(ii)   What will be the amount of depreciation during the year 2023-24?

(a) 42,500   (b) 70,000   (c) 28,000   (d) 52,500

(iii)   What will be the Book value of plant at the time of sale of plant:

(a) 5,77,500   (b) 1,57,500   (c) 4,20,000   (d) 6,30,000

(iv)   At the end of the period depreciation A/c will be transferred to when :   1

(a) Plant disposal A/c   (b) Plant A/c

(c) Profit & Loss A/c   (d) Balance Sheet

*****

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

Q.1   A business receive its bank statement showing the closing balance as ₹ 8,500 over drawn. It is found that there were un presented cheques of ₹ 2,000 and uncredited deposits of ₹1,500 overdraft as per cash book is –   1

(a) ₹ 5,000   (b) ₹ 8,000   (c) ₹ 9,000   (d) ₹ 12,000

Q.2   Assertion :   It is essential to draw trial balance before preparing the financial statements.

Reason :   Trail Balance is the statement of accounts having balance but does not assist in preparing the financial statements.   1

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

    the (A)

(b) Both (A) and (R) correct and (R) is the correct explanation of the (A)

(c) Both (A) and(R) not correct

(d) (A) is correct and (R) is not correct

Q.3   Ram purchased computer on 1st April 2023 for ₹ 6,00,000. He charges depreciation on written down value method. On 31/3/2024 they sold the computer for ₹ 1,65,000 and incurred loss of ₹75,000. What was the rate of depreciation p.a.?   1

(a) 6% p.a.   (b) 60% p.a.   (c) 40% p.a.   (d) 4% p.a.

Q.4   Which of the following is not a charge against profit :   1

(a) Provision for doubtful debts   (b) Provision for depreciation

(c) Provision for discount on debtors   (d) General reserve

Short Answer Type Question (Any Three) :

Q.5   Reserve is not a liability in real sense. Do you agree with this statement?   2

Q.6   A machine is purchased on 1/4/2023 for ₹ 80,000. Expenses incurred on its installation is ₹ 20,000. The residual value at the end of its expected useful life of 4 years is estimated at ₹ 10,000. Find the amount of Book value of Machine for the year ended 31 March 2026.

Q.7 When is closing stock shown in trial balance? 2

Q.8 In the following Bank Reconciliation statement, determine the missing amount. 2

Bank Reconciliation statement
As on 31/3/2024

	Plus	Minus
Credit balance as per pass book	30,000	
(i) Cheque of ₹10,000 issued but a cheque of ₹ 6,000 not yet presented for payment.	1-------	1-------
(ii) Cheque of ₹ 25,000 deposited into bank but Cheque of ₹ 13,000 not credited by bank.	2-------	2-------
(iii) Interest credited by bank but not recorded in cash book.		425
(v) Receipt column of cash book overcast by ₹ 500	3--------	3-------
Debit balance as per cash book	4--------	4-------

Long Answer type Questions :

Q.9 Gauri maintains her current A/c in HDFC bank. The bank column of cash book had an overdraft of ₹ 42,000 in her current account. Prepare Bank renconcialation statement as on 31st March 2024/

(i) A cheque of ₹1,040 deposited was dishonoured and Bank charges debited in the pass book, were ₹ 110. It was not recorded in cash book.

(ii) Out of total cheque of ₹ 1,00,000 issued, cheque aggregating, 30,000 were debited in March, cheque aggregating ₹ 40,000 were debited in April and rest have not been debited.

(iii) Payment side of cash book is under cost ₹ 3,000.

(iv) A cheque of ₹ 4,000 received from Om on 20th March 2024 was recorded in the discount column of cash book and was not banked.

(v) ₹ 80 for bank charges were recorded two times in the cash book, whereas bank levied annual charges of ₹ 70. Which were not recorded in the cash book. 3

OR

From the following information, draw up Trial balance in the books of Gurman as 31st March 2024.

Capital ₹ 1,40,000, purchase ₹ 36,000, Discount allowed ₹ 1,200 carriage inward ₹ 11,000, sales ₹ 60,000, Retrun Inward ₹ 300, Retrun outward ₹ 700, Plant & machinery ₹ 1,15,300 stock on 1/4/23 ₹ 16,700. Sundry debtors ₹ 20,200. Sundry creditor ₹ 12,000, Investment ₹ 3,600. Commission received ₹ 1,800 cash in hand ₹ 100, cash at Bank ₹ 10,100. Stock on 31/3/24 (not adjusted) ₹ 20,500. 3

Q.10 Following balance exist in the books of Hari & Co. as on 1st April 2023 :

Machinery Account = ₹ 8,00,000

Provision for Depreciation = ₹ 3,10,000

On 1st July 2023, a machine which was purchased on 1st April 2020 for ₹ 1,20,000 was sold for ₹ 50,000 and on the same date another machinery was purchased for ₹ 32,000. The firm charges depreciation @ 15% p.a. on cost and closes its books on 31st March every year. Prepare Machinery Account and Provision for Depreciation A/c for the year ended 2023-24. 3

OR

Difference between Reserve and provision on the basis of following points. 3

(i) Effect on profit (ii) Nature (iii) Purpose

(iv) Investment (v) Distribution (vi) Presentation

Case Study Based Question :

Q.11 Gandhi Bros. purchased a plant on 1st April. 2022 for ₹ 7,00,000. Depreciation is charged @ 10% p.a. on the original cost. On 1st January, 2024 the plant was found unsuitable and sold for ₹ 4,20,000. Based on above case answer the following question :

(i) What will be the amount of depreciation during the year 2022 – 2023?

(a)70,000 (b) 42,000 (c) 7,000 (d) 4,200

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

[Question No. 1 to 4 carry One mark each.]

Q.1   Which of the following is a short term source of Finance?
(a)Shares   (b) Trade Credit   (c) Debentures   (d) All of these

Q.2   The term "redeemable" is used for:

(a) Preference shares   (b) Commercial paper

(c) Equity shares   (d) Public deposite

Q.3   Investment Limit in equipments for micro service enterprises is :

(a) ₹ 10 crore   (b) ₹ 50 crore (c) ₹ 5 crore   (d) ₹ 1 crore

Q.4   Out of the following, which one is not a feature of SSI?

(a) Capital Intensive   (b) Slow decisions

(c) Both (a) and (b)   (d) Low capital Investment

[Two Marks Question Do Any Three]

Q.5   State any two roles played by SSI in rural India?   1+1=2

Q.6   Why are SSI unable to supply good quality products?   1+1=2

Q.7   What do you mean by owner's fund?   2

Q.8   What do you mean by working capital?   2

[Three Marks Question]

Q.9   Explain difference between equity shares and preference shares?

1×3=3

OR

Explain difference between Equity shares and debentures?

Q.10   Explain the functions of NSIC?   1×3=3

OR

Write a short note on DIC?

[Four Marks Question]

Q.11   Identify the source of finance in the following cases and explain in

detail?   1×4=4

(i)   It facilitates the purchase of goods and service without making

immediate payment.

(ii)   It refers to that part of profits which kept as reserve for use in

the future.

(iii) This source has characteristics of both equity shares and

debentures.

(iv)   It is a permanent source of capital and is not rdeemed during

the life time of the company.

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Roll No. _____   NLCS/11/ Computer Sc./ 083/15
SECOND UNIT TEST 2024 – 2025
Time: 1:00 Hrs.   **M.M. 20**
Multiple Choice Questions [One mark each]:
Q.1   Which of the following commands will create a list?
       (a) list1 = list()
       (b) list1 = []
       (c) list1 = list([1, 2, 3])
       (d) all of the mentioned
Q.2   What is the list in Python?
       (a))A mutable type of data type which can store anything
       (b)An immutable type of data type which can only store string
       (c)A mutable type of data type which can store only string
       (d) A mutable type of data type which can only store numbers

Q.3   **To remove an element from list we can use?**
       (a) pop()   (b) del
       (c) len()   (d) append()
Q.4   **To find the total no of elements in list we can use__method ?**
       (a) len()   (b) count()   (c) max   (d) min
Answer any three questions out of 4 questions.
Q.5   **What is mutable ?**
Q.6   **What is the difference between list and string?**
Q.7   **What are the append() in list ?**
Q.8   **What is the working of extend () ?**
Q.9   **Describe following –**
       (a) List   **(b) eval**
                            OR
       (a) **Sum()**   **(b) Index()**
Q.10   What do you understand by List ?
                            OR
       Write any 5 Function type in List?
Case Study :
Q.11   Find the Output of Following code :
L1=[34,56,78,98]
L1.append(3)
print(L1)

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

Section – A

Q 1. Histogram is a graphical presentation of frequency distribution of : 1

(a) Continuous series   (b) Discrete series

(c) Individual series   (d) None of these

Q.2 Fixed costs are also known as: 1

(a) Supplementary costs   (b) overhead costs

(c) indirect costs   (d) All of these

Q.3 When production level is zero then fixed cost is :   1

(a) Zero   (b) Negative   (c) Positive   (d) Same as VC

Q.4 When MP is constant -   1

(a) TP is also constant   (b) TP is Zero

(c) TP is increasing at a constant rate

(d) TP is decreasing at a constant rate

Section – B (Q. No. 5 to 8 Do any three)

Q.5 What are the causes of decreasing returns to a factor.   1+1

Q.6 What is a histogram? Describe its types?   2

Q.7 Define cumulative frequency curve and prepare histogram using the

following data :   2

Marks	0-5	5-10	10-15	15-20	20-25	25-30	30-35
No. of students	4	6	10	10	25	22	18

Q.8 What are the major difference between SRPF & LRPF?   2

Section - C

Q.9 Explain the relationship between Average & Marginal cost.

1½+1½=3

OR

What is the law of variable proportions? Explain with the help of

Representation?   1+2=3

Q.10 A firm experience fixed cost of 45 ₹ and the average variable cost is depicted in table below read the table carefully and answer the questions :   2+1=3

Output	1	2	3	4	5	6
AVC	17	15	14	15	19	29

(a) Find AFC, ATC, TC & MC

(b) Plot average & marginal cost.

                         OR

What are meant by total revenue, average revenue and marginal revenue?   3

Section – D

Q.11 Case Study Based Question :   4

Read the following hypothetical information carefully and answer the questions :

Output (Units)	Price (₹)	Total Revenue (₹)	Marginal Revenue
1	10	10	10
2	-	18	8
3	8	24	-
4	7	-	4

(i) At 2nd unit of output sold, average revenue will be ---------- .

(a) 4   (b) 9   (c) 16   (d) 36

(ii) At 3rd unit of output sold, marginal revenue will be ---------- .

(a) 4   (b) 6   (c) 16   (d) 24

(iii) Which concept of revenue is called price?

(a) Total revenue   (b) Average revenue

(c) Marginal revenue   (d) None of these

(iv) Identify the correct formula to calculate marginal revenue.

(a) $MR_n = TR_n - TR_{n-1}$ (b) $MR = TR/Q$

(c) (c) $MR = \Delta TR/\Delta Q$ (d) Both (a) & (c)

*****

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

Q.I   **Read the passage & answers the questions below:**   **1×4=4**

Discipline in public life ensures peace and harmony, which in turn offers the required impetus to the forces of progress & prosperity. No country, big or small, can afford to play duck & drakes with the deity called discipline. All talk of equity or social justices becomes a cry in the wilderness or a pompous promise, if the powers that be 'fail to comprehend and carry out the dictates of discipline in all situations. With discipline, all plans, policies & programs are bound to bear fruit. Whenever people in public life or in private enterprise dilute the demands of discipline, most aspirations & achievements go astray leading to failure & frustration at various levels.

Discipline for countries like India which are standing at the threshold of economic breakthrough and stupendous store of opportunities, it's the most immediate & urgent pre-requisite. Discipline for the rulers & the ruled is an essential ingredient, if we mean business in fields & factories.

(i)   What is the advantage of discipline in public life?   1

(ii) What happen when discipline is diluted in public or private life?   2

(iii) The force behind something.   1
      (a) Progress   (b) comprehend   (c) impetus (d) dilute

Q.2   Do as directed :   2

(i)   Rearrange the words :   1
      (a) lowers / pressure / by / circulation / it / blood / increasing / blood.
      (b) And / requires / inexpensive / its / equipment / no special

(ii) Fill up the blanks : (Do Any Two)   1
      Authorities settled (a)-------- (on / at) 32 pages in (b) --------- (an / the) next answer book (c) ---------- (mean / meant) for the undergraduate courses.

Q.3   Design a poster in not more than 50 words for your school library on the value of books and good reading habits.   2

Q.4   A career counsellor (not you yourself) is the best person to guide you in the choice of a career'. Write a debate in 120-150 words either for or against the motion.   3

OR

Write a debate for or against on the topic "Are old age homes necessary today" in 120-150 words.

Q.5   Read the extract given below and answer the question that follow :   1×2=2

When did my childhood go?
Was it the day id ceased to be eleven,
Was it the time I realized that Hell and Heaven,
Could not be found in Geography,
And therefore could not be,
We that the day!

(i)   Who is the poet addressing in the given lines?
      (a) His mother (b) his friends (c) readers   (d) his father

(ii) When does the poet think he lost his childhood?
      (a) At the age of 10   (b) At th4e age of 11
      (c) At the age of 12   (d) At the age of 13

Q.6   Answer the following questions in 40 – 50 words (Do Any Two) : 4

(i)   Professor Gaitonde was regretful before the organizers of the Panipat seminar. Why?

(ii) Which ferocious animal did they encounter?

(i)   What was the dilemma that Andrew faced after the baby was born?

Q.7   Answer Any One in 100-120 words :   3

(i)   Do you think the little 'The Tale of Melon City' is appropriate? Give reasons to substantiate your claims.

(ii) Which stages of life has the poet described in the poem 'Childhood'? Bring out the key difference the two stages.

*****

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   M.M. 20

Section – A

Multiple Choice Questions (One Mark each) :   1×4=4

Q.1   In which year canberra was established as a capital of Australia?

   (a) 1911   (b) 1917   (c) 1927   (d) 1931

Q.2   The USA's railway was completed by ------------ .

   (a) 1850   (b) 1865   (c) 1870   (d) 1875

Q.3   The term Fukoku – Kyohei means :

   (a) Rich country (b) Strong Army (c) Dictatorship   (d) Both (a) & (b)

Q.4   Arrange in sequence :

   (i) Japans' invasion of China   (ii) The First World War

   (iii) The Pacific War

   (a) (ii), (i), (iii) (b) (i), (iii), (ii) (c) (iii), (i), (ii)   (d) (i), (ii), (iii)

Section – B

[Very short Ans. & Ques. Each ques. Carry Two Marks]
(Do Any Three) :

Q.5   What was Confucianism? How did it influence Chinese?

Q.6   What change happened in the family system in the modern society of Japan?

Q.7   Write a brief note on gold rush.

Q.8   What did Europeans do to protect their huge farms from wild animals?

Section – C

[Short Ans. & Ques. Each ques. Carry Three Marks]

Q.9   Why and how Industrial Revolution happened in England and North America?

OR

Why Government had termed Australia as the terra nullius? What were the two important decisions that were taken after the enquiries conducted against the atrocities committed against native in Australia?

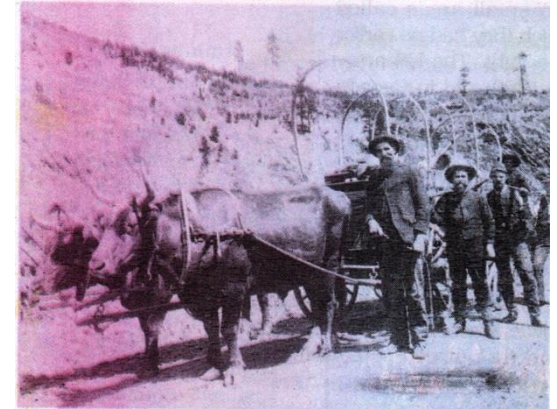Q.10   What were sun Yat-Sen's three Principles?

OR

Discuss in detail about Nishijin.

Section – D
[Source Based Question]

Q.11   Study the image of people moving a gold rush, carefully and answer the following questions.

   (i)   The person seen moving in black dress were –

   (a) European settlers

   (b) Native of America

   (c) Inhabitant of Mexico

   (d) None of the above

   (ii)   What was the Chief mode of transport employed by the people to move to California.

   (a) Road transport driven by animal power

   (b) Road transport driven by steam power

   (c) Rail transport driven by steam power

   (d) All of the above

   (iii) The sudden finding of gold in California led to –

   (a) Development of American economy

   (b) Population increase in California

   (c) Statehood of California

   (d) All of the above

   (iv)   What was / were the consequence on natives of sudden finding of gold in California?

   (a) Their population decline from the disease and the genocide

   (b) They became wealthy and prosperous

   (c) Both (a) and (b)

   (d) None of the above

*****

Second UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

Section – A

(Question No.1 to Question No. 4 carry 1 mark each)

Q.1   The 10th term of G.P. 5, 25, 125 ------------ is

(a) 5^{10} (b) 5^9 (c) 5^8 (d) 0

Q.2   In a G.P. 3rd term is 24 and 6th term is 192. The 10th term is -

(a) 3071   (b) 3072   (c) 3073   (d) 3074

Q.3 $\dfrac{d}{dx}\sin 2x$ is -

(a) $\cos 2x$ (b) $2\cos 2x$ (c) $2\sin 2x$ (d) 1

Q.4   The derivative of $x^2 - 2$ at $x = 10$ is -

(a) 20   (b) 30   (c) 40   (d) None of these

Section – B

(Question No.5 to Question No. 8 carry 2 marks each)

[Attempt Any Three Questions]

Q.5   Find $\dfrac{d}{dx}\left(x^2 \sin x\right)$.

Q.6   find $\dfrac{d}{dx}\left(x^2 + \dfrac{\sin x}{x^2}\right)$.

Q.7   For what value of x, the numbers $\dfrac{-2}{7}, x, \dfrac{-7}{2}$ are in G.P.

Q.8   If a, b, c are in G.P. and $a^{1/x} = b^{1/y} = c^{1/z}$. Prove that x, y, z are in A.P.

Section – C

(Question No.9 and Question No. 10 carry 3 marks each)

Q.9   Find the Derivative of $\cos x$ from first principle.

OR

Find the derivative of $\tan x$ from first principle.

Q.10   Find the equation of the set of points which are equidistant from the points $(1, 2, 3)$ and $(3, 2, -1)$.

OR

Find the equation of the set of point P sum of whose distance from A $(4, 0, 0)$ and B $(-4, 0, 0)$ is equal to 10.

Section – D

(Case Study Based 1+1+2=4 Marks)

Q.11   The coordinate of a point P in the space (a, b, c). Based on the above information answer the following questions.

(a) Find the distance of point P from xy plane.

(b) Find the distance of P from x axis.

(c) Find the distance of P from $(-a, -b, -c)$.

OR

Find the distance of P from R $(2a, 0, 2c)$

*****

SECOND UNIT TEST 2024 – 2025
Time: 1:00 Hrs.   **M.M. 20**

Question 1 to 4 carry one mark only

Q.1   Kepler's second law is the law of consequence of the law of conservation of –
(a) Linear momentum   (b) energy
(c) Angular momentum   (d) mass

Q.2   If suddenly the gravitational force of attraction between earth and satellite revolve around it become zero, the satellite will –
(a) continue to move in its origivialorsit with same velocity
(b) Move tangentially to the original orbit with same velocity
(c) becomes stationary in its orbit
(d) move towards the earth

Q.3   The escape velocity and orbital velocity are related as –
(a) $V_0 = \sqrt{2}V_e$ (b) $V_0 = 2V_e$ (c) $V_e = \sqrt{2V_0}$ (d) $V_e = 2V_0$

Q.4   The angle between the equatorial plane and the orbital plane of a geo-stationary satellite is –
(a) 0°   (b) 60°   (c) 90°   (d) 120°

Question 5 to 8 carry Two marks only(Attempt Three only)

Q.5   At mid night, the sun pull us in the same direction as the earth. But at midday, the sun pulls us in direction opposite to the earth . Would we weight more at mid night than at midday. Explain.

Q.6   We can not move even our little finger without disturbing the whole universe. Explain why?

Q.7   State universal Law of gravitation and write its mathematical relation.

Q.8   A body weights63N on the surface of earth. What is the gravitational force on it due to the earth at a height equal to half the radius of earth?

Question 9 and 10 carry Three marks only

Q.9   Define gravitational potential energy. Derive the expression for gravitational potential energy.

OR

Define gravitational potential. Derive the expression for gravitational potential.

Q.10   Derive an expression for the value of "g" at a latitude λ on the surface of earth.
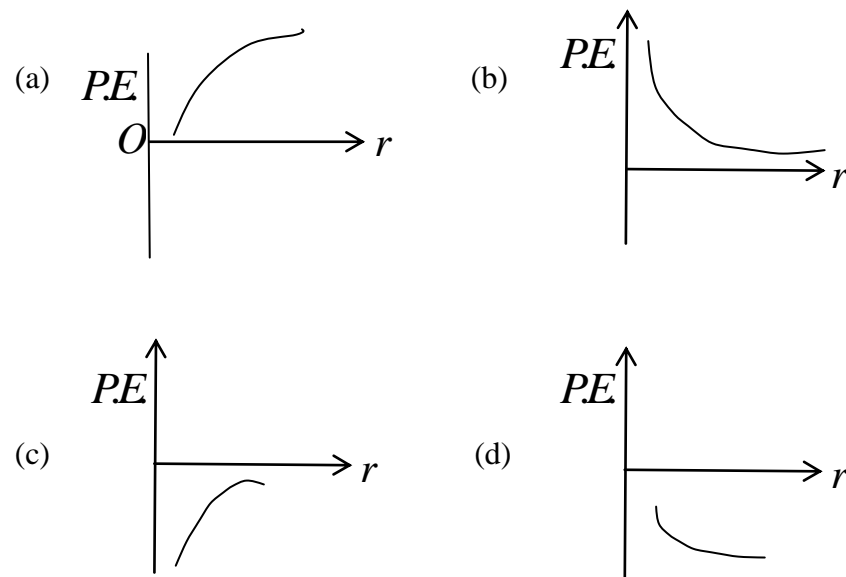
OR

Define satellite. Find orbital speed, time period of satellite and escape speed of satellite.

Question 11carry Four marks only

Just as the planets revolve around the sun, in the same way the satellite revolve around the planets. Artificial satellites are lunched from surface of earth. These satellites are polar as well as equatorial. Equator satellite are also known as Geo-stationary satellite.

(i)   The orbit of an artificial satellite around the earth is approximately.
(a) Parabola   (b) hyperbolic (c) elliptical   (d) Circular

(ii)   The total energy of the satellite in an orbit of radius r is :
(a) $\dfrac{GMm}{r}$ (b) $\dfrac{GMm}{2r}$ (c) $\dfrac{-GMm}{2r}$ (d) $\dfrac{-GMm}{r}$

(iii)   The time period of geo-stationary satellite around earth is :
(a) 18hr   (b) 24hr   (c) 36hr   (d) 365 days

(iv)   Which graph represented the potential energy of the satellite in its orbit :

*****

SECOND UNIT TEST 2024 – 2025
Time: 1:00 Hrs. **M.M. 20**

Section - A

Multiple Choice Questions : **[One mark each]**

Q.1 Which Article of Indian constitution stipulates the Supreme Court shall have power to review any judgment pronounced by it?

(a) Article 144 (b) Article 142 (c) Article 137 (d) Article 135

Q.2 Union and the states are constitutionally obliged to cooperate with each other on the matters specified in ----------- of the constitution.

(a) Schedule V (b) Schedule VI (c) Schedule VII (d) Schedule VIII

Q.3 Right to criticise the Government is a / an ------------ .
(a) Civil right (b) Political right (c) Economic right (d) Natural right

Q.4 Who was a black pioneer of anty – Law movement?

(a) Barack Obama (b) Martin Luther King Jr.

(c) Mathama Gandhi (d) Killi Paul

Section - B

Do Any Three : **[Two marks each Question]**

Q.5 What do you mean by global citizenship? Why do we need?

Q.6 What is the significance of Right to freedom of Religion?

Q.7 Explain in brief the meaning of Independence of Judiciary.

Q.8 What are the factors which make a Federalism successful?

Section - C

Short type questions : **[Three marks each]**

Q.9 What is the importance of judiciary in India?

Q.10 Why do you think that right to life, liberty equal treatment and the right to political participation are our basic rights.

Q.11 Why it was necessary to have a strong central government case study- You may have heard about the cricket team of West Indies. But is there a country called West Indies? Like India. West Indies was also colonised by the British. In 1958, The federation of West Indies came into being. It had a weak central govt. and the economy of each unit was independent. These features and political competition among the units led to the formal dissolution of the federation in 1962. Later, in 1973 by Treaty of Chiguaramas the independent islands established joint authorities in the form of common legislature, Supreme Court, a common currency and to a degree, a common market known as the Caribbean community.
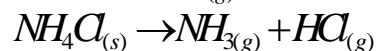
(i) When did the federation of West Indies came into being? 1

(a) 1958 (b) 1959 (c) 1960 (d) 1961

(ii) Who are the members of Caribbean community? 1

(a) Common Executive (b) Chief Manager

(c) Executive officer (d) None of these

(iii) -------------- one of the first major attempts to build a federal polity. 1

(a) German Federalism (b) Indian Federalism

(c) American Federalism (d) Canadian Federalism

(iv) Which of the following treaty established joint legislature? 1

(a) Treaty of Paris (b) Treaty of Salabi
(c) Treaty of Chiguaramas (d)Treaty of Mysore

*****

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

Question 1 to 4 carry one marks only   **4×1=4**

Part - A

Q.1   Relationship between Kc and Kp is $Kp = Kc\ (RT)^{\Delta n(g)}$ what would be the value of $\Delta n_{(g)}$ for the reaction –

$$NH_4Cl_{(s)} \rightarrow NH_{3(g)} + HCl_{(g)}$$

(a) 1   (b) 0.5   (c) 15   (d) 2

Q.2   For the reaction $H_2 + I_2 \rightarrow 2HI$ the standard free energy is $\Delta G° > 0$ the equilibrium constant (K) would be…………… –

(a) K=0   (b) K > 1   (c) K = 1   (d) K < 1

Q.3   What is the dissociation constant of an acid HA whose degree of ionization is 0.00001 at 0.1 M concentration?

(a) 10^{-7} (b) 10^{-9} (c) 10^{-11} (d) 10^{-8}

Q.4   The concentration of the sulphuric acid solution is 0.01M, then calculate its pH :

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

Part – B

(Do Any Three)   **3×2=6**

Q.5   Note on Le – chatelier's principle.

Q.6 SO_3^{-2} is Bronsted Base or acid and why?

Q.7   The pH of 0.05M Codeine solution is 9.95. Calculate the OH^-.

Q.8   Find out the value of Kc of the following eqvilibria from the value of Kp, $CaCO_{3(g)} \rightleftharpoons CaO_{(s)} + CO_{2\ (s)}$ Kp=167 atm at 1073K.

Part – C

Q.9   Write the correct reaction quotient expression for the reaction.   3

$$2N_2O_{(g)} + O_{2(g)} \rightleftharpoons 4NO_{(g)}$$

OR

Define the Buffer.

Q.10   Why is ammonia termed as a base though it does not contain OH^- ions?   3

OR

The value of ΔG° for the phosphorylatuion of glucose in glycolysis is 13.8 KJ/mol. Find the value of Kc at 298K.
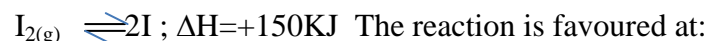
Part – D (Do Any Four)

Q.11   When Hydrogen reacts with gaseous iodine, heat is evolved. 4×1=4

$H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ ΔH= −9.4 KJ (Exothermic)

Because this reaction is exothermic, we can write it with heat as a product $H_2 + I_2 \rightleftharpoons 2HI +$ Heat

Increasing the temperature of the reaction increases the internal energy of the system. Thus, increasing the temperature has the effect of increasing the amount of one of the products of this reaction. The reaction shift to the left to relieve the stress and there is an increase in the concentration of HI lowering the temp. of this system reduces the amount of the energy present, favours the production of heat and favours the formation of HI. When we change the temp. of a system at Equilibrium, the Equilibrium constant for the reaction changes lowering the temp. in the HI system increases the Equilibrium constant: at the new Equilibrium the conc. of HI has increased and the conc. at H_2 & I_2 decreased. Raising the temp. decrease the value of the Equilibrium cinstants from 67.5 at 357°C to 50.0 at 400°C.

(i)   When I_2 dissociates to its atomic from the following reaction occurs :

   $I_{2(g)} \rightleftharpoons 2I$; ΔH=+150KJ The reaction is favoured at:

   (a) Low temp. (b) High temp. (c) No change (d) High pressure

(ii)   The Equilibrium constant of a reversible reaction at a given temp.

   (a) Depends on the initial conc. of reactants

   (b) Depends on the conc. of products at Equililbrium

   (c) Does not depends on the initial conc.

   (d) It is not a characteristic of the reaction

(iii)   A gas is in Equilibrium with water at a certain temp. & pressure. What will happen if the temp. Of the gas is increased?

(iv)   In which direction Equilibrium is Expected to shift on increasing temp. in the following reaction $2CO_2 \rightleftharpoons 2CO + O_2$; ΔH= +212Kcal

(v)   Assertion (A)   For any chem. Reaction at particular temp. the Equilibrium constat is fixed and is a characteristic property.

     Reason (R)   Equilibrium constant is indesendent of temp.

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Roll No. _____   NLCS/11/Physical Ed./048/50
SECOND UNIT TEST 2024 – 2025
Time: 1:00 Hrs.   M.M. 20

Multiple Choice Questions (Question No. 1 to 4) 1 Mark each.

Q.1   What is the approximate weight of the human heart?
       (a) 200gm   (b) 300gm   (c) 400gm   (d) None of these
Q.2   Which one of the following joints is not freely movable joint?
       (a) Hinge joints   (b) Saddle joints
       (c) Pivat joints   (d) Symphysis joints
Q.3   Which is called study of human movements?
       (a) Anatomy   (b) Kinesiology
       (c) Bio mechanics   (d) Physiology
Q.4   The term Flexion refers :
       (a) Turning   (b) Bending   (c) Twisting   (d) Straightening

Do Any Three 2 Marks each.

Q.5   Write a brief note on heart.
Q.6   Differentiate between arteries and veins.
Q.7   What do you mean by axis and plane

Question No. 8 and 9, Three Marks.

Q.8   What do you mean by biomechanics explain on brief?

Q.9   Elucidate the classification of bones.

Q.10   On the basis of the given picture answer the following

       question :

       (i)   The total number of bones in vertebral columns

                --------- .

       (ii)   Scapula and skull are examples of ---------- .

       (iii)   Carpus and tarsus are the examples of

                ………………

       (iv)   The number of ribs are …………………

                              *****

SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **M.M. 20**

Section – A

Multiple Choice Questions :   **1×4=4**

Q.1   DNA consist of ------------purimidines.

(a) Adenine and Guanine   (b) Thymine and cytosine

(c) Adenine and cylosine   (d) uracil and thymine

Q.2   Z scheme of Electron transport system was given by –

(a) Whittaker (b) Bendill & Hill   (c) Hill (d) C. Benda

Q.3   Synapis occurs in ------------ stage of cell devision.

(a) Zygotene   (b) Leptotene (c) Diplotene (d) Diakineses

Q.4   PGA is the first acceptor of CO_2 in -------------- plants.

(a) C_4 plants   (b) C_3 plants   (c) C_1 plants   (d) None of above

Section – B

(Attempt any three questions from questions no. 5 to 8)   2×3=6

Q.5   Define : (i) Cofactors   (ii) Cell division

Q.6   Write the steps of photosynthesis.

Q.7   Draw the diagram of cell cycle.

Q.8   Write the 2 characters of prophase stage.

Section – C

Q.9   Draw the cyclic pathway of Hatch and slack cycle. (C_4 pathway)

OR

Describe the classification of enzymes.   3

Q.10   Write 3-3 differences between Mitosis & Meiosis.   3

OR

Draw all the phases of Mitosis.

Section – D

Q.11   Light reactions include light absorption, light splitting, O_2 release and the formation of high energy chemical intermediates ATP and NADPH. Several protein complexes are involved in the process . The pigments are organized into LHC within the photosystem I and photosystem II. Each photosystem has all the pigments forming a light harvesting system called Antennae. These pigments helps to make photosynthesis more efficient by absorbing different wavelength of light. The single chlorophyll a molecule forms the reaction centre.

(i)   Identify the action, which are not included in light phase of photosynthesis.   1

(a) splitting of water   (b) combustion of O_2

(c) ATP formation   (d) O_2 release

(ii)   Photosynthesis is –   1

(a) Destructive process   (b) Anabolic process

(c) catabolic process   (d) None of above

(iii)   Name the pigment which is referred as reaction centre. Also write its structure.   2

OR

Give reason why photosystem I is named as P 700.

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Second Unit Test 2024 – 2025

Time : 1:00 Hrs.   **M.M. 20**

Section – A (Each Question carry 1 Marks)

Q.1   How many ways can 5 letters be arranged in a Row? –

(a) 120   (b) 24   (c) 60   (d) 20

Q.2   What is the value of the limit $\lim_{x \to 0}(x+2)$?

(a) 0   (b) 1   (c) –1   (d) Not exist

Q.3   If $f(x)=x^2$, which of the following is the correct domain for the function?

(a) $x \in R$ (b) $(0,\infty)$ (c) $(-\infty,0)$ (d) None of these

Q.4   What is the derivative of $f(x)=e^x$?

(a) $xe^x(x-1)$ (b) e^x (c) xe^x (d) $\log x$

Section – B (Each Question carry 2 Marks)

Q.5   How many 3 letter words (with or without meaning) can be formed from the letters of word "COMPUTE" without repetition?

OR

Define a function. Give an example of a function with its domain and Range.

Q.6   Prove that $\lim_{x \to 2}(3x^2+4x-1)=17$.

OR

Differentiate $f(x)=\log x^2$ with respect to x.

Q.7   Solve the logical expression; If p→q is true and q is false, what is the truth value of p?

OR

Find the number of ways to arrange the letters of the word "SCHOOL". If vowels must always come together.

Section – C (Each question carry 3 Marks)

Q.8   How many ways can 5 boys and 3 girls be selected in a raw such that no two girls are adjacent?

Q.9   Show that function $f(x)=x^3-4x+1$ is continuous at $x=1$.

Q.10   Differentiate $f(x)=\dfrac{x^3}{x^2+1} W.R.T x$.

Q.11   Find the derivation of $f(x)=4x^3+3x^2+2x+1$ using chain rule.

Section – D (Cased Based 4 Mark)

Q.12   A car rental service charge a fixed amount for the first 10km after which it charges at a rate proportional to the distance travelled suppose that the rental cost for a trip is modelled by a function $C(x)$ where (x) is the distance travelled in km and $C(x)=50+5(x-10)$ for $(x>10)$.

(i)   Find the value of $C(x)$ when $(x=15)$.

(ii)   What is the average rate of change of cost when the distance increases from 10 km to 20 km?

(iii)   If the rental cost of a trip is 70 ₹. How far did the car travels.

(iv)   Find the value of $C(x)$ when $x=21$.

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SECOND UNIT TEST 2024 – 2025

Time: 1:00 Hrs.   **Practical 20+ Theory 5= M.M. 25**

Q.1   Write any five sculpture names with their places of

Indian Temple Sculptures.   1

Q.2   Write a short note on "Mother and Child".   1

Q.3   Write a short note on "Sculpture, Iconography and

Ornamentation".   1

Q.4   What is theme of Indian Bronze Sculptures?   1

Q.5   Write a short note on "Nataraja".   1

Practical -   **20**

Draw any five human body parts sketches in your sketch file.

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