Delhi Public School Gwalior

(Under the aegis of DPS Society, New Delhi)

Holiday Assignment

Class - XII

Session (2024-25)

Dear Parents

Greetings of the day!

Vacations are the best time to relax and enjoy. Summer vacations are the reason behind fun in the sun, beach and shadow of the umbrella, but it is also the time to keep some analogy of academics alive in the fun to chisel the inherent potential inside your child. My suggestion to you is to spend these holidays being sociable and be vibrant in undertaking your plans so that the vacation is made purposeful.

To begin with, enhance every precious moment prudently by motivating your child to read informative and enlightening books. Help them improve their speech by conversing with them on every possible occasion and strop their vocabulary by providing them with new words. Spend substantial time visiting your kith and kin and people in your vicinity. Hold parley with your child on daily happenings and crucial world events as this is the best time to update, put forth your thoughts, notions and ideas before your ward and ask for an opinion, be a constant supporter of tolerance and disseminate it amongst people, teach your child to help and let him/her realize the meaning of real happiness and harmony and certainly root out all possible ill feelings and factions. Try being friendly and benevolent to all, let your child play the part in family reunions which will strengthen your family bond. Look out for the ways to abrade the plodding routine and take up some supportive vigorous activities with your child like swimming, cycling, jogging, painting or any other activity that your child enjoys.

It's your time to make every single moment eventful and memorable for your child and fill them with loads of experiences, which he/she eagerly wants to share with his/her pals and Educators when returned to School.

I wish you a pleasant vacation!

Regards

Principal
Delhi Public School Gwalior

ADD ONS TO MAKE YOUR VACATION MEANINGFUL !!

Childhood is a crucial stage of development. Most of life's important lessons are learnt here! Let us join hands and make sincere efforts to augment and hone the learning process of the child through inculcation of self learning and keen observation.

* **Let us attempt to enable them by allowing them to assume responsibilities of the routine household and shopping chores. (e.g.: laying the table, serving the guests, making their beds, buying groceries from the nearby stores etc.)**
* **Let us make them aware about their social responsibilities which will transform them into a responsible citizen of our society. (e.g.: keeping the surroundings clean, make use of public litter bins, switching off lights / fans / closing the taps properly etc.)**
* **They should be taught how to connect with Almighty God through prayers and meditation. (e.g.: daily prayers, thought of the day, meditate to improve the concentration etc.)**
* **Socialize and connect with people, neighbours and relatives. (e.g.: meeting & greeting neighbours, helping the elderly around, be friendly to the peers etc.)**

We wish all the great for your summer holiday time. May all the pleasure in the world embrace you, let your fun endless with friends and family.

Note : Kindly do all the Holiday Assignments neatly and submit it latest by July 10, 2024.

SUBJECT – ENGLISH (CORE)

Prepare a project file with A4 size sheets with relevant pictures and data on the below mentioned topic.

Compare and contrast the lives of the people living in slum areas with reference to the Lesson 'The Lost Spring' and the poem 'The Roadside Stand' with the people living in big cities or metros.

Discuss their plight and what steps can be taken to eradicate their miseries. **Write in about 800 words.**

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SUBJECT – MATHEMATICS

General Instructions :

- Holiday Assignment consists of Multiple Choice questions, Case based questions and solve the following questions.
- All the work to be done in A4 sized ruled sheets which are to be arranged in a stick file.
- All the best! Stay Home, Stay Safe!

Multiple Choice Questions

Q.1 A square matrix 'A' is called idempotent if

(a) $A^2 = 1$ (b) $A^2 = O$ (c) $2A = 1$ (d) $A^2 = A$

Q.2 If A and B are symmetric matrices of the same order, then

(a) AB is a symmetric matrix (b) A – B is a skew-symmetric matrix

(c) AB + BA is a symmetric matrix (d) AB – BA is a symmetric matrix

Q.3 If $\begin{bmatrix} \cos\frac{2\pi}{7} & -\sin\frac{2\pi}{7} \\ \sin\frac{2\pi}{7} & \cos\frac{2\pi}{7} \end{bmatrix}^k = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then the least positive integeral value of k is

(a) 3 (b) 4 (c) 6 (d) 7

Q.4 If the adjoint of a 3 x 3 matrix P is $\begin{bmatrix} 1 & 4 & 4 \\ 2 & 1 & 7 \\ 1 & 1 & 3 \end{bmatrix}$, then the possible values(s) of the determinant of P is (are)

(a) -2 (b) -1 (c) 1 (d) 1

Q.5 The number of all possible matrices of order 2 x 3with each entry 10 or 1 is

(a) 64 (b) 12 (c) 36 (d) 84

Q.6 The number of real roots of the equation $\begin{vmatrix} x & -6 & -1 \\ 2 & -3x & x-3 \\ -3 & 2x & x+2 \end{vmatrix} = 0$ is :

(a) 0 (b) 1 (c) 2 (d) 3

Q.7 If A and B are square matrices of order 3 such that $|A|=-1, |B|=3$, then det (3AB) is equal to

(a) -9 (b) -27 (c) -81 (d) 81

Q.8 Which of the following is not correct in a given determinant of A, where A = $\lfloor a_{ij} \rfloor_{3\times3}$

(a) Order of minor is less than order of the det (A)
(b) Minor of an element can never be equal to cofactor of the same element
(c) Value of a determinant is obtaind by multiplying elements of a row or column by corresponding cofactors.
(d) Order of minors and cofactors of elements of A is the same.

Q.9 If A is a square matrix of order *n*, then det (λA) is equal to (λ being a scalar)

(a) λ det A (b) $|\lambda|^n$ det A (c) λ^n det A (d) none of these

Assertion Reasoning Questions

Q.10 **Assertion (A) :** $AA^T + A^T$ is skew symmetric.

Reason (R) : A square matrix *A* is symmetric iff $A^T = A$ and skew-symmetric iff $A^T = -A$.

In the light of the above statements, choose the most appropriate answer from the options given.

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).
(B) Both (A) and (R) true but (R) is NOT the correct explanation of (A).
(C) (A) is correct but (R) is not correct
(D) (A) is not correct but (R) is correct.

Q.11 **Assertion (A) :** $f(x) = tan^2 x$ is continuous at $x = \frac{\pi}{2}$.

Reason (R) : $g(x) = x^2$ is continuous at $x = \frac{\pi}{2}$.

In the light of the above statements, choose the most appropriate answer from the options given.

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).
(B) Both (A) and (R) true but (R) is NOT the correct explanation of (A).
(C) (A) is correct but (R) is not correct
(D) (A) is not correct but (R) is correct.

Q.12 **Assertion (A) :** The marginal revenue when $x = 5$ is 66.

Reason (R) : Marginal revenue is the rate of change of total revenue with respect to the number of items sold at an instance.

In the light of the above statements, choose the most appropriate answer from the options given.

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).
(B) Both (A) and (R) true but (R) is NOT the correct explanation of (A).
(C) (A) is correct but (R) is not correct
(D) (A) is not correct but (R) is correct.

Case Study Based Questions

Q.13 Three schools A, B and C organized a mela for collecting funds for helping rehabilitation of flood victims. They sold handmade fans, mats and plates from recycled material at a cost of ₹25, ₹100 and ₹50 each. The number of articles sold by school A, B and C are given below:

School / Article	A	B	C
Fans	40	25	35
Mats	50	40	50
Plates	20	30	40

Based on the above information , answer the following questions:

(i) If R be a 3 x 3 matrix represent the sale of handmade fans, mats and plates by three schools A, B and C, then

(a) $R = \begin{matrix} \\ A \\ B \\ C \end{matrix} \begin{matrix} \begin{matrix} Fans & Mats & Plates \end{matrix} \\ \begin{bmatrix} 40 & 50 & 20 \\ 25 & 40 & 30 \\ 35 & 50 & 40 \end{bmatrix} \end{matrix}$

(b) $R = \begin{matrix} \\ A \\ B \\ C \end{matrix} \begin{matrix} \begin{matrix} Fans & Mats & Plates \end{matrix} \\ \begin{bmatrix} 25 & 40 & 20 \\ 35 & 40 & 30 \\ 40 & 50 & 20 \end{bmatrix} \end{matrix}$

(c) $R = \begin{matrix} \\ A \\ B \\ C \end{matrix} \begin{matrix} \begin{matrix} Fans & Mats & Plates \end{matrix} \\ \begin{bmatrix} 40 & 25 & 35 \\ 50 & 40 & 50 \\ 20 & 30 & 40 \end{bmatrix} \end{matrix}$

(d) $R = \begin{matrix} \\ A \\ B \\ C \end{matrix} \begin{matrix} \begin{matrix} Fans & Mats & Plates \end{matrix} \\ \begin{bmatrix} 25 & 35 & 40 \\ 40 & 40 & 50 \\ 20 & 30 & 20 \end{bmatrix} \end{matrix}$

(ii) If P be *a* 3 x 1 matrix represents the sale prices (in ₹) of given products per unit, then

(a) $P = \begin{bmatrix} 25 \\ 50 \\ 100 \end{bmatrix} \begin{matrix} Fans \\ Mats \\ Plates \end{matrix}$

(b) $P = \begin{matrix} Fans & Mats & Plates \end{matrix} \begin{bmatrix} 25 & 50 & 100 \end{bmatrix}$

(c) $P = \begin{matrix} Fans & Mats & Plates \end{matrix} \begin{bmatrix} 25 & 100 & 50 \end{bmatrix}$

(d) $P = \begin{bmatrix} 25 \\ 100 \\ 50 \end{bmatrix} \begin{matrix} Fans \\ Mats \\ Plates \end{matrix}$

(iii) The funds collected by school A by selling the given articles is
(a) ₹7,000 (b) ₹6,125
(b) ₹7,875 (d) ₹8,000

(iv) The funds collected by school B by selling the given articles is
(a) ₹5,125 (b) ₹6,125
(c) ₹7,125 (d) ₹8,125

(v) The total funds collected for the required purpose is
(a) ₹20,000 (b) ₹21,000
(c) ₹30,000 (d) ₹35,000

Q.14 The upward speed $v(t)$ of a rocket at time t is approximated by $v(t) = at^2 + bt + c$, $0 \le t \le 100$, where a, b and c are constants. It has been found that the speed at time $t = 3$, $t = 6$ and $t = 9$ seconds are respectively 64, 133 and 208 miles per second.

$$\text{If } \begin{bmatrix} 9 & 3 & 1 \\ 36 & 6 & 1 \\ 81 & 9 & 1 \end{bmatrix}^{-1} = \frac{1}{18}\begin{bmatrix} 1 & -2 & 1 \\ -15 & 24 & -9 \\ 54 & -54 & 18 \end{bmatrix}, \text{ then}$$

Answer the following questions :

(i) The value of $b + c$ is

(a) 20 (b) 21 (c) 3/4 (d) 4/3

(ii) The value of $a + c$ is

(a) 1 (b) 20 (c) 4/3 (d) None of these

(iii) $v(t)$ is given by

(a) $t^2 + 20t + 1$ (b) $1/3t^2 + 20t + 1$ (c) $t^2 + 1/3t + 20$ (d) $t^2 + t + 1$

(iv) The speed at time $t = 15$ seconds is

(a) 346 miles / sec (b) 356 miles / sec

(c) 366 miles / sec (d) 376 miles / sec

(v) The time at which the speed of rocket is 784 miles / sec is

(a) 20 seconds (b) 30 seconds (c) 25 seconds (d) 27 seconds

Short Answer Type Questions

Q.15 Show that the matrix $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ satisfies the equation $A^2 - 4A - 5I_3 = 0$ and hence find A^{-1}.

Q.16 If a, b, c are positive and unequal, show that the value of the determinant $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ is always negative.

Q.17 Find the values of x, y, z if the matrix $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$ satisfy the equation. $A^TA = I_3$.

Q.18 Find matrix X so that

$$X\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} = \begin{bmatrix} -7 & -8 & -9 \\ 2 & 4 & 6 \end{bmatrix}$$

Q.19 For what value of x the following matrix is singular?

$$\begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$$

Q.20 If for the matrix A, $A^3 = I$, then find A^{-1}.

Q.21 If A is a square matrix of order 3 and $|2A| = k|A|$, then find the value of k.

Q.22 If $A + B + C = \pi$ then find the value of

$$\begin{vmatrix} \sin(A+B+C) & \sin(A+C) & \cos C \\ -\sin B & 0 & \tan A \\ \cos(A+B) & \tan(B+C) & 0 \end{vmatrix}$$

Q.23 A is a square matrix of order 3 and |A| = 7. Write the value of $|adj\ A|$.

Q.24 Matrix A = $\begin{bmatrix} 0 & 2b & -2 \\ 3 & 1 & 3 \\ 3a & 3 & -1 \end{bmatrix}$ is given to be symmetric, find values of a and b.

Q.25 If A is an invertible matrix of order 3 and |A| = 5, then find |adj A|.

Q.26 Find derivative of $\sin\left(\sin x^2\right) at\ x = \sqrt{\frac{\pi}{2}}$.

Q.27 Differentiate $\tan^{-1}(\sec x + \tan x)$ w.r.t. x.

Q.28 If $y = \sin\left(2\tan^{-1}\sqrt{\frac{1-x}{1+x}}\right)$. Prove that $\frac{dy}{dx} = \frac{-x}{\sqrt{1-x^2}}$.

Q.29 Find $\frac{dy}{dx} at\ x = 1, y = \frac{\pi}{4}$, if $sin^2 y + cos\ xy = k$

Q.30 If $y = \sqrt{\cos x + \sqrt{\cos x + \sqrt{\cos x + \ldots\ldots \infty}}}$. Prove that $(1-2y)\frac{dy}{dx} = \sin x$

Q.31 Differentiate $\log_5 x$ w.r.t. x.

Q.32 If $y = (\sin x)^x + (\cos x)^{\tan x}$, *find* $\frac{dy}{dx}$.

Q.33 If $y^x + x^y + x^x = a^b$, *find* $\frac{dy}{dx}$.

Long Answer Type Questions

Q.34 If $x = a(\cos\theta + \log\tan\frac{\theta}{2})$ *and* $y = a\sin\theta$, find the value of $\frac{dy}{dx}$ *at* $\theta = \frac{\pi}{4}$.

Q.35 Differentiate : $\tan^{-1}\left(\frac{x}{\sqrt{1-x^2}}\right)$ w.r.t. $\cos^{-1} x^2$.

Q.36 If $x \cos(a+y) = \cos y$, then prove that $\frac{dy}{dx} = \frac{\cos^2(a+y)}{\sin a}$ and hence show that $\sin a \frac{d^2y}{dx^2} + \sin^2(a+y)\frac{dy}{dx} = 0$.

Q.37 The two equal sides of an isosceles triangle with fixed base b are decreasing at the rate of 3 cm/sec. How fast the area is decreasing when two equal sides are equal to the base?

Q.38 Water is leaking from conical funnel at the rate of 5 cm^3/sec. If the radius of the base of the funnel is 10 cm and its height is 20 cm. find the rate at which the water level is dropping when it is 5 cm from the top.

Q.39 Find the intervals in which the following function is strictly increasing and decreasing . $f(x) = x^4 - \frac{x^3}{3}$

Q.40 Find the intervals in which the function f given bye $f(x) = \frac{4\sin x - 2x - x\cos x}{2 + \cos x}, 0 \le x \le 2\pi$ is

(i) increasing (ii) decreasing.

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SUBJECT – APPLIED MATHEMATICS

- The following guidelines are issued by CBSE to schools for the session 2024-25.
- Project work and record : 5 marks and year end presentation/ viva : 5 marks

Following are the topics for the projects to be done individually. One has to select any one topic and prepare a detailed report on it

1) Predicting the Outcome of an Election- Exit Polls
2) Weather Prediction (To study how weather is predicted and understand the use of mathematics in weather prediction).
3) Risk Assessments by Insurance Firms from Data
4) Stock Price Movements
5) To show application of mathematics in real life in maximizing the profit of Kirana stores
6) Effect of Temperature and Rain Variations on Various Crops.
7) To analyze what the infant mortality rate of a country is and how we can predict it.
8) Predicting a Stock Market Crash.

- **Steps involved in the conduct of the project**:

Choose a topic
↓
✓ Collect the research material/data
↓
Organize material/data
↓
Present material/data
↓
Analyse the material/data for conclusion
↓
Draw the relevant conclusion
↓
Presentation of the Project Work

- **Expected Checklist for the project work:**
  - ✓ Introduction of topic/title
  - ✓ Identifying the causes, events, consequences and/or remedies
  - ✓ Various stakeholders and effect on each of them.
  - ✓ Advantages and disadvantages of situations or issues identified.
  - ✓ Short term and long term implications of strategies suggested in the course of research
  - ✓ Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file.
  - ✓ Presentation and writing that is succinct and coherent in project file.
  - ✓ Citation of the material referred to, in the file in footnotes, resources section, bibliography etc.

- The project report should include
  Title page, Acknowledgements, Certificate, Contents page(Index), Introduction, Body of report, Evaluation, Conclusions and Future Work, Bibliography and Appendix.

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SUBJECT – PHYSICS

General instructions:

1. **Do all the questions in a folder or available notebook.**
2. **Write answers in a proper sequence.**
3. **Do neat & clean work.**
4. **Draw diagrams where ever required.**

Objective Questions

Q.1 If a body is charged by rubbing it, its weight.
(a) Always decrease slightly (b) Always increase slightly
(c) May increase or decrease slightly (d) No change in weight

Q.2 Force per unit charge is
(a) Electric current (b) Electric flux
(c) Electric field (d) Electric potential

Q.3 An electric dipole is placed in a uniform electric field. The net electric force on the dipole.
(a) Is always zero (b) Depends on the orientation
(c) Depends on the dipole moment (d) Is always finite but not zero

Q.4 When the separation between two charges is increased, the electric potential energy of the charges.
(a) Increases (b) Decreases
(c) Remains the same (d) May increase or decrease

Q.5 Consider a uniform electric field in the Z-direction. The potential is a constant.
(a) for any x for a given z. (b) for any y for a given z.
(c) on the x-y plane for a given z. (d) all of these.

Q.6 Dielectric constant for a metal is
(a) Zero (b) Infinite
(c) 1 (d) 10

Q.7 In a Wheatstone bridge, if the battery and galvanometer are interchanged then the deflection in galvanometer will
(a) change in previous direction (b) not charge
(c) change in opposite direction (d) none of these

Q.8 The resistivity of alloy manganin is
(a) Nearly independent of temperature.
(b) Increases rapidly with increase in temperature.
(c) Decrease with increase in temperature.
(d) Increases rapidly with decrease in temperature.

Q.9 In the series combination of two or more than two resistances
(a) the current through each resistance is same
(b) the voltage through each resistance is same
(c) neither current nor voltage through each resistance is same
(d) both current and voltage through each resistance is same

Q.10 In a parallel combination of n cells, we obtain

(a) more voltage (b) more current
(c) less voltage (d) less current

Descriptive Questions

Q.11 In which orientation, a dipole placed in a uniform electric field is in
(i) stable
(ii) unstable equilibrium

Q.12 Show on a plot the nature of variation of the
(i) Electric field and
(ii) Potential, of a electric dipole with the distance of the field point from the centre of the dipole.

Q.13 Derive an expression for the torque experienced by and electric dipole kept in a uniform electric field.

Q.14 Define electric flux. Write its SI unit.

Q.15 A thin conducting spherical shell of radius R has charge Q spread uniformly over its surface. Using Gauss' law, derive an expression for an electric field at a point outside the shell.

Draw a graph of electric field E with distance r from centre of the shell for $0 \leq r \leq \infty$.

Q.16 State Gauss' law in electrostatics. Using this law derive an expression for the electric field due to a uniformly charged infinite plane sheet.

Q.17 Two point charges +3q and -4q are placed at the vertices B and C of an equilateral triangle ABC of side a obtain the expression for
(i) the magnitude and
(ii) the direction of the resultant electric field at the vertex A due to these two charges.

Q.18 Derive the expression for electric potential due to an electric dipole at in axial point.

Q.19 Distinguish between dielectric and a conductor.

Q.20 Derive an expression for the potential energy of a electric dipole of dipole moment $\vec{P}$ in the electric field $\vec{E}$.

Q.21 Two point charges 4Q, Q are separated by 1m in air. At what point on the line joining the charges is the electric field intensity zero?

Q.22 Two point charges $2\text{x}10^{-6}$ C and $-4\text{x}10^{-6}$ C are separated by a distance of 50 cm in air.
(i) Find the point on the line joining the charges, where the electric potential is zero.
(ii) Also find the electrostatic potential energy of the system.

Q.23 Can two equipotential surfaces intersect each other? Give reasons.

Q.24 An electric dipole of length 2cm, when placed with its axis making an angle of 60^0 with a uniform electric field, experiences a torque of $8\sqrt{3}$ Nm. Calculate the potential energy of the dipole, if it has a charge of ±4 nC.

Q.25 A wire of resistance 8R is bent in the form of a circle. What is the effective resistance between the end of a diameter.

Q.26 Two conducting wires X and Y of same diameter across a battery. The number density of electron in X is twice that in Y find the ratio of drift velocity of electrons in the two wires.

Q.27 Show on a graph the variation of resistivity with temperature for a typical semiconductor.

Q.28 The emf of a cell is always greater than its terminal voltage. Why? Give reason.

Q.29 Define the term mobility of charge carriers in a conductor, write its SI unit.

Q.30 Define the term electrical conductivity of a metallic wire. Write its SI unit.

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SUBJECT – CHEMISTRY

*** Write answers of all questions in separate register**

Objective questions

Q 1. The halogen derivatives of alkenes are known as
(a) alkyl halides (b) alkenyl halides (c) alkynyl halides (d) aryl halides

Q 2. In unimolecularnucleophilic substitution, alkyl halides react via the carbocation intermediate. The order of reactivity of the carbocations is
(a) 3° > 2° > 1° (b) 1° > 2° > 3° (c) 2° > 1° > 3° (d) 3° = 1° > 2°

Q 3. In biomolecularnucleophilic substitution, alkyl halides undergo hydrolysis through the formation of a transition state. The reactivity of the alkyl halides is in the order
(a) 1° > 2° > 3° (b) 3° > 2° > 1° (c) 2° > 1° > 3° (d) 3° = 1° > 2°

Q 4. In S_N2 reactions, the order of reactivity of the halides CH_3X, C_2H_5X, n-C_3H_7X, n-C_4H_9X is in the order
(a) $CH_3X > C_2H_5X >$ n-$C_3H_7X >$ n-C_4H_9X
(b) $C_2H_5X >$ n-$C_3H_7X >$ n-$C_4H_9X > CH_3X$
(c) $C_2H_5X >$ n-$C_3H_7X >$ n-$C_4H_9X > CH_3X$
(d) n-$C_4H_9X >$ n-$C_3H_7X > C_2H_5X > CH_3X$

Q 5. In a nucleophilic substitution reaction for a given alkyl group, the order of reactivity is
(a) R—I > R—Br > R—Cl> R—F (b) R—F > R—I > R—Br > R—Cl
(c) R—Cl> R—Br > R—I > R—F (d) R—F > R—Cl> R—Br > R—I

Q 6. The elimination of HX from an alkyl halide forms an alkene. The order of the elimination reactions is
(a) 3° halide > 2° halide > 1° halide (b) 1° halide > 2° halide > 3° halide
(c) 1° halide = 2° halide > 3° halide (d) 2° halide > 1° halide > 3° halide

Q 7. Chlorine is the most reactive towards aqueous NaOH in
(a) methyl chloride (b) chlorobenzene (c) vinyl chloride (d) benzyl chloride

Q 8. Chlorine is least reactive in
(a) methyl chloride (b) ethyl chloride (c) allyl chloride (d) vinyl chloride

Q 9. Chlorobenzene can be prepared from aniline by making the latter react with
(a) cuprous chloride
(b) hydrochloric acid
(c) nitrous acid followed by heating with cuprous chloride
(d) chlorine in the presence of ahnydrous $AlCl_3$

1. Give reason :
(a) *n*-Butyl bromide has higher boiling point than*t*-butyl bromide.
(b) *p*-dichlorobenzene have a higherm.p. than its *o*- and *m*-isomers.
(c) Alkyl halides, though polar, are immisciblewith water.
(d) Haloalkanes (alkyl halides) easily dissolve in organic solvents.
(e) Out of ethyl bromide and ethyl chloride which has higher boiling point anwhy?
(f) The dipole moment of chlorobenzene islower than that of cyclohexyl chloride.
(h) Grignard's reagents should be prepared under anhydrous conditions.

(i) Sulphuric acid not used during the reaction of alcohols with KI in the conversion of an alcohol to the alkyl iodide.
(j) Haloarenes areless reactive than haloalkanes towards nucleophilicsubstitution reactions.
(k) Methyl chloride hydrolysed more easily than chlorobenzene.
(l) Treatment of alkyl chloride with aqueous KOH leads to the formation of alcohol but in the presence of alcoholic KOH, alkene is the major product.
(m) Chloroform is stored in closed dark coloured bottles completely.
(n) C Cl bond length in chlorobenzene is shorter than C Cl bond length in chloromethane.
(o) SN1 reactions are accompanied by racemization in optically active alkyl halides.
(p) Racemic mixture is optically inactive.
(q) Presence of nitro group (—NO_2) at *o*/*p* positions increases the reactivity of haloarenes towards nucleophilic substitution reactions.
(r) Butan-1-ol optically inactive but butan-2-ol is optically active.
(s) Although chlorine is an electron withdrawing group, yet it is *ortho*-, *para*-directing in electrophilic aromatic substitution reactions.
(t) Haloalkanes react with KCN to form alkyl cyanide as main product while with AgCN alkyl isocyanide is the main product.
(u) Thionyl chloride is the preferred reagent for converting ethanol to chloroethane.
(v) Chlorobenzene on reaction with fuming sulphuric acid gives ortho and parachlorosulphonic acids.
(w) 2, 4-dinitro chlorobenzene is much more reactive than chlorobenzene towards hydrolysis reaction with NaOH.
(x) Neopentyl bromide undergoes nucleophilic substitution reactions very slowly
(y) Vinyl chloride is unreactive in nucleophilic substitution reaction.

2. Give one example of each of the following reactions :

(i) Wurtz reaction (ii) Wurtz-Fittig reaction. (iii) Sandmayer reaction
(iv) Fittigreaction (v) Finklestein reaction (vi) Swarts reaction

3. (a) Write the structure of an isomer of compound C_4H_9Br which is most reactive towards SN1 reaction. Predict the order of reactivity of four isomeric bromobutanes in SN1 reaction.
(b) Which would undergo SN2 reaction faster in the following pair and why? CH3 CH2 Br and CH3 CH2 I
(c) Which halogen compound in each of the following pairs will react faster in SN2 reaction :
(i) CH_3Br or CH_3I (ii) $(CH_3)_3CCl$ or CH_3Cl
(d) Predict the order of reactivity of the following compounds in SN1 reaction. $C_6H_5CH_2Br$, $C_6H_5C(CH_3)(C_6H_5)Br$, $C_6H_5CH(C_6H_5)Br$, $C_6H_5CH(CH_3)Br$
(e)Which will react faster in SN2 displacement, 1-bromopentane or 2 bromopentane and why?
(f) Which will react faster in SN1 displacement reaction: 1-Bromobutane or 2-bromobutane and why?
(g) A solution of KOH hydrolyses $CH_3CHClCH_2CH_3$ and $CH_3CH_2CH_2CH_2Cl$. Which one of these is more easily hydrolysed?
(h) Rearrange the compounds of each of the following sets in order of reactivity towards SN2 displacement:
(i) 2-Bromo-2-methylbutane, 1-Bromopentane, 2-Bromopentane
(ii) 1-Bromo-3-methylbutane, 2-Bromo-2- methylbutane,3-bromo-2-methylbutane
(iii) 1-Bromobutane, 1-Bromo-2, 2-dimethyl propane, 1-Bromo-2-methylbutane
(i). Explain why in the pair, (CH3)3CCl and CH3Cl will react faster in SN2 reaction with OH–?

(j). Which compound in the following couple will react faster in SN2 displacement and why?
(i) 1-Bromopentane or 2-bromopentane
(ii) 1-Bromo-2-methylbutane or 2-bromo-2-methylbutane.

4. Answer the following questions:

(i) What is known as a racemic mixture? Give an example.
(ii) Write the mechanism of the following reaction :*n*-BuBr + KCN EtOH, H O2 *n*-BuCN
(iii) Differentiate between SN1 and SN2 mechanisms and give examples
(iv) What are ambident nucleophiles? Explain with an example.
(v) What is meant by chirality of a compound? Give an example
(vi) What happens when CH3 Br is treated with KCN?
(vii) What happens when ethyl chloride is treated with aqueous KOH?
(viii) Why is (±)-butan-2-ol is optically inactive?
(ix) How may methyl bromide be preferentially converted to methyl isocyanide?
(x) What is Saytzeff rule? Illustrate with suitable example.

5. How do you convert?

(i) Chlorobenzene to biphenyl
(ii) 2-bromobutane to but-2-ene
(iii) Benzyl chloride to benzyl alcohol,
(iv) Methyl magnesium bromide to methylpropan-2-ol.
(v) benzene to 3-bromonitrobenzene
(vi) ethanol to but-1-yne
(vii) 1-bromopropane to 2-bromopropane
(viii) benzene to 4-bromo-1-nitrobenzene
(ix) aniline to chlorobenzene
(x) 2-methyl-1-propene to 2-chloro-2-methylpropane
(xi) ethyl chloride to propanoic acid
(xii) but-1-ene to n-butyl iodide
(xiii) benzene to phenylchloromethane.
(xiv) tert-butyl bromide to isobutyl bromide.

6. Write chemical equations when:

(i) ethyl chloride is treated with aqueousKOH.
(ii) chlorobenzene is treated with CH_3COClin presence of anhydrous $AlCl_3$.
(iii) methyl chloride is treated with $AgNO_2$.
(iv) bromobenzene is treated with CH_3Cl inthe presence of anhydrous $AlCl_3$.

7. Arrange the following in the increasing order of properly indicated :

(i) bromomethane, chloromethane, dichloromethane. (Increasing order of boiling points).
(ii) 1-chloropropane, isopropyl chloride, 1-chlorobutane (Increasing order of boiling point)
(iii) dichloromethane, chloroform, carbon terachloride. (Increasing order of dipole moment.
(iv) CH_3F, CH_3Cl, CH3Br, CH_3I (Increasing reactivity towards nucleophilic substitution and increasing order of dipole moment)
(v) *o,m.p*-dichlorobenzenes (Increasing order of melting points).

8. Write the structure of following halogen compounds

(i) 2-chloro-3-methylpentane
(ii) 2-(2-chlorophenyl)-1-iodooctane
(iii) 1-bromo-4-sec-butyl-2methylebenzene.
(iv) p-bromotoluene.
(v) chlorophenylmethane

9. Write a chemical test to distinguishbetween :

(i) Chlorobenzene and benzyl chloride
(ii) Chloroform and carbon tetrachloride
(iii) C2H5Br and C6H5Br.
(iv) chlorobenzene and cyclohexylchloride.
(v) vinyl chloride and ethyl chloride.
(vi) n-propyl bromide and isopropyl bromide.

10. Write the difference between

(i) enantiomers and diastereomers
(ii) retention and inversion of configuration.
(iii) electrophilic and nucleophilic substitution reactions.

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SUBJECT – BIOLOGY

General instructions:

1. **Do all the questions in a folder.**
2. **Write answers in a proper sequence.**
3. **Do neat & clean work.**
4. **Draw diagrams where ever required.**

Objective Questions

Q.1 In the human sperm numerous mitochondria are present in the region known as –
(a) Head (b) Neck (c) Middle piece (d) Tail

Q.2 Select the pair – that is not correct :
(a) Pleiotropy : Sickle cell anaemia (b) Linkage : Drosophila
(c) Incomplete dominance : Antirrihirhum (d) Co-dominace : ABO blood group

Q.3 In which of the following combinations of seeds/grains of different plants, residual endosperm will be present at maturity?
(a) Groundnut, Barley, Beans (b) Castor, Groundnut, Maize
(c) Wheat, Maize , Barley (d) Pea, groundnut, beans

Q.4 The method of directly injecting a sperm into ovum in ART is called –
(a) GIFT (b) ZIFT (c) ICSI (d) ET

Q.5 Emergency Contraceptives are effective if used within :
(a) 72 hours of coitus (b) 72 hours of ovulation
(c) 72 hours of menstruation (d) 72 hours of implantation

Q.6 Spot the odd one out from the following male reproductive system :
(a) Rete testis (b) Epididymis (c) Vasa efferentia (d) Isthmus

Q.7 Conditions of a Karyotype 2n+1, 2n-1 and 2n+2 , 2n-2 are called –
(a) Ancuplody (b) Polyploidy (c) Allopolyploidy (d) Monosomy

Q.8 In the F_2 generation of a Mendelian dihybrid cross the number of phenotypes and genotypes are :
(a) Phenotypes – 4, genotypes – 16 (b) Phenotypes – 9, genotypes – 4
(c) Phenotypes – 4, genotypes – 8 (d) Phenotypes – 4 , genotypes – 9

Q.9 Which one of the following is not a male accessory gland?
(a) Seminal Vesicle (b) Ampulla (c) Prostate (d) Bulbourethral gland

Q.10 During microsporogenesis, meiosis occurs in –
(a) Endothecium (b) Microspore mother cells
(c) Microspore tetrads (d) Pollen grains

Descriptive Questions

Q.11 With a neat labeled diagram, describe the parts of a mature angiosperm embryo sac. Mention the role of synergids.

Q.12 Are parthenlarpy and apomixes different phenomena? Discuss their benefits.

Q.13 Why are menstrual cycles absent during pregnancy?

Q.14 Write a schematic labeled diagram to represent oogenesis (Without descriptions)

Q.15 Copper ions-releasing IUDS are more efficient than non-medicated methods. Why?

Q.16 Where does fertilization occur in humans? Explain the events that occur during this process.

Q.17 State the role of oxytocin in parturition. What triggers its release from the pituitary?

Q.18 What is a test cross? How can it decipher the heterozygosity of a plant?

Q.19 Differentiate between ZZ and XY type of sex determination mechanism.

Q.20 Why are human females rarely haemophilic? Explain. How do haemphilic patients suffer?

Q.21 Write the differences between wind-pollinated and insect – pollinated flowers. Give an example of each type.

Q.22 Woman experience two major events in their life time, one at menarche and the second at menopause. Mention the characteristics of both the events.

Q.23 (a) Explain Polygenic inheritance and Multiple allelism with the help of suitable examples.
(b) "Pheny/Ketonuria is a good example that explains pleiotropy." Justify.

Q.24 A haemophillic father can never pass the gene for haemophilia to his son. Explain.

Q.25 An infertile couple is advised to adopt test tube baby programme. Describe two principal procedures adopted for such technologies.

Q.26 Write the function of tapetum in anthers.

Q.27 Explain the events in a normal woman during her menstrual cycle on the following :
(i) Pituitary hormone levels from 8 to 12 days.
(ii) Uterine events from 13 to 15 days.
(iii) Ovarian events from 16 to 23 days.

Q.28 (i) Write any four characteristics of an ideal contraceptive.
(ii) Name two intrauterine contraceptive devices that affect the motility of sperms.

Q.29 (i) Name the genetic disorder in a human female having 44 + x0 Karyotype. Mention the diagnostic features of the disorder.
(ii) Explain the cause of such chromosomal disorder.

Q.30 Generally it is observed that human males suffers from haemophillia more than human females, who rarely suffer from it. Explain giving reasons.

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SUBJECT – ACCOUNTANCY

A) MULTIPLE CHOICE QUESTIONS

1. Ram and Mohan were partners in a firm sharing profit and losses in the ratio of 3:2. Their capitals were
₹2,40,000 and ₹4,80,000 respectively. They were entitled to interest on capital @ 10%. The firm earned
profit of ₹36,000 during the year. The interest on Ram's capital will be
a) ₹24,000 b) ₹21,600 c) ₹14,400 d) ₹12,000

2. A manger gets 5% commission on net profit after charging such commission. Gross profit ₹2,90,000 and expenses of indirect nature other than manager's commission are ₹80,000. Commission amount will be:
a) ₹10,500 b) ₹10,000 c) ₹7,500 d) ₹11,000

3. A and B are partners. They draw for personal use ₹24,000 and ₹16,000 respectively. Interest is chargeable @ 6% p.a. on drawings. What is the interest on drawings?
a) A ₹720 and B ₹480 b) A ₹1,440 and B ₹960
c) A ₹120 and B ₹80 d) None of these

4. A , B and C are partners sharing profits in the ratio of 5:4:1. C is given guarantee that his share in a year will not be less than ₹50,000. Profit for the year ended 31st March, 2021 is ₹4,00,000. Deficiency in the guaranteed profit of C is to be borne by B. Deficiency to be borne by B is:
a) Deficiency of C ₹15,000 met by B b) Deficiency of C ₹10,000 met by B
c) Deficiency of C ₹40,000 met by B d) None of these

5. A, B and C are partners in a firm without a partnership deed. C demands interest on loan of ₹60,000 advanced by him at the market rate of 12%. The amount of interest received by him will be:
a) ₹7,200 b) Nil c) ₹5,400 d) ₹3,600

6. If equal amount is withdrawn in the beginning of each month for personal use, period for which interest will be charged will be:
a) 7 months b) 6 months c) 5 months d) 6.5 months

7. Following factors affect the goodwill except
a) Nature of business b) The form of business entity
c) Technical Know-how d) Efficiency of Management

8. The term 'Number of Years' Purchase' means
a) The number of years during which the purchaser of goodwill expects that the profit due to goodwill are likely to arise in future.
b) Number of years in which goodwill is purchased.
c) Number of years for which goodwill purchased will not help the firm in earning similar profits.
d) None of the above

9. Capital employed by a partnership firm is ₹25,00,000. Its average profit is ₹3,00,000. The normal rate of return in similar type of business is 10%. The amount of super profit is;
a) ₹2,50,000 b) ₹50,000 c) ₹30,000 d) ₹2,80,000

10. A firm earns profit of ₹60,000. Normal rate of return being 10%. Assets of the firm are ₹7,20,000 and liabilities are ₹2,40,000. Find the value of goodwill by capitalization of average profit method.
a) ₹2,40,000 b) ₹1,80,000 c) ₹1,20,000 d) ₹60,000

B) ASSERTION AND REASON BASED QUESTIONS

Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternative.

a) both (A) & (R) both are true and (R) is correct explanation of (A)
b) both (A) & (R) both are true and (R) is not correct explanation of (A)
c) (A) is true but (R) is false
d) (A) is false but (R) is true

1) **Assertion :** Interest on Loan to partner is charged @ 6% p.a., if partnership deed does not provide for charging of interest.

   Reason : In the absence of partnership deed, provisions of the Partnership Act, 1932 apply. Thus, Interest on Loan to partner should be charged @ 6% p.a. otherwise interest is allowed at the agreed rate of interest.

2) **Assertion :** Value of goodwill calculated on Average Profit Method or Super Profit Method is same.

   Reason : Value of goodwill on Average profit method and super profit method cannot be same as the basis of valuation is different.

C) NUMERICALS

1. The partners of a firm Jay, Veeru and Gabbar distributed the profits for the year ended 31st March,2022, ₹6,40,000 in the ratio of 3:3:2, without providing for the following adjustments:
   a) Jay and Gabbar were entitled to a salary of ₹12,000 each p.a.
   b) Veeru was entitled for a commission of ₹32,000.
   c) Veeru and Gabbar had guaranteed a minimum profit of ₹2,80,000p.a. to Jay and any deficiency to be borne equally by Veeru and Gabbar.

   Pass the necessary journal entry for the above adjustment in the books of the firm.

2. A, B and C are in partnership, profits being shared in the ratio of 3:2:1. subject to the following:
   a) C's share of profit guaranteed to be not less than ₹2,40,000 p.a.
   b) B gives a guarantee to the effect that gross fee earned by him for the firm shall be equal to his average gross fee for the preceding five years when he was carrying on profession alone, which on an average works out at ₹ 4,00,000.
   The profit for the first year of the partnership are ₹ 12,00,000. The gross fee earned by B for the firm is ₹ 2,56,000. You are required to show Profit and Loss Appropriation Account after giving effect to the above.

3. On 1st April, 2018, a firm had assets of ₹5,00,000 excluding stock of ₹1,00,000. Partners' Capital Account showed a balance of ₹3,00,000. The current liabilities were ₹50,000 and the balance constituted the reserve. If the normal rate of return is 8%, the Goodwill of the firm is valued at ₹3,00,000 at four year of purchase of super profit, find average profit of the firm.

4. The average profit earned by a firm is ₹4,50,000 which includes undervaluation of stock of ₹30,000 on an average basis. The capital invested in the business is ₹42,00,000and the normal rate of return is 7%. Calculate goodwill of the firm on the basis of 5 times the super profit.

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SUBJECT – ECONOMICS

A) MULTIPLE CHOICE QUESTIONS

1. Which of the following agency is responsible of issuing ₹1 currency note in India?
   a) Reserve Bank of India b) Ministry of Commerce
   c) Ministry of Finance d) Niti Aayog

2. In India, coins of ₹10 are issued by:
   a) State Bank of India b) Reserve Bank of India
   c) Ministry of Finance d) Department of Revenue

3. Demand Deposits include:
   a) saving account deposits and fixed deposits
   b) saving account deposits and current account deposits
   c) current account deposits and fixed deposits..

4. A thing which is commonly accepted as medium of exchange is called:
   a) Commodity b) money c) material d) item

5. Money serves as a common denomination. The function of money highlighted is:
   a) Store of value b) Standard of deferred payments
   c) Unit of account d) Medium of exchange

6. Credit creation in commercial banks is determined by
   a) Cash Reserve ratio b) Statutory liquidity Ratio
   c) Initial Deposits d) All the above

7. Which of the following is not a quantitative Method of credit control?
   a) Open Market Operation b) Margin Requirements
   c) Variable reserve Ratio d) Bank Rate Ratio

8. The percentage of demand deposits which the commercial banks are legally required to maintain as their liquid assets is called:
   a) Statutory liquidity Ratio b) Deposit ratio
   c) Cash Reserve ratio d) Legal reserve ratio

9. Which of the following is not the function of Central bank?
   a) Bank facilities to government b) Lending to commercial bank
   c) Bank facilities to Public d) Lending to Public

10. Reverse repo rate:
   a) Generates interest income b) is increased to control inflation
   c) is not a policy rate d) Both (a) and (b)

B) ASSERTION AND REASON BASED QUESTIONS

Read the following statements: Assertion (A) and Reason (R). Choose one of the correct alternative.

a) both (A) & (R) both are true and (R) is correct explanation of (A)
b) both (A) & (R) both are true and (R) is not correct explanation of (A)
c) (A) is true but (R) is false

d) (A) is false but (R) is true

1. **Assertion (A) -** Central bank holds the foreign exchange reserves to influence exchange rate.

   Reason (R) - Selling and purchasing of foreign exchange influences the exchange rate.

2. **Assertion (A) -** Credit creation process increases the money supply in economy .

   Reason (R) - through the credit creation process commercial banks can distribute loans many times as compare to their primary deposits.

C) CASE STUDY BASE QUESTIONS

1. CASE STUDY -1

Read the following case study paragraph carefully and answer the questions on the basis of the same.

The Reserve Bank of India raised inflation forecasts on the back of higher oil and other raw materials while it maintained the growth forecast at 9.5% for FY22 despite anemic investment demand. Governor Shaktikanta Das said inflation measured by the consumer price index (CPI) might remain close to the upper tolerance band of 6% up to September expecting easing of pressure thereafter on kharif harvest arrivals. [RBI has fixed inflation rate target in between 2%-6 %.] The central bank projected CPI at 5.7% for FY22 compared to its earlier projection of 5.1%. "The supply-side drivers could be transitory while demand-pull pressures remain inert, given the slack in the economy. A pre-emptive monetary policy response at this stage may kill the nascent and hesitant recovery that is trying to secure a foothold in extremely difficult conditions," Das said. 11 KVS RO RAIPUR Crude oil prices are volatile with implications for imported cost pressures on inflation, RBI said. "The combination of elevated prices of industrial raw materials, high pump prices of petrol and diesel with their second-round effects, and logistics costs continue to impinge adversely on cost conditions for manufacturing and services, although weak demand conditions are tempering the pass-through to output prices and core inflation.

1. How does RBI promote growth process of country:-
   a) By controlling price level in country
   b) By changing various interest rates and money supply
   c) By increasing supply of products
   d) All of above

2. Why does RBI fix the inflation target?
   a) To make growth process fast
   b) To make coordination with government
   c) To manage exchange rate
   d) To stabilize economy

3. Why increasing crude oil prices are matter of concern :-
   a) Increasing crude oil prices are increasing transportation cost
   b) Increasing crude oil prices are making economy potentially unstable
   c) Increasing crude oil prices are volatising growth process
   d) Increasing crude oil prices are adversely affecting demand

2. CASE STUDY -2

Read the following case study paragraph carefully and answer the questions on the basis of the same.

India's total Money Supply (M3) stood at Rs 18907383 crore as on April 9th 2020, recording a rise of 11.3% over the same time last year. Currency with the public stood at Rs 2787941 crore, up 16.7% over the year. Demand deposits with banks were up 17% at Rs 1867606 crore. Time deposits with banks were also up 9.6% at Rs 14205545 crore. The bank credit to commercial sector edged up 5.1% on year to Rs 11552069 crores. However, this indicates moderation from 7.2% at the same time last year.

1. How does increase in deposits with commercial banks will affect credit creation process :-
   a) Credit creation process will increase
   b) Credit creation process will remain unaffected
   c) Credit creation process will reduce
   d) None of above

2. M3 is consist of:-
   a) C +OD + Time deposits 12 KVS RO RAIPUR
   b) C + DD + OD + time deposits
   c) M1 + deposits of post office saving bank
   d) All of above

3. What is indicated by increasing deposits:-
   a) People prefer to save more now
   b) Income level of people are increasing
   c) People prefer to keep money in the bank accounts after demonetization
   d) All of above

PROJECT:
Role of RBI in Control of Credit (350- 400 words)

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SUBJECT – BUSINESS STUDIES

A. PROJECT WORK:

Students are supposed to select and make only one project from the following topics:

1. Elements of Business Environment
2. Principles of Management
3. Marketing Management

Topics already discussed and allotted in the class.

Rules:

Minimum 30 pages, handwritten, supplemented by pictures, graphs, charts etc. Be creative and write neatly on A4 size colored or white sheets.

B. ANSWER THE FOLLOWING QUESTIONS:

Q.1 Neeraj is selected for the post of software developer in an IT Company. On the first day of his joining Mehul, his project manager tells Neeraj the during the course of his work he will come across many such opportunities which may tempt him to misuse his powers for individual or family's benefit at the cost of larger general interest of the company. In such situations, he should rather exhibit exemplary behavior as it will raise his stature in the eyes of the company. Also, for interacting with anyone in the company on official matters, he should adopt the formal chain of authority and communication.
In context of the above case:

(a) Identify and explain the various principles of management that Mehul is advising Neeraj to follow while doing his job.

(b) List any two values that Mehul wants to communicate to Neeraj.

Q.2 Harshita has successfully emerged as the owner of the best modular kitchen manufacturer firm in Delhi. Her friend Vartika is highly inspired by Harshita's success in business. In order to understand the essence of successful business management vartika decides to spend a week in her office. Vartika observes that a deliberated effort is made to integrate the diverse activities of the organisation. Like whenever the sales manager makes a plan to raise the sales target, he also consults other department managers i.e. the production manager, the purchase manager, the finance manager, etc. in order to avoid any problem that may raise in future. Moreover, work among the people working in the production department in divided in such a manner that where the work of one person ends, the work of the next person begins. Therefore, everybody makes efforts to complete his/her work on time, and the workers do not create obstruction in each other's work.
In contest of the above case:

(a) Identify the concept being described in the above paragraph.
(b) How does the concept as indentified in part (a) of the question help in carrying out management functions successfully?

Q.3 Post demonitisation in a further push to cashless economy, the central cabinet has recently approved the ordinance for paying wages via electronic means. Accordingly, the government approved to amend section 6 of the payment of wages Act 1936, to allow employers of certain industries to make payment through the electronic mode and cheques. The new ordinance will be applicable to the public sector. Identify the various dimensions of business environment which relate to the above-mentioned case.

Q.4 Arush joins as a sales manager of a company dealing in naturotherapy products. Being proficient in his work, he knew that without good planning he will not be able to organise, direct, control or perform any of the other managerial functions efficiently and effectively. Only on the basis of sales forecasting, he would assist in the preparation of the annual plans for its production and sales. Besides, he will have to prepare sales plans regularly on weekly, monthly, quarterly and half yearly basis. While preparing the sales forecasts, he undertakes intellectual thinking or guess work. Most importantly, all these planning activities will be meaningful only if they will coincide with the purpose for which the business is being carried out. In context of the above case, identify the various features of planning highlighted in the above paragraph by quoting lines from it.

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SUBJECT – HISTORY

Project Topics:

Book I Any topic
Book II Any topic (leaving them 9 kings and chronicles)
Book III Theme – Rebel and Raj
– Mahatma Gandhi And The Nationalist Movements.

Note – You will bring the written material as rough with pictures, maps etc. I will go through it and guide you in class how to process it.

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SUBJECT – GEOGRAPHY

1. Prepare a project file on all the important transportation and communication systems in India and the world.
(Note: use A4 size papers , maps and pictures to depict the data)

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SUBJECT – POLITICAL SCIENCE

Project Topics:

World Politics – Any topic as per new book.
Indian Politics – Any topic as per new book.

Note – Co-ordinate with your class-fellows not to repeat the topics. More than two students same topics. More than two students same topic should not be taken.

- Bring rough work – Consult texts surveys interviews etc. Not only Internet Copy.

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SUBJECT – PSYCHOLOGY

Q.1 Watch any 2-3 movies or read books related to Psychological disorder.

- Dear Zindgi (Depression and self identify)
- Taare Zammen Per (Disleksiya)
- Like a beautiful kind (Paranoid Schizophrenia)
- Rain Man (Autism)
- Good will hunting (Gifted / PTSD / Counselling)
- Silver living playbook (Biopolar disorder)

Q.2 Prepare any one case study file on given topics.

- Depression
- Alcohol Dependence
- Anxiety Disorder (PTSD, PHOBIA, OCD, SAD)
- Dyslexia
- Autism

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SUBJECT – SOCIOLOGY

Submit a dissertation paper using method of your choice – survey, interview, observation or combination of more than one method on any one of the following topics.

(i) Gender bias
(ii) Majoritarianism
(iii) Uniform Civil Code
(iv) Reservation
(v) Discrimination against women
(vi) Honour Killings
(vii) Westernization

Checklist for the dissertation paper

Choose a Title / Topic

↓

Need of the study, objective of the study

↓

Hypothesis

Content – Time line, Mind maps, Pictures etc.

↓

[Primary / Secondary data]
(Questionnaire)

↓

Analysing of Data for

↓

Conclusion, Draw the Relevant Conclusion

↓

Bibliography, Deferences

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SUBJECT – ENTREPRENEURSHIP

PROJECT WORK:
A. BUSINESS PLAN
B. MARKET SURVEY
Both the projects to be completed as discussed in the class.

Answer the following Case studies:

Q.1 Ankit is into the business of manufacturing low-cost diesel-cars in Germany. He is earning good profits and ambitiously considering overseas expansion. He scans the environment for finding out the opportunities and threats that may influence his current and future plans. He zeroes down on India as a potential place for his business expansion as Indian Government has announced favorable trade regulations. On selling the first lot of cars in India. The Indian government noticed that the emissions from these cars were above the permissible limit. The government asked him to make necessary modification in his cars if he wanted to continue business in India. He readily agreed to meet the emission norms set by the Indian Government.

(i) Quoting the lines from the above paragraph identify any two environmental factors.
(ii) Also, state any two values which Ankit tried to communicate to the Indian society.

Q.2 Rajeev has just completed his B.Tech and wants to start his own business. He knew that the demand of electricity in India was increasing day by day, whereas its generation was not sufficient. Rajeev shared his views with some of his friends and they all decided to start the business of electricity generation. They experimented various methods and ultimately succeeded in electricity generation through garbage. They all were very happy as India is also facing the problem of garbage disposal.

(i) Identify and explain the source of 'Idea-field' from where the idea has been generated by Rajeev and his friends.
(ii) Also explain two other sources of idea-fields with the help of example.

Q.3 Kapish an unemployed graduate got training for automobile repairing and allied services under PMKVY (Pradgab Mantri Kaushal Vikas Yojana) for skill development. He is planning to start a digital workshop for which he needs Rs. 25 Lakh. Though through MUDRA (Micro Units Development and Refinance Agency) he is able to get a loan of Rs. 10 Lakh but still he is falling short of Rs. 15 Lakh. He wants to pitch in his idea to potential investors through his business plan. Explain the different formats in which he can present his business plan for his start-up.

Q.4 Gunjan has just passed her senior secondary examination from a CBSE affiliated school. She wanted to start her own business but was unable to decide about the nature of the business. One day during the morning walk, her grandfather fell down in the park and was injured. She observed that her grandfather often forgets to take his medicines. Sh thought that the same problem may be faced by other old people. She thought to develop an instrument for old people that could be fitted with an electronic device connected to the mobile phones of the members of their family which could indicate the location of the old people when they go outside their homes. This device could be kept in their pockets. She also thought to fit a timer in the instrument that could remind the old persons about the time of taking their madicines. Identify and state th meaning of the concept described in the above para that helped Gunjan in structuring her idea for solving the problem.

Q.5 Gopal is a young man of 23 years. He has completed a tailoring course from an industrial training institute. He wants to start a big size tailoring shop in a posh colony where young men and women working in various multinational companies live. He went to one of his friend who had completed B.Tech course in textile designing to discuss about the opening of the tailoring shop. His friend advised him to prepare a written document describing formally all the relevant external and internal elements involving in starting a new venture. It will not only help in understanding the feasibility ad viability of the proposed venture but also dacilitate in assessing and making provisions for the bottlenecks in the progress and implementation of the idea. State any six points of importance of the concept discussed by Gopal with his friend.

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SUBJECT – HINDI

परियोजना–विषय

(क) 1. स्त्री–अस्मिता की संघर्षपूर्ण आवाज़ के रूप में पढ़े गए पाठ 'भक्तिन' के आधार पर नारी संशक्तिकरण को आकर्षक परियोजना द्वारा अभिव्यक्त कीजिए।

2. महान शिक्षक एवं भारत के शिल्पकार डॉ0 भीमराव आंबेडकर के जीवन चरित्र को आकर्षक चित्रात्मक परियोजना द्वारा दर्शाइए।

3. ''मैं ऐसे धर्म को मानता हूँ जो स्वतंत्रता, समानता और भाईचारा सिखाता है।'' आंबेडकर के इस कथन के आधार पर श्रम विभाजन और जाति प्रथा तथा मेरी कल्पना के आदर्श समाज के स्वरूप को एक आकर्षक चित्रात्मक परियोजना द्वारा रेखांकित कीजिए।

(ख) 4. जीवन जगत की व्यापक अनुभूति और मार्मिक प्रसंगों की अचूक समझ तुलसीदास जी को महाकवि बनाती है। कथन के आधार पर तुलसीदास जी की काव्यगत एवं शिल्पगत विशेषताओं को चित्रात्मक परियोजना द्वारा दर्शाइए।

5. भारत में ऋतु का क्रम एवं महत्व दर्शाते हुए किसी एक ऋतु की विशेषताओं पर चित्र सहित आकर्षक परियोजना बनाइए।

❖ **परियोजना संबंधी समस्त निर्देशों का पालन करते हुए उपरोक्त परियोजनाओं में से (क) एवं (ख) की एक–एक आकर्षक परियोजना तैयार कीजिए।**

परियोजना हेतु निर्देश –

1. परियोजना का पहला पृष्ठ – विद्यार्थी का नाम, कक्षा , वर्ग, अनुक्रमांक, विद्यालय का नाम एवं विद्यालय का प्रतीक चिह्न (लोगो)
2. दूसरा पृष्ठ – आभार ज्ञापन
3. तीसरा पृष्ठ – प्रमाण–पत्र
4. चौथा पृष्ठ – अनुक्रमणिका
5. पाँचवा पृष्ठ – भूमिका
6. छठे पृष्ठ से – आकर्षक संपूर्ण परियोजना
7. अंतिम पृष्ठ – संदर्भ ग्रंथ

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SUBJECT – SANSKRIT

ग्रीष्मकालीन गृहकार्यम्

1. 'उपपद विभक्ति' द्वितीया से सप्तमी तक का फ्लोचार्ट बनाएं।
2. कृदन्त, तद्धित और स्त्री प्रत्ययों के दो–दो उदाहरण लिखें।
3. 'वृक्षाः अस्माकम् मित्राणि' विषय पर 60 शब्दों में अनुच्छेद लिखें।

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SUBJECT – PHYSICAL EDUCATION

Write following topics in Practical Lab Manual:-

Practical 1: Fitness test administration for all items.

Practical 2: Procedure for Asanas, Benefits & Contraindications of any two Asanas for each lifestyle disease.

Practical 3: Anyone IOA recognized Sport/Game. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.

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SUBJECT – COMPUTER SCIENCE

1. Write a Python Program to Find the Factorial of a Number
2. Write a Python Program to Display the multiplication Table
3. Write a Python Program to Print the Fibonacci sequence
4. Write a Python Program to Find the Sum of Natural Numbers
5. Write a Python program to find H.C.F of two numbers
6. Write a Python program to print the calendar of any given month.
7. Write a Python program to print the following patterns:

a)
```
1
1 1
1 1 1
1 1 1 1
```

b)
```
1
1 2
1 2 3
1 2 3 4
```

c)
```
1
2 2
3 3 3
4 4 4 4
```

8. Write a Python program to print the following patterns:

a)
```
1 1 1 1
2 2 2
3 3
4
```

b)
```
1
2 1
3 2 1
4 3 2 1
```

c)
```
4 4 4 4
3 3 3
2 2
1
```

9. Write a Python program to find the sum of the series.
   a) $1+x+x^2+x^3+x^4+$ .....x^n
   b) 1!+2!+3!+……n!
   c) $\frac{1}{1}+\frac{1}{2}+\frac{1}{3}+\cdots\ldots\ldots\ldots\ldots+\frac{1}{n}$

10. Explain communication Media in brief.

11. Write any five terms used in Networking and explain them.

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SUBJECT – PAINTING

Practical 1 - Compose a scene of market or festival with two front face figures on buff sheet.
Size : Half Imperial
Medium : Poster or water color

Practical 2 - Compose a still life.
Objects required : A bottle-gourd (note less than 25 cm in length) half a papaya, two tomatoes, a big size onion and a capsicum. Arrangement: Place the bottle-gourd on the table leaning against the backdrop. Place the papaya, tomatoes, onion and capsicum in front of it. The inside part of the papaya should be visible. The whole arrangement should be kept well below the eye level.
Size : Half imperial
Medium : Poster or water color

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SUBJECT – DANCE

Practical 1 - Compose a GURU VANDANA

Practical 2 – Rehearsal THATH, AMAD and TUKDA

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