DELHI PUBLIC SCHOOL

CHAS, BOKARO

CBSE Affiliation No. 3430369

SUMMER VACATION ACTIVITIES AND ASSIGNMENTS

(SESSION : 2023-24)

Class – XII

English

1. Read the passage given below.

1. Ghost nets aren't supernatural, but they are legitimately scary. A ghost net is a fishing net that's been lost or abandoned in the ocean. They are one particularly appalling part of the global ghost fishing problem, which includes fishing gear abandoned in the water. Any net or line left in the ocean can pose a threat to marine life. Just because a net is no longer used by fishers doesn't mean it stops working. These nets continue to trap everything in their path, presenting a major problem for the health of our oceans and marine life.

2. Ghost nets entangle sea turtles, dolphins and porpoises, birds, sharks, seals and more, apart from catching fish. The nets keep animals from moving freely, cause injuries and keep mammals and birds from rising to the surface for air. Since hundreds of animals can be caught in a single net, this threat is monumental. The ghost nets harm coral reefs too—breaking corals, exposing them to disease and even blocking the reefs from needed sunlight.

3. Ghost nets are also a major contributor to the ocean plastics' crisis. Most modern nets are made of nylon or other plastic compounds that can last for centuries. According to a 2018 study in Scientific Reports, ghost nets make up at least 46 percent of the Great Pacific Garbage Patch. Those abandoned fishing lines and nets that do breakdown never go away; they just become smaller pieces of plastic. Marine animals mistake this microplastic for food and eat it, which can harm internal organs, keep them from eating and expose them to toxic chemicals.

4. Exorcising ghost nets from our oceans will require commitment, cooperation and innovation. Many groups are working to remove ghost nets from the sea and are collaborating with local fishers and governments around the world to identify target areas and remove as many nets as possible. In 2015, a single World Wildlife Fund for Nature (WWF)-led mission in the Baltic Sea hauled up 268 tons of nets, ropes and other material.

5. To stop these nets from becoming ghosts in the first place, conservation organisations advocate for fishing gear that can be traced to its owner so anyone dumping nets can be fined and refundable deposits on nets to encourage returning or recycling rather than littering. Tools like sonar reflectors that can make ghost nets easier to find and working with small-scale fisheries to develop more sustainable fishing gear and practices are other suggestions. It is only by attacking.

Based on your understanding of the passage, answer the questions given below.

I. Complete the sentence by choosing an appropriate option.
Ghost nets have been named so because they
A. Cause much harm to the marine life.
B. Are functional though not in use by fishers.
C. Are not owned by anyone.
D. Act as a snare for all animals in oceans.

II. Comment on the writer's reference to the ghost nets in paragraph one, as a health Problem for the oceans.1 Marks

III. List the two ways being entangled in a ghost net is likely to impact a walrus. (Clue: Think about the type of animal a walrus is)

IV. Select the option that conveys the opposite of 'negligible', from words used in Paragraph two.
A) Unimpressive B) Monumental
C) Exposing D) Threat

V. The writer would agree with the given statements based on paragraph three, EXCEPT:
A) Most ghost nets take a few years to completely disintegrate.
B) Ghost nets contribute to the Great Pacific Garbage Patch.
C) Most ghost nets provide nutrition to marine animals, upon disintegration.
D) Ghost nets can curtail freedom of marine animals.

VI. Some records share that fishing nets used to be made of common rope using natural Fibres, prior to the 1960s. Based on your understanding of paragraph three, list one Major advantage that these had over the fishing nets being used in present times.1marks

VII. Why is it fair to say that commitment and innovation have to go hand-in-hand to rid The oceans of ghost nets?

VIII. Complete the given sentence with an appropriate inference, with respect to the Following:

The writer quotes the example of the WWF-led mission in the Baltic Sea (Paragraph 4),
In order
to……
How can the solutions, suggested in paragraph five, best be described?

a. Practical b. Presentable c. Popular d . Prejudiced

Select the most suitable title for the above passage.

a) The Scary Side of Ghost Nets
b) Ghost Nets – A Result of Human Dominance
c) Ghost Nets – A Menace to Marine Life
d) Ways to Tackle the Problem of Ghost Nets

SECTION B – CREATIVE WRITING SKILLS

1. Attempt the question given below.

    1. A You are Josely Mathew, the President of the school book club. The club is organising a Drive for promoting reuse of study materials and books. Draft a notice in about 50 Words, for the school notice board, addressing students of classes X-XII, informing them About this drive and urging them to contribute to the endeavour. Mention how the Donated books would would benefit a charitable cause.

    2. You are Dr. Suchitra Mukherjee. You have received an invitation from the Director,Health Services, Kharagpur, W.B, to preside over a gathering of leading medical Practitioners attending a workshop on mental wellness on 09 November, 2023 at 11a.m. in the Public Hospital, Jammu, J & K. Respond to accept the invitation in about 50words. 5 marks

SECTION C – LITERATURE

3. Answer the following in about 40-50 words each.

    i. "You realise the true value of a thing only on losing it." Comment on this statement in The light of the story, The Last Lesson.

    ii. State the common issue faced by most of the aged in the current times, with reference To the poem My Mother at Sixty- six.

    iii. What do we come to know about the author of Lost Spring, Anees Jung, through her Interactions with Saheb and Mukesh?

    iv. The prose selections, Deep Water and Indigo, bring out the importance of overcoming Fear, in order to be able to lead our lives successfully.

    v. Imagine yourself to be a motivational speaker who has to address high school Students. Write this address in 120 – 150 words elaborating on occurrences from the Two texts to inspire your audience and to convince them about the importance of Overcoming fear.

Maths

1. Prove that there is only one relation in {1, 2, 3} which is reflexive and symmetric but not transitive and which contains (1, 2) and (1, 3).

2. Prove that the number of equivalence relations in {1, 2, 3} containing (1, 2) is two.

3. S is defined on R by, $(a, b) \in S \Leftrightarrow 1 + ab > 0 \quad \forall a, b \in R$.
Prove S is reflexive and symmetric but not transitive.

4. The relation S is defined on R as follows:
$S = \{(a, b) \mid a \leq b^2, a, b \in R\}$. Prove S is not reflexive, not symmetric and not transitive.

5. S is defined on N × N by
$(a, b)\ S\ (c, d) \Leftrightarrow ad(b + c) = bc(a + d)$. Prove that S is an equivalence relation.

6. $f : [0, 1] \to [0, 1], f(x) = \begin{cases} x & x \in Q \\ 1-x & x \notin Q \end{cases}$. Prove $(fof)(x) = x$.

7. $f : Z \to$, $f(n) = 5n$ and
$g : Z \to Z, g(n) = \begin{cases} \frac{n}{5} & if\ 5 \mid n \\ 0 & otherwise \end{cases}$. Find gof and fog.

8. $f : R \to R, f(x) = \begin{cases} 1 & x > 0 \\ 0 & x = 0 \\ -1 & x < 0 \end{cases}$ and
$g : R \to R, g(x) = [x]$. Prove $(fog)(x) = (gof)(x)\ \forall x \in [-1, 0)$.

9. If $f : N \cup \{0\} \to N \cup \{0\}$, $f(n) = \begin{cases} n+1 & n\ even \\ n-1 & n\ odd \end{cases}$. Prove $f = f^{-1}$.

10. $f : R \to (-1, 1), f(x) = \frac{10^x - 10^{-x}}{10^x + 10^{-x}}$. Find f^{-1}, if it exists.

11. $f : R - \left\{\frac{2}{3}\right\} \to R, f(x) = \frac{4x+3}{6x-4}$. Prove $(fof)(x) = x$. What can you say about f^{-1}?

12. Determine whether following functions are injective or not? Surjective or not?
$f : R \to R, f(x) = \begin{cases} 2x+1 & x \geq 0 \\ x^2 & x < 0 \end{cases}$

13. Determine whether following functions are injective or not? Surjective or not?
$f : R \to R, f(x) = \begin{cases} -x+1 & x \geq 0 \\ x^2 & x < 0 \end{cases}$.

Passage:-1

An organization conducted bike race under 2 different categories-boys and girls. Totally there were 250 participants. Among all of them finally three from Category I and two from Category 2 were selected for the final race. Ravi forms two set B and G with these participants for his college project, Let $B = \{h_1, h_2, h_3\}$ $G = \{g_1, g_2\}$ where R represents the set of boys selected and G the set of girls who were selected for the final race. Ravi decides to explore these sets for various types of relations and functions

1. Ravi wishes to form all the relations possible from B to G. how many such relations are possible?
(a) 2^6 (b) 2^5 (c) 0 (d) 2^3

2. Let $R : B \to B$ be define by $R = \{(x, y) : x$ and y are students of same sex$\}$, then this relation R is _____ .
(a) equivalence
(b) reflexive only
(c) reflexive and symmetric but not transitive
(d) reflexive and transitive but not symmetric

3. Ravi wants to know among those relations, how many functions can be formed from B to G?
(a) 2^2 (b) 2^{12} (c) 3^2 (d) 2^3

4. Let R : B → G be define by R = {(b_1, g_1), (b_2, g_2),(b_3,g_1)}, then R is _____ .
(a) injective (b) surjective
(c) neither surjective nor injective (d) surjective and injective

5. Ravi wants to find the number of injective functions from B to G. How many numbers of injective functions are possible?
(a) 0 (b) 2! (c) 3! (d) 0!

Passage :- 2

Students of Grade 9, planned to plant saplings along straight lines, parallel to each other to one side of the playground ensuring that they had enough play area. Lets us assume that they planted one of the rows of the saplings along the line y = x – 4. Let L be the set of all lines which are parallel on the ground and R be a relation on L. Answer the following using the above information.

1. Let relation R be defined by r = { L_1, L_2) : $L_1 \| L_2$ where L_1, $L_2 \in L$} then R is _____ relation.
(a) equivalence (b) only reflexive
(c) not reflexive (d) symmetric but not transitive

2. Let R = {(L_1, L_2) : $L_1 \perp L_2$ where L_1, $L_2 \in L$} which of the following is true?
(a) R is symmetric but neither reflexive nor transitive
(b) R is reflexive and transitive but not symmetric
(c) R is reflexive but neither symmetric nor transitive
(d) R is an equivalence relation

3. The function f : R → R defined by (x) = x – 4 is _____.
(a) bijective (b) surjective but not injective
(c) injective but not surjective (d) neither surjective nor injective

4. Let f : R → R defined by (x) = x – 4. Then the range of f(x) is _____ .
(a) R (b) Z (c) W (d) Q

5. Let R = {(L_1, L_2) : L_1 is parallel to L_2 and L_1 : y = x – 4 }, then which of the following can be taken as L_2?
(a) 2x – 2y + 5 = 0 (b) 2x + y = 5 (c) 2x + 2y + 7 = 0 (d) x + y = 7

Science

PHYSICS

1. Define the terms I) Drift velocity II) Relaxation time

2. How does drift velocity of electron in conductor vary with rise of temperature.

3. How does resistivity of conductor and semiconductor vary with temperature. Give reason for each case.

4. Derive resistivity with respect to relaxation time.

5. Derive drift velocity with respect to relaxation time.

6. A cylindrical metallic wire is stretched to increase its length by 10% calculate the percentage increase in resistance.

7. Draw graph showing the variation of resistivity of carbon with temperature.

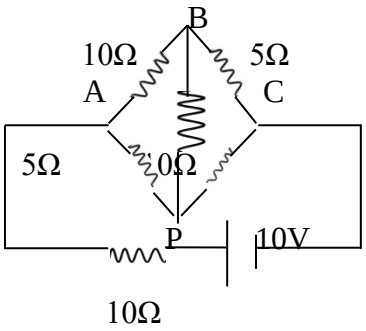
8. Draw graph showing the variation of resistivity with temperature for
i) Nichrome and ii) Silicon

9. n-equal resistance of resistance (R) are connected in series to a battery of emf (E) and interned resistance (R). A current (I) is observed to flow then n resistors are connected in parallel to same battery then current is increased 10 times what is (n).

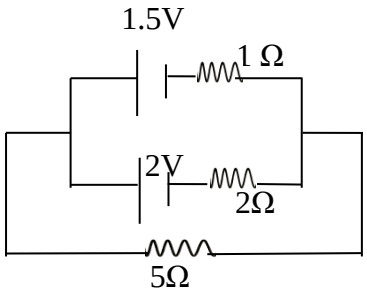
10. Two cells of same emf (E) and internal resistance (r_1) and (r_2) are connected in series to an external resistance (R) what should be value of R so that the potential difference across the terminal of first cell becomes zero.

11. A battery of emf E = 10V and internal resistance 3Ω is connected to a resistor if current in the circuit is 0.5A what is the resistance of the resistor, what is the terminal voltage of the battery when circuit is closed.

12. Calculate current in each branch of network.



13. In the figure calculate current through each branch of the circuit and potential difference across (5Ω) resistor using kirchhoff's rule



COMPREHENSION QUESTIONS:

14. Read the following text and answer the following questions on the basis of same.
Electric Toaster - small industrial service institute takyelpat industrial estate imphal has designed electric toaster which is operated at 220V A.C. single phase and available in four different rated capacity such as 600w, 750w, 100w and 1250w. The heating element is made of nichrome 80/20 (80% Ni 20% cr) since Nichrome does not get oxidised readily at high temp and have higher resistivity so it produces more heat the element is wound separately on mica sheets and fitted with body of toaster with the help of ceramic terminals.

i) Heating element of toaster is made of
(A) Copper (B) Nichrome (C) Chromium (D) Nickel

ii) Which one will consume more electricity
(A) 600w (B) 750w (C) 1000w (D) 1200w

iii) Operating voltage of device is-
(A) 220V A.C., single phase (B) 220V A.C., three phase
(C) 220V D.C. (D) 220V A.C./D.C.

iv) Insulating material used in the device are
(A) Mica (B) Ceramic (C) Mica, ceramic, Nichrome (D) Mica, ceramic

15. Read the following and answer the following questions :-
These is a wire of length (l) cross-sectional area (A) Resistivity (p). The wire is drawn.

i) Length of wire increases by 40% what is the percentage change in resistance.
(A) 40% (B) 8 % (C) 10 % (D) None

ii) Radius of wire decreases by 3 %. What is the percentage change in resistance
(A) 3 % (B) 6 % (C) 12 % (D) None

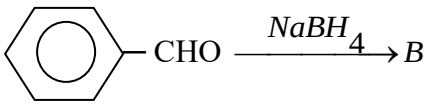
iii) The correct arrangement of resistivity is
(A) ρ Insulator > ρ semiconductor > ρ conductor
(B) ρ conductor > ρ Insulator > ρ semiconductor
(C) ρ Insulator = ρ semiconductor > ρ conductor
(D) None

CHEMISTRY

VERY SHORT ANSWER QUESTIONS:

1. Write the structure of compound A and B in the following reactions:

i) $(CH_3)_2CHCH_2CHO \xrightarrow{LiAlH_4} A$

ii)  $\xrightarrow{NaBH_4} B$

2. How will you convert propene into propan1-ol?
3. Compare the acidity of $Cl{-}CH_2CH_2OH$ and CH_3CH_2OH. Explain.
4. Write the structure and IUPAC name of the product obtained when 2-methyl propan-1-ol is dehydrogenated with Cu/573 K.
5. What is Lucas reagent?
6. Write short note on

i) Oxymecuration - demercuration

7. How can we distinguish between 1^0, 2^0 and 3^0 alcohols by the reaction with Cu at 573 K?

8. Give the structure of

   i) 2-nitro-4-acetyl phenol

   ii) 2-methoxy phenol

9. Convert phenol into chlorobenzene.

10. Do ethers have dipole moments? Explain.

11. Explain why is ortho-nitrophenol more acidic than ortho-methoxy benzene?

12. How will you make the following conversion?

   i) Phenol into phenyl acetate

   ii) Phenol into 2, 4, 6-tribromophenol

13. a) Anisole and benzyl alcohol are _____ isomer.

   b) Ketones on reaction with methyl magnesium bromide followed by acidification gives _____ alcohol.

   c) The number of sp^2 hybridised carbons present in p-methoxy phenol is _____.

   d) The presence of nitro group _____ the pKa value of phenol.

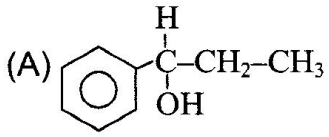
   e) Propan-1-ol on reaction with conc. H_2SO_4 at 413 K gives _____.

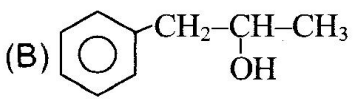
PASSAGE-1

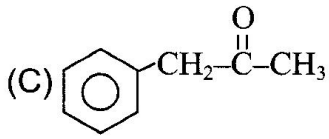
14. Two optically active isomeric alcohols (X) and (Y) of molecular formula $C_9H_{12}O$ on oxidation by acidified $KMnO_4$ gives benzoic acid. (X) gives positive iodoform test but (Y) does not. (X) loses optical activity on oxidation with CrO_3/H^+ but (Y) does not.

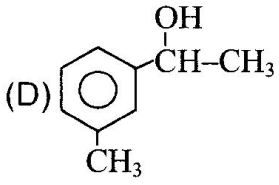
   Based on the above passage; answer the following questions:

   i) Which one of the following is the correct structure of (X)?

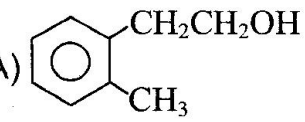
(A) 

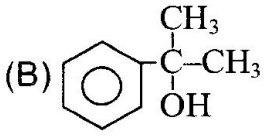
(B) 

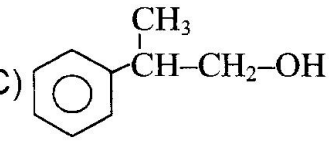
(C) 

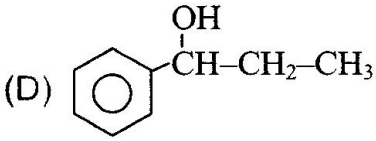
(D) 

ii) Which one of the following is the correct structure of (Y) ?

(A) 

(B) 

(C) 

(D) 

iii) When the compounds (X) and (Y) are separately reacted with conc.H_2SO_4 at 180^0C, which of the following observation(s) is/are correct?

(A) The dehydrated product of (X) shows geometrical isomerism

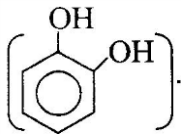
(B) The dehydrated product of (Y) shows geometrical isomerism

(C) Both (A) and (B) are correct

(D) Both (A) and (B) are incorrect

PASSAGE-2

15. Vanillin (A) of molecular formula ($C_8H_8O_3$) is isolated from vanilla Beans. It gives intense violet colour with neutral $FeCl_3$ and also gives positive Tollen's Test. One mole of vanillin reacts with conc. HBr to give a compound (B) and one mole CH_3br. (B), on oxidation followed by heating with sodalime gives catechol,



i) Vanillin contains

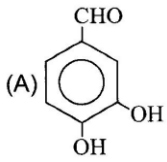
(A) one -OC_2H_5 group

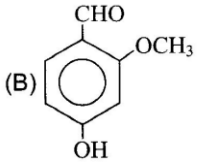
(B) one -OCH_3 group

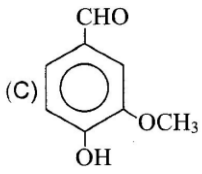
(C) two -OC_2H_5 groups

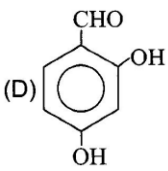
(D) two -OCH_3 groups

ii) The structure of Vanillin is

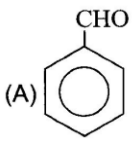
(A) 

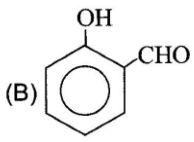
(B) 

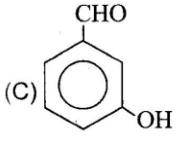
(C) 

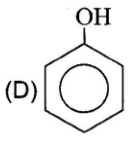
(D) 

iii) Compound (B) on heating with Zn dust will give

(A) 

(B) 

(C) 

(D) 

iv) Compound (B) can be prepared by

(A) Gatterman Reaction

(B) Benzoin condensation

(C) Perkin Reaction

(D) Reformatsky Reaction

BOTANY

1. Name the parts of an angiosperm flower in which development of male and female gametophyte take place.

2. Differentiate between microsporogenesis and megasporogenesis. Which type of cell division occurs during these events? Name the structures formed at the end of these two events.

3. Arrange the following terms in the correct developmental sequence: Pollen grain, sporogenous tissue, microspore tetrad, pollen mother cell, male gametes.

4. With a neat, labelled diagram, describe the parts of a typical angiosperm ovule.

5. What is meant by monosporic development of female gametophyte?

6. With a neat diagram explain the 7-celled, 8-nucleate nature of the female gametophyte.

7. What is the chasmogamous flowers? Can cross-pollination occur in cleistogamous flowers? Give reasons for the answer.

8. Mention two strategies evolved to prevent self-pollination in flowers.

9. What is self-incompatible species?

10. What is bagging technique? How is it useful in a plant breeding programme?

11. What is triple fusion? Where and how does it take place? Name the nuclei involved in triple fusion.

12. Why do you think the zygote is dormant for sometime in a fertilized ovule?

13. Differentiate between:
    (a) hypocotyls and epicotyls
    (b) coleoptiles and coleorrhiza
    (c) integument and testa
    (d) perisperm and pericarp

14. Why is apple called a false fruit? Which part(s) of the flower forms the fruit?

15. What is meant by emasculation? When and why does a plant breeder employ this technique?

ZOOLOGY

1. Write the function of
    (a) Sertoli cell
    (b) Amnion of embryo

2. Give reason for the following :
    (a) The first half of the menstrual cycle is called oestrogenic phase / follicular phase
    (b) The second half of the menstrual cycle is called progesteronic phase / luteal phase

3. What is meant by L.H. Surge? Write the role of L.H in ovulation.

4. Describe the structure of a mammalian spermatozoan with a diagram.

5. Name the hormones secreted by placenta.

6. Which of the following cells are diploid and which are haploid.
Primary oocyte, secondary oocyte, ootid and follicle.

7. What is the remnant of graffian follicle called? How does it functions as endocrine gland.

8. What is the significance of the extra abdominal testes condition in male?

9. What is colstrum? Write it's function for neonates/baby? Which antibody is found in it.

10. Name the various male accessory glands? Write their function.

11. Mention the name and role of hormones which are involved in regulation of gamete formation in human male.

12. Draw well labeled diagram of T.S. of ovary?

13. What is the shape of infundibulum?

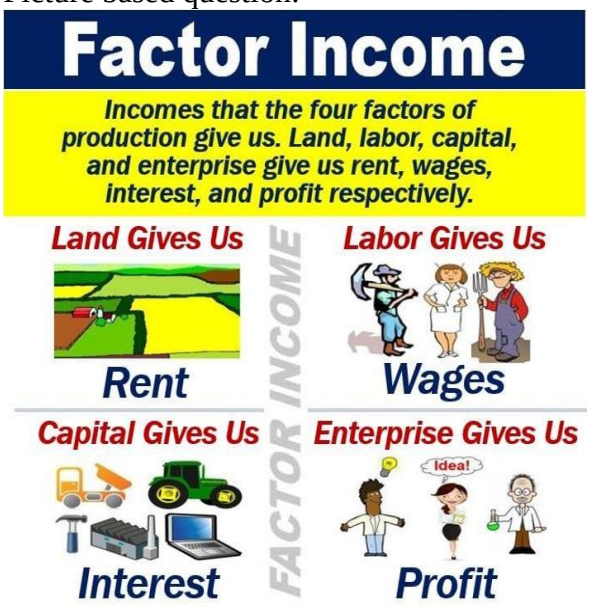
14. Define menstruation?
Write any two actions of FSH, LH, estrogen & progesterone in menstrual cycle?

15. Three of the steps of neuro endocrine mechanism in respect of parturition are mentioned below.
Write the missing steps in proper sequence.
(a) Signals originate from fully developed foetus and placenta.
(b) _____.
(c) _____ .
(d) Oxytocin causes strong uterine contraction.
(e) Uterine contraction stimulates further secretion of oxytocin.
(f) _____ .

Economics

Q.1. Read the following statement -Assertion (A) and Reason (R). Choose one of the correct alternatives given below:
Assertion (A): Factors income from abroad is not a part of the domestic factor income of India.
Reason (R): It is not generated within the domestic territory of India.
Alternatives:
a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
c) Assertion (A) is true but Reason (R) is false.
d) Assertion (A) is false but Reason (R) is true.

Q.2. Picture based question:



Above picture is related to which method of calculation:

a) Income method
b) Expenditure method
c) Value added method
d) All of these

Q.3. Picture based question:

Analyse the image given above and identify the one which is not an example of factor incomes.

a) Rent
b) Wages
c) Interest
d) Financial support

Q.4. "Shares of Paytm's parent firm One 97 communications fell to a new all -time low on Tuesday after Macquaire Group analysts flagged risks from billionaire Mukesh Ambani's foray into financial services".
source: The Economic Times.
Read the news headlines given above and choose correct option:

a) It is a part of the microeconomic study.
b) It is a part of the macroeconomic study.
c) It is related to both a) & b)
d) None of these.

Q.5. Depreciation is a component of :

a) gross investment
b) net investment
c) fixed investment
d) none of these

Q.6. State whether the following statements are true or false. Give reasons for your answer:

a) Capital formation is a flow.
b) Bread is always a consumer good.

Q.7. "Income is a flow concept, but flow of income is circular concept." Do you agree with above statement? Explain with valid reasons.

Q.8. What lowers the significance of GDP as an index of welfare?

Q.9. Calculate 'Consumption of Fixed Capital' with the help of the following data:

Items		₹ in crore
i)	Net national product at factor cost	3,000
ii)	Gross domestic product at market price	4,000
iii)	Net indirect taxes	300
iv)	Net factor income from abroad	1,200
v)	Net exports	250

Q.10. Find out 'Net National Product at factor cost:

Items	₹ in crore
i) Profit	1,500
ii) Rent	1,300
iii) Net indirect taxes	350
iv)Compensation of employees	3,000
v) Reimbursement to the employees for medical expenses	300
vi)Depreciation	200
vii) Excess of factor to rest of the world over factor income from rest of the world	50
viii) Interest	1,100
ix) Mixed income of self-employed	600

Q.12 Calculate Net Domestic Product at Factor Cost:

Items	₹ in crore
i) Private final consumption expenditure	8,000
ii) Government final consumption expenditure	1,000
iii)Exports	70
iv) Imports	120
v) Consumption of fixed capital	60
vi) Gross domestic fixed capital formation	500
vii) Change in stock	100
viii) Factor income to abroad	40
ix) Factor income from abroad	90
x) Indirect taxes	700
xi) Subsidies	50
xii) Net current transfers to abroad	-30

Q.13. "Only net investment and not gross investment shows change in stock of capital. "Defend or refute the given statement.

Q.14. "Circular flow of income in a two- sector economy is based on the axiom that one's expenditure is other's income." Support your answer with valid reasons.

Q.15. "Gross Domestic Product (GDP) is not the best indicator of the economic welfare of a country. "Defend or refute the given statement with valid reasons.

Q.16. India is a developing country that has experienced significant economic growth over the past few decades. In recent years, India's GDP growth rate has been around 7%, making it one of the fastest-growing economies in the world. The country has also made strides in reducing poverty and improving human development indicators such as literacy rates and life expectancy. However, despite these positive trends, India still

faces significant economic challenges. One of the biggest challenges is income inequality. The country's Gini coefficient, which measures income inequality, is among the highest in the world. This means that a significant portion of the population is not benefiting from the country's economic growth. Another challenge facing the Indian economy is unemployment. Despite the country's strong economic growth, unemployment remains a persistent problem. In particular, youth unemployment is high, which is a concern given that India has one of the youngest populations in the world.

Questions:

16.1) What is national income?

16.2) What are the components of national income?

16.3) Explain the difference between nominal and real GDP.

16.4) What are some factors that contribute to income inequality in India?

Business Studies

1 Marks

1. What is meant by management of work?
2. What is meant by management of people?
3. List any two social objectives of management.
4. What is meant by Fayol's principle of 'esprit de corps'?
5. Why did Fayol introduce the concept of 'gang plank' in the principle of 'scalar Chain'?
6. State the objective of fatigue study.
7. State the objective of motion study.

3/4 Marks(Case-Based questions)

1. Hero Ltd's target is to produce 10,000 shirts per month at a cost of' 150 per shirt. The production manager could achieve this target at a cost of Rs.160 per shirt. Do you think the production manager is effective? Give reason in support of your answer. (All India 2010)

2. Volvo Ltd's target is to produce 10,000 shirts per month at a cost of Rs.100 per shirt. The production manager achieved this target at a cost of Rs.90 per shirt. Do you think the production manager is effective? Give one reason in support of your answer. (Delhi 2010)

3. 'In an organisation employees are happy and satisfied. There is no chaos and the effect of management is noticeable. Which characteristic of management is highlighted in this statement? (All India 2008)

4. Telco Ltd is manufacturing files and folders from the old clothes to discourage use of plastic files and folders. For this, they employee people from nearby villages where very less job opportunities are available. An employee, Harish, designed a plan for the cost reduction but it was not welcomed by the production manager. Another employee gave some suggestion for improvement in design, but it was also not appreciated by the production manager.
   - State the principle of management described in the above para.
   - Identify any two values that the company wants to communicate to the society. (Compartment 2014)

5. Voltech India Lid is manufacturing LED bulbs to save electricity and running under heavy losses. To revive from the losses, the management thought of shifting the unit to a backward area where labour is available at a low cost. The management also asked the workers to work overtime without any additional payment and promised to increase the wages of the workers after achieving its mission. Within a short period the company started earning profits because both the management and the workers honoured their commitments. (Compartment 2014)
   - State the principle of management described in the above para.
   - Identify any two values that the company wants to communicate to the society.

6 Marks(Case-based questions)

1. Mega Ltd was manufacturing water-heaters. In the first year of its operations, the revenue earned by the company was just sufficient to meet its costs. To increase the revenue, the company analyzed the reasons of less revenues. After analysis the company decided
(i) To reduce the labour cost by shifting the manufacturing unit to a backward area where labour was available at a very low rate.
(ii) To start manufacturing solar water-heaters and reduce the production of electric water-heaters slowly.
This will not only help in covering the risks, but also help in meeting other objectives too.
(a) Identify and explain the objectives of management discussed above.
(b) State any two values which the company wanted to communicate to the society.

2. 'Management is the process of working with and through others to effectively achieve organisational objectives by efficiently using limited resources in the changing environment'. In the light of the above statement, explain any four features of management. (Delhi 2010c)

3. Raman is working as a plant superintendent in Tifco Ltd.
Name the managerial level at which he is working? State any four functions he will perform as plant superintendent in this company. (Delhi 2008)

4. Explain any two of the following Fayol's principles of management with examples
(i) Unity of direction (ii) Equity
(iii) Esprit de corps (iv) Initiative
(All India 2008; Delhi 2008C)

5. Explain the concept of 'functional foremanship' and 'mental revolution' in scientific management as enunciated by 'Taylor'.
(Delhi 2010 & 2008C)

Or

Explain 'differential piece rate' and 'functional foremanship' as techniques of scientific management. (Delhi 2009)

Accountancy

1. Amit and Beena were partners in a firm sharing profits and losses in the ratio of 3 :1 Chaman was admitted as a new partner for 25th share in the period. Chaman acquired 2/5th of his share from Amit. How much share did Chaman acquire from Beena ? (CBSE 2018) (1)

2. A and B were partners in a firm sharing profits and losses in the ratio of 5 : 3. They

admitted C as a new partner. The new profit sharing ratio between A, B and C was 3 : 2 :3. A surrendered 2/5th of his share in favour of C. Calculate B's sacrifice. (All India 2017) (1)

3. Nishtha and Anshu were partners sharing profits in the ratio of 3 : 2. They admitted Jyoti as a new partner for 3/10th share which she acquired 2/10th from Nishtha and $1/10^{th}$ from Anshu. Calculate the new profit sharing ratio of Nishtha, Anshu and Jyoti. (All India (C) 2016) (1)

4. Anant, Gulab and Khushbu were partners in a firm sharing profits in the ratio of 5 : 3 : 2.From 1st April, 2014, they decided to share the profits equally. For this purpose, the goodwill of the firm was valued at ₹ 2,40,000. Pass necessary journal entry for the treatment of goodwill on change in the profit sharing ratio of Anant, Gulab and Khushbu. (All India 2015) (3)

5. State any two occasions on which a firm can be reconstituted. (Delhi 2012) (3)

Or

List any two situations which may result in the reconstitution of a partnership firm. (All India 2011)

6. Vinay and Naman are partners sharing profit in the ratio of 4 : 1. Their capitals were ₹ 90,000 and ₹ 70,000 respectively. They admitted Prateek for 1/3 share in the profits. Prateek brought ₹ 1,00,000 as his capital. Calculate the value of firm's goodwill. (3)

[Answer Rs 40,000]

7. A, B, C and D were partners in a firm sharing profits and losses equally. E was admitted as a new partner for 1/3rd share in the profits of the firm which he acquires equally from C and D. On E's admission the goodwill of the firm was valued at ₹ 3,00,000. Calculate the new profit sharing ratio on E's admission. Also pass necessary journal entry on E's admission, assuming that he failed to bring his share of goodwill in cash. (All India 2019). (3)

8. Hari, Kunal and Uma are partners in a firm sharing profits and losses in the ratio of 5 : 3 :2. From 1st April, 2018 they decided to share future profits and losses in the ratio of 2 : 5: 3. Their Balance Sheet showed a balance of? 75,000 in the Profit and Loss Account and a balance of Rs.15,000 in Investment Fluctuation Fund. For this purpose, it was agreed that:
   (i) Goodwill of the firm was valued at ₹ 3,00,000.
   (ii) Investments (having a book value of ₹ 50,000 were valued at ₹ 35,000.
   (in) Stock having a book value of ₹ 50,000 be depreciated by 10%.
   Pass the necessary journal entries for the above in the books of the firm. (All India 2019) (4)

9. Kumar, Gupta and Kavita were partners in a firm sharing profits and losses equally. The firm was engaged in the storage and distribution of canned juice and its godown were located at three different places in the city. Each godown was being managed individually by Kumar, Gupta and Kavita. Because of increase in business activities at the godown managed by Gupta, he had to devote more time. Gupta demanded that his share in the profits of the firm be increased, to which Kumar and Kavita agreed. The new profit sharing ratio was agreed to be 1 : 2 : 1. For this purpose the goodwill of the firm was valued at two years' purchase of the average profits of last five years. The profits of the last five years were as followsYear Profits
   I 4,00,000

II 4,80,000
III 7,33,000
IV 33,000 (LOSS)
V 2,20,000
You are required to
(i) Calculate the goodwill of the firm.
(ii) Pass necessary journal entry for the treatment of goodwill on change in profit sharing ratio of Kumar, Gupta and Kavita. (Delhi 2015) (4)

10. Devi, Dayal and Daya were partners in a firm sharing profits in the ratio of 2 : 1 : 2. On 31st March, 2018, they admitted Divya as a new partner for -1/5th share in the profits. Their new profit sharing ratio was 1 : 2 : 1 : 1. Divya bought ₹ 5,00,000 as her capital and ₹ 50,000 for her share of goodwill premium.
Pass necessary journal entries for the above transactions in the books of the firm on Divya's admission. (All India) (4)
Answer: Sacrificing or Gaining Ratio = Devi 1/5, and Dayal (1/5), and daya 1/5
Debit premium for goodwill account and Dayal's capital account with ₹ 50,000 each and credit Devi's and Daya's capital accounts with ₹ 50,000 each.

11. Karan and Varun were partners in a firm sharing profits and losses in the ratio of 1 :2. Their fixed capitals were ₹ 2,00,000 and ₹ 3,00,000 respectively. On 1st April, 2016, Kishore was admitted as a new partner for 1/4th share in the profits. Kishore brought ₹ 2,00,000 for his capital which was to be kept fixed like the capitals of Karan and Varun. Kishore acquired his share of profit from Varun.
Calculate goodwill of the firm on Kishore's admission and the new profit sharing ratio of Karan, Varun and Kishore. Also, pass necessary journal entry for the treatment of goodwill on Kishore's admission considering that Kishore did not bring his share of goodwill premium in cash. (Delhi 2017) (4)
Answer:
Hidden goodwill = ₹ 1,00,000
New profit sharing ratio of Karan : Varun : Kishore =4 : 5 : 3
Debit Kishore's current account with ₹ 25,000 and credit Vanin's current account with ₹ 25,000.

12. Ashok, Bhim and Chetan were partners in a firm sharing profits in the ratio of 3 :2 :1. Their balance sheet as at 31st March, 2015 was as follows (6)

LIABILITIES	AMOUNT	ASSETS	AMOUNT
Creditors	1,00,000	Land	1,00,000
B/P	40,000	Building	1,00,000
General Reserve	60,000	Plant	2,00,000
Capital:		Stock	80,000
Ashok	2,00,000	Debtors	60,000
Bhim	1,00,000	Bank	10,000
Chetan	50,000		
	5,50,000		5,50,000

Ashok, Bhim and Chetan decided to share the future profits equally, with effect from 1st April, 2015. For this it was agreed that:
(i) Goodwill of the firm be valued at ₹ 3,00,000.
(ii) Land be revalued at ₹ 1,60,000 and building be depreciated by 6%.
(iii) Creditors of ₹ 12,000 were not likely to be claimed and hence be written off.
Prepare revaluation account, partners' capital accounts and balance sheet of the reconstituted firm. (Delhi 2016)
Answer:
Profit on Revaluation: Ashok = ₹ 33,000, Bhim = ₹ 22,000, Chetan = ₹ 11,000

Balance in Partners' Capital Account: Ashok = ₹ 313,000, Bhim = ₹ 142000, Chetan = ₹21000, Total of Balance Sheet = ₹ 604000.

Computer Science

	SECTION A – 1 Mark Questions	
1	A table can have …… primary key(s). (a) 1 (b) 2 (c) 3 (d) multiple	1
2	Which of the following constraint is used to prevent an empty value in a record? (a) Empty (b) check (c) primary key (d) not null	1
3	The structure of the table/relation can be displayed using _____ command. (a) view (b) describe (c) show (d) select	1
4	Which of the following constrained is used to remove the duplicating rows of the table? (a) or (b) distinct (c) any (d)unique	1
5	Which among the following is not a valid table constraint? (a) Candidate Key (b) NULL (c) Distinct (d) Primary Key	1
6	**Which of these commands helps to fetch data from relation?** **a. Use** **b. Show** **c. Fetch** **d. Select**	1
7	Which among the following is not a used to form a condition in SELECT Command? (a) BETWEEN (b) IS NULL (c) IN (d) ABOVE	1
8	Identify the correct statement about BETWEEN Clause in SQL. (a) None of the limiting values are inclusive (b) Only smaller limiting value is inclusive (c) Only greater limiting value is inclusive (d) Bothe the limiting values are inclusive	1
	Q 9 and 10 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True	
9	**Assertion:** The SQL Command "SELECT Employee Name FROM EMPL;" will give error. **Reason:** A SELECT command without WHERE always gives error.	1
10	**Assertion:** The relationship between two tables is established through Foreign Key. **Reason:** Foreign Key Column implement Referential Integrity.	1
	SECTION B – 2 Marks Questions	
11	There is a table T1 with combination of columns C1, C2, and C3 as its primary key? Is it possible to enter: a. NULL values in any of these columns?	2

<table>
<tr><td></td><td>b. Duplicate values in any of these columns?</td><td></td></tr>
<tr><td>12</td><td>Write the main difference between INSERT and UPDATE Commands in SQL</td><td>2</td></tr>
<tr><td>13</td><td>The Pincode column of table ‘Post’ is given below-
<table><tr><td>Pincode</td></tr><tr><td>110001</td></tr><tr><td>120012</td></tr><tr><td>300048</td></tr><tr><td>281001</td></tr></table>
Find the output of the following Query
i. SELECT Pincode from Post where Pincode LIKE “ %1” ;
ii. SELECT Pincode from Post where Pincode LIKE “ 0%” ;</td><td>2</td></tr>
<tr><td>14</td><td>Following two tables are shown below are preset in database-
BOOK
<table><tr><th>EID</th><th>EbookName</th><th>Author</th></tr><tr><td>3</td><td>Internalterms</td><td>Okhla</td></tr><tr><td>4</td><td>RDBMS</td><td>Steve</td></tr><tr><td>5</td><td>NetBeans</td><td>Gosling</td></tr></table>
COST
<table><tr><th>Subj_ID</th><th>EID</th><th>Cost</th></tr><tr><td>E40</td><td>1</td><td>2000</td></tr><tr><td>E41</td><td>4</td><td>1700</td></tr><tr><td>E42</td><td>3</td><td>1800</td></tr><tr><td>E43</td><td>5</td><td>1250</td></tr></table>
i. Identify the foreign key column in the table COST.
ii. Check whether referential integrity exists in both the table of not.</td><td>2</td></tr>
<tr><td>15</td><td>What is difference between char and varchar?</td><td>2</td></tr>
<tr><td>16</td><td>Identify the error in the following statement and make the necessary correction.

SELECT * FROM EMPL WHERE DESIG = NULL</td><td>2</td></tr>
<tr><td>17</td><td>What do you mean by foreign key? Explain with suitable example?</td><td>2</td></tr>
<tr><td>18</td><td>Consider the following Table EMPL and identify the error in the following statement and make the necessary correction.

<table><tr><th>Ename</th><th>Designation</th></tr><tr><td>Amar</td><td>Manager</td></tr><tr><td>Rita</td><td>Manager</td></tr><tr><td>Suresh</td><td>Clerk</td></tr></table>
SELECT Manager FROM EMPL ;</td><td>2</td></tr>
<tr><td>19</td><td>Differentiate between INSERT and UPDATE command with Suitable example.</td><td>2</td></tr>
<tr><td></td><td>SECTION C – 3 Mark Questions</td><td></td></tr>
<tr><td>20</td><td>Write the outputs of the SQL queries (i) to (iii) based on the relation COURSE</td><td>3</td></tr>
</table>

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

(i) SELECT DISTINCT TID FROM COURSE;
(ii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;
(iii) SELECT COUNT(*), SUM(FEES) FROM COURSE WHERE STARTDATE< '2018-09-15';

21 Consider the following table ITEM — 3

PRICE	NAME
20	BOOK
4	PENCIL
15	PEN
5	ERASER
30	PEN

Write the output for the following queries :
a)Select SUM(PRICE) from ITEM where Name LIKE 'P%';
b)Select * from ITEM where PRICE IN (4,20);
c)Select COUNT(DISTINCT NAME) FROM ITEM;

22 Study the following table STAFF and Salary and write MySQL command for the questions (i) to (iii) — 3

TABLE: STAFF

ID	Name	DEPT	SEX	EXPERIENCE
101	Siddharat	Sales	M	12
104	Raghav	Finance	M	6
107	Naman	Research	M	10
114	Nupur	Sales	F	3
109	Janvi	Finance	F	9
105	Rama	Research	M	10
117	James	Sales	F	3
111	Binoy	finance	F	12
130	Samuel	Sales	M	15

(i) Display NAME of all the staff who is in SALES having more than 10 year experience from the table staff.
(ii) Display the Names of all Male staff working in "Finance" department whose experience is more than 6
(iii) Display the details of those staff whose name starts with 'S'

23 Explain any three categories of SQL Command with examples. — 3

24 A Table Employee has a column Experience that contains numeric value representing number of years and another column Salary. Write the commands for following. — 3

a. To display the values of Increment where the Increment is calculated my multiplying Experience by 100.
b. To display the Tax Amount. Tax Amount is calculated as 10 percent of salary.

SECTION D – 4 Marks Questions

25 Anita has created a table "Players" to store the details of players who play in her sports academy . She has planned to create the following table with columns : PlayerId, PlayerName , Game, Type , — 4

AadharNo

Table : Players

PlayerId	PlayerName	Game	Type	AadharNo
P01	Becker	Tennis	Indoor	333444657
P02	Robin	Tennis	Indoor	192900877
P03	Sunetra	Football	Outdoor	214567432
P04	Rakhi	Cricket	Outdoor	111231896

Answer the following questions, which based on the given information.

(i) Which column can she make the primary key?

(ii) Which column(s) can act as candidate key?

(iii) Which column is the foreign key in the table?

(iv) What is the degree of the table?

26 Saumaya has designed two tables GARMENT and FABRIC for a cloth shop. Help her to find the answers of the following questions: 4

Table : GARMENT

GCODE	DESCRIPTION	PRICE	FCODE	READYDATE
10023	PENCIL SKIRT	1150	F03	19-DEC-08
10001	FORMAL SHIRT	1250	F01	12-JAN-08
10012	INFORMAL SHIRT	1550	F02	06-JUN-08
10024	BABY TOP	750	F03	07-APR-07
10090	TULIP SKIRT	850	F02	31-MAR-07
10019	EVENING GOWN	850	F03	06-JUN-08
10009	INFORMAL PANT	1500	F02	20-OCT-08
10007	FORMAL PANT	1350	F01	09-MAR-08
10020	FROCK	850	F04	09-SEP-07
10089	SLACKS	750	F03	20-OCT-08

Table : FABRIC

FCODE	TYPE
F04	POLYSTER
F02	COTTON
F03	SILK
F01	TERELENE

(i) What should be the most appropriate column in the table GARMENT to be considered as foreign key?

(ii) What value can be allowed in the column FCODE in the table GARMENT to ensure the referential integrity?

(iii) Suggest her to write the SQL commands -

a. to display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE

b. To display the average PRICE of all the GARMENTs. Which are made up of FABRIC with FCODE as F03

OR (Only for (iii) above)

(iii) Suggest her to write the SQL commands -

a. To display FABRIC wise highest and lowest price of GARMENTs from GARMENT table. (Display FCODE of each GARMENT alongwith highest and lowest price)

b. To display garment's description with their price whose fabric is silk.

27 Mahesh is a Database Programmer. He is working on a project that creates a database LOANS for a Bank. The database contains a table ACCOUNT with following Data: 4

AccNo	Cust_Name	Loan_Amount	Instalments	Int_Rate	Start_Date	Interest
1	R.K. Gupta	300000	36	12.00	19-07-2009	
2	S.P. Sharma	500000	48	10.00	22-03-2008	
3	K.P. Jain	300000	36	NULL	08-03-2007	
4	M.P. Yadav	800000	60	10.00	06-12-2008	
5	S.P. Sinha	200000	36	12.50	03-01-2010	
6	P. Sharma	700000	60	12.50	05-06-2008	
7	K.S. Dhall	500000	48	NULL	05-03-2008	

Help Mahesh to write the commands for following.

a. To create the Above database
b. Command to start using the database Loan
c. To Display the details of all the loans with less than 40 installments.
d. Display the Cust_Name and Loan_Amount for all the loans for which the loan amount is less than 500000 or int_rate is more than 12

SECTION E – 5 Marks Questions

Question Number 28, 29 and 30 are based on the table Loan_Acct as given below:

AccNo	Cust_Name	Loan_Amount	Instalments	Int_Rate	Start_Date	Interest
1	R.K. Gupta	300000	36	12.00	19-07-2009	
2	S.P. Sharma	500000	48	10.00	22-03-2008	
3	K.P. Jain	300000	36	NULL	08-03-2007	
4	M.P. Yadav	800000	60	10.00	06-12-2008	
5	S.P. Sinha	200000	36	12.50	03-01-2010	
6	P. Sharma	700000	60	12.50	05-06-2008	
7	K.S. Dhall	500000	48	NULL	05-03-2008	

Answer each of the questions as directed.

28 Write SQL Commands for following 5

a. Display the Cust_Name and Loan_Amount for all the loans for which the number of instalments are 24, 36, or 48.
b. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name ends with 'Sharma'.
c. Display the AccNo, Cust_Name, and Loan_Amount for all the loans for which the Cust_Name ends with 'a'.
d. Display the details of all the loans in the ascending order of their Loan_Amount.
e. Display the details of all the loans in the descending order of their Start_Date.

29 Write SQL Command for (a) to (e) for the following table 5

TABLE : GRADUATE

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP Sc	68	I
3	DIVYA	300	CHEMISTRY	62	I
4	REKHA	350	PHYSICS	63	I
5	ARJUN	500	MATHS	70	I
6	SABINA	400	CHEMISTRY	55	II
7	JOHN	250	PHYSICS	64	I
8	ROBERT	450	MATHS	68	I
9	RUBINA	500	COMP Sc	62	I
10	VIKAS	400	MATHS	57	II

a. List the names of those students who have obtained DIV I sorted by NAME.
b. Display a report, listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the STIPEND is paid every month.
c. To show students who are either PHYSICS or COMPUTER SC graduates.
d. To insert a new row in the GRADUATE table: 11,"KAJOL", 300, "computer sc", 75, 1
e. Add a new column GRADE of character type.

30 Ronita wants to store the data of some products in a table product as follows 5

Table : Product

PNo	PName	Qty	Date_Of_Mfg
P01	Pencil	20	2020-09-01
P02	Eraser	5	1990-09-11
P03	Book	16	2000-04-03
P04	Notebook	15	2016-12-11
P05	Color	10	2015-02-04

She also wants to perform some operations and manipulations on the table . Help her to find the solutions of following questions.

(i) A command that displays the details of all the products
(ii) The default date format in which date has to be stored in MySQL is
(iii) Which command she can use to add a new column to the table?
(iv) Suggest her a proper data type for the "PName" column.
(v) She is confused whether she has to use the "COLUMN" clause with the ALTER TABLE command to add a column to the table. What should she do ?

Physical Education

All questions are compulsory :-

1. What are knockout tournaments? Draw a fixture of 17 teams on knockout basis.

2. Describe in detail the difference between intramural and extramural tournament.

3. Discuss why protein is among the most important macronutrients, especially in sports.

4. Discuss in detail food allergy with examples.

5. What are lifestyle diseases? How can we prevent them?

6. Discuss the procedure of vajrasana and its role in human health.

7. Explain any five common sports injuries in the game/sports of your choice.

8. What is the PRICE concept in sports medicine?

9. What is friction? Explain its types.

10. How does the study of biomechanics help in sports?

Hindustani Vocal Music

1. Write the parichay of Raag Bhairav Along with its Bandish.

2. What is the importance of Singing Raags in morning.

3. Give Compleate Description of the following Taal along with its Maatra,Taali,khali and Vibhag.
   - Rupak Taal and Dhamar Taal

4. Write the method of tuning a tanpura and how we tune Each String in different ragas.

5. Write the difference between Aalap and Taan.

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