iv, b-i, c-ii, d-iii
- Q.13 Where is the headquarter of the International Olympic Committee?
(a) Geneva (b) Paris (c) London (d) Lausanne
- Q.14 Which of the following is the role of special educator?
(a) Help special children in speaking (b) Activates the muscles of weak body part.
(c) Provides counselling to the special children (d) Develops appropriate curriculum
- Q.15 Exercising for a longer duration with less weight is related to:
(a) Endurance (b) Strength (c) Speed (d) Co-ordination
- Q.16 If the height of the child is in feet, it is classified under:
(a) Evaluation (b) Test (c) Measurement (d) None of these

Contd...2

Q.17 Given below are two statement labelled Assertion (A) and reason (R)

Assertion (A) : Adolescence is a stage of rapid development.

Reason (R) : In this stage changes happen in the physical, mental, emotional and social spheres of young people.

In the context of above two statements which one of the following is correct?

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is correct explanation of Assertion.
- (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true but Reason (R) is False.
- (d) Assertion (A) is False but Reason (R) is true.

Q.18 The longest bone of human body is :

- (a) Humerus
- (b) Radial
- (c) Femur
- (d) Phalanges

SECTION B (Any five)

- Q.19 What do you mean by doping? Which two agencies regulate doping related activities? (2)
- Q.20 Why is study of sports psychology Important? (2)
- Q.21 Define Flexion and Extension. (2)
- Q.22 Enlist the various components of physical fitness. (2)
- Q.23 What is the meaning and aim of adapted physical education? (2)
- Q.24 What do you mean by yogic Kriyas? Enlist the yogic kriyas. (2)

SECTION C (Any five)

- Q.25 Discuss the causes of disability. (3)
- Q.26 What do you mean by Biomechanics in sports? (3)
- Q.27 Write about the FIT India movement. (3)
- Q.28 Define Training Load and Overload. (3)
- Q.29 Enlist the professionals who are required for work with CWSN and write what is the main role of counsellor for children with special needs. (3)
- Q.30 Explain the functions of Skeletal system? (3)

SECTION D

- Q.31 Describes the functions of respiratory system in details. (4)
- Q.32 Write down the importance of Test and Measurement in detail. (4)
- Q.33 Raman is a student of class 11. One day a medical check up camp arrived in his locality. Raman participated there as a volunteer. Most of the people were advised to practice yogic kriyas on regular basis. The local body of the locality hired a yoga instructor and people started the practice of yogic kriyas under his/her guidance. Some of these kriyas are shown below:



Figure 1



Figure 2



Figure 3

On the basis of above case study and picture answer the following questions. (4)

- (a) The yogic kriya (1) can be identified as _____
- (b) Yogic Kriyas are also called _____
- (c) How many types yogic kriyas _____
- (d) Kapalbhata is associated with _____

OR

Identify the yogic kriya no (2) -----

SECTION E (Any Three)

- Q34. Define physical education. Explain the aim and objectives of physical education? (5)
- Q35. Explain the role of the International Olympic Committee. (5)
- Q36. Discuss about the traditional games for wellness. (5)
- Q37. What do you mean by adolescence? Explain in detail the problems of adolescence. (5)



DELHI PUBLIC SCHOOL, BHILAI

Date : 07.02.2023

ANNUAL EXAMINATION 2023

Time : 50 Minutes

Class : XI

Subject : General Knowledge

Max. Marks : 50

Student's Name : _____

Class/Sec. : _____ Roll No. : _____

Invigilator's Signature : _____

Marks Obtained : _____/50

General Instructions

- i. The paper has two questions.
- ii. All the questions are compulsory.
- iii. Each question carries *one* mark.
- iv. Write each answer in the box concerned.
- v. Use ONLY CAPITAL LETTERS for your answers.

1. Joshimath, which was in the news recently, is in _____.
(A) Uttar Pradesh (B) Himachal Pradesh (C) Jharkhand (D) Uttarakhand
2. SEBI stands for _____.
(A) South-East Banks of India (B) Securities and Exchange Board of India
(C) Social Exchange Board of India (D) Simplified Exchange Board of India
3. The Mughal Gardens of Rashtrapati Bhavan are now called _____.
(A) the Rashtrapati Gardens (B) the Delhi Gardens (C) the Amrit Bagicha (D) the Amrit Udyan
4. The SI unit of temperature is _____.
(A) Celsius (B) Fahrenheit (C) kelvin (D) newton
5. The full form of GAAP is _____.
(A) generally accepted accounting principles (B) government-approved accounting principles
(C) goal amending accounting principles (D) general awareness accounting principles
6. The famous Gayatri Mantra is in the _____ mandala of the Rigveda.
(A) first (B) second (C) third (D) fourth
7. If $x + y = 4$ and $\frac{1}{x} + \frac{1}{y} = \frac{16}{15}$, then $x^3 + y^3 =$ _____.
(A) 16 (B) 17 (C) 18 (D) 19
8. Find the missing number in the series: 1, 2, 5, 26, _____.
(A) 78 (B) 105 (C) 677 (D) 77
9. The Big Dipper is _____.
(A) an asterism (B) a star (C) a constellation (D) a satellite
10. The chairperson of the DPS Society is _____.
(A) Mr. S. K. Verma (B) Mr. Rajiv Kumar (C) Mr. V. K. Shunglu (D) Mr. N. S. Mishra
11. The bowler who has claimed the highest number of Test wickets is _____.
(A) Muttiah Muralitharan (B) Shane Warne (C) Kapil Dev (D) Anil Kumble
12. The shortest phase in the cell cycle is _____.
(A) G₁ (B) G₂ (C) S (D) M-phase
13. _____ is called laughing gas.
(A) N₂ (B) H₂S (C) NS (D) N₂O
14. In the FIFA World Cup 2022, _____ received the Golden Boot.
(A) Lionel Messi (B) Kylian Mbappe (C) Ronaldo (D) Neymar
15. A sonnet has _____ lines.
(A) 14 (B) 24 (C) 4 (D) 25
16. The Achanakmar Tiger Reserve is in the district of _____.
(A) Raipur (B) Bilaspur (C) Dantewada (D) Ambikapur
17. The _____ is called the Khajuraho of Chhattisgarh.
(A) Bhoramdeo Temple (B) Ramchandra Temple (C) Bhairav Temple (D) Bijapur Temple
18. The chief justice of India is Justice _____.
(A) M. R. Shah (B) D. Y. Chandrachud (C) S. A. Bobde (D) K.M. Joseph
19. Article _____ of India's constitution guarantees the right to the freedom of expression.
(A) 16 (B) 17 (C) 18 (D) 19
20. _____ is called the father of history.
(A) Heradotus (B) Winston Churchill (C) Herodotus (D) Haradotus
21. In banking, IMPS stands for _____.
(A) Indian Merchant Payment System (B) International Merchant Payment System
(C) Immediate Payment Service (D) Immediate Money Payment System
22. In mobile phone services, OTP stands for _____.
(A) one test password (B) one-time password (C) only true password (D) one-timed password

23. _____ won Eurovision 2022.
(A) Lady Gaga (B) Indila (C) Kalush Orchestra (D) Elton John
24. The first deputy prime minister of independent India was _____.
(A) Jawaharlal Nehru (B) Indira Gandhi (C) Sardar Vallabhbhai Patel (D) Lal Bahadur Shastri
25. The spacecraft which passed by Pluto a few years ago was _____.
(A) Indrayaan I (B) Soyuz IV (C) Plutoyaan I (D) New Horizons
26. _____ is not a computer programming language.
(A) Python (B) SQL (C) Ada (D) Windows 11
27. The computer programming language used for e-commerce is _____.
(A) Windows 8 (B) Windows 10 (C) Windows 11 (D) Java
28. SDR (relating to the IMF) stands for _____.
(A) Special District Region (B) Special Discount Range
(C) Special Drawing Right (D) Special Deficit Ratio
29. The Union Budget 2023–24 was presented by _____.
(A) Mr. Rajnath Singh (B) Mrs. Nirmala Sitharaman (C) Mr. Nitin Gadkari (D) Mrs. Smriti Irani
30. The Hindenburg report has been in the news in India because of _____.
(A) Mr. Gautam Adani (B) Mr. Dhirendra Adani (C) Mr. Sanjay Adani (D) Mr. Mukesh Ambani
31. The gas in its solid state known as dry ice is _____.
(A) oxygen (B) hydrogen (C) nitrogen (D) carbon dioxide
32. The lowest total in a Test innings is _____.
(A) 21 (B) 23 (C) 26 (D) 39
33. The *smritis* are _____.
(A) law books (B) travelogues (C) mental pictures (D) diaries
34. The people of Harappan culture worshipped _____.
(A) Vishnu (B) Pashupati (C) Ganesh (D) Hara Devi
35. Lake Chilika is in _____.
(A) Kerala (B) Tamil Nadu (C) Odisha (D) Karnataka
36. The Thomas Cup is related to _____.
(A) badminton (B) hockey (C) football (D) kabaddi
37. The highest award for gallantry in peacetime is _____.
(A) Vir Chakra (B) Param Vir Chakra (C) Ashoka Chakra (D) Mahavir Chakra
38. Painted grey ware culture relates to the _____ Age.
(A) Stone (B) Copper (C) Silver (D) Iron
39. The Marabar Caves based on Bihar's Barabar Caves are in _____.
(A) *Train to Pakistan* (B) *A Passage to India* (C) *Bihar: The Land of Caves* (D) *The Guide*
40. The journal *Young India* is associated with _____.
(A) Swami Vivekananda (B) Jawaharlal Nehru (C) Mahatma Gandhi (D) Sarojini Naidu
41. The International Monetary Fund has _____ members.
(A) 205 (B) 199 (C) 195 (D) 190
42. The _____ led to the birth of the World Bank.
(A) Breton Woods Conference 1944 (B) Breton Woods Conference 1945
(C) Breton Woods Conference 1947 (D) Breton Woods Conference 1996
43. The Red Fort was designed by _____.
(A) Shah Jahan (B) Akbar (C) Ahmad Lahauri (D) Firdausi
44. India shares its longest land border with _____.
(A) Pakistan (B) China (C) Nepal (D) Bangladesh
45. The Bollywood film *Pathaan* is directed by _____.
(A) Shah Rukh Khan (B) Deepika Padukone (C) Siddharth Anand (D) Sanjay Leela Bhansali
46. _____ has the GI tag for the *Mithila makhana*.
(A) Odisha (B) West Bengal (C) Bihar (D) Gujarat
47. _____ is the governor of Chhattisgarh.
(A) Ms. Tripti Sahu (B) Ms. Veena Khare (C) Ms. Sakshi Verma (D) Ms. Anusuiya Uikey
48. Ross Island is now known as _____ Dweep.
(A) Abdul Hamid (B) Albert Ekka (C) Netaji Subhas Chandra Bose (D) Lata Mangeshkar
49. The application of sciences to aid law in a criminal investigation is called _____.
(A) forensic science (B) crime science (C) chemical science (D) morphology
50. Under article _____ of our constitution, the Union budget is presented every year.
(A) 105 (B) 52 (C) 112 (D) 243