# DAV BR PUBLIC SCHOOL, BINA
## Session (2024-25)

**Class: XII**

**Integrated Assignment No: 02**

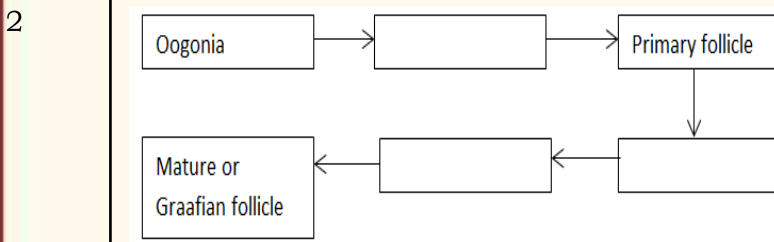| Date Posted | 05-10 -24 | Expiry Date | 15-10-2024 |
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| | PHYSICS |
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| 1. | Describe the following experiments/activities in your practical record in the systematic manner.<br>Find the focal length of a given concave lens using a convex lens. |
| 2. | Find the focal length of a given convex mirror using a convex lens |
| 3. | Find the refractive index of the material of a glass slab using it travelling microscope |
| 4. | Study the refraction of light through a glass slab and verify the value of lateral shift. |
| 5. | Study the refraction of light through a glass prism, find the value of angle of deviation(d) for different values of angle of incidence, plot i-d graph hence find refractive index of material of the prism. |
| 6. | Study the image formation of a concave mirror by using a candle and the mirror. |
| 7. | Study the image formation of a convex lens by using a candle and the lens. |
| 8. | Identify the semiconductor devices from their mixed collection. |
| 9. | Draw the circuit diagram of a given open circuit and mark the devices not connected in the proper way then redraw the correct circuit diagram. |

## CHEMISTRY

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| 1. | Ortho-nitrophenol is more acidic than ortho-methoxyphenol. |
| 2. | Phenol is more acidic than ethanol.Give reason |
| 3. | Define:  Kolbe's reaction |
| 4. | Give simple test to differentiate between Ethanol and Phenol |
| 5. | Differentiate between popanol and 2-methyl propane 2 -ol |
| 6. | How can following conversions be carried out<br><br>(i) Ethyl magnesium bromide to Propane -1-ol<br><br>(ii)Hydration of propene in the presence of dilute sulphuric acid |
| 7. | Arrange the following in the increasing order of their acidic strength:<br><br>(i) p-cresol, p-nitrophenol, phenol<br><br>(ii)  Propan-1-ol,  2,4,6-trinitrophenol,  3-nitrophenol,  3,5-dinitrophenol,  phenol, 4-methylphenol. |
| 8. | Explain the mechanism of :<br><br>$CH_3CH_2OH \xrightarrow{HBr} CH_3CH_2Br + H_2O$ |
| 9. | Explain the mechanism of acid dehration of ethanol to yield ethene. |
| 10. | Phenol is more acidic than ethanol.Give reason |

| | BIOLOGY |
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| 1 | Pollen grains are well preserved as fossils because of presence of<br><br>A. sporopollenin<br><br>B. cellulose<br><br>C. lignocellulose<br><br>D. pectocellulose |
| 2 | <br><br>Fill in the missing boxes for the levels in the transformation of mother germ cells into a mature follicle. |
| 3. | Justify the ban on Amniocentesis in our country? OR<br>Why should sex education be introduced to school-going children? List any five reasons. |
| 4 | Find out and list down any 5 microorganisms (not mentioned in your textbook) that are useful to mankind. |
| 5 | Make a 3D model of any one Immunoglobulin. |
| 6 | Complete your Investigatory Project work. |
| 7 | Prepare a PPT on any one chapter of Biology of your choice and present the concept to your junior after the school reopens. |
| 8 | Make a collage on various Pathogens and their harmful effects. |
| 9 | Complete your notebook work and Journal work. |

| | MATHS | |
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| 1. | Find the area lying in the first quadrant and bounded by the circle $x^2 + y^2 = 4$ and the lines $x = 0$ and $x = 2$. | |
| 2. | Find the area of the region bounded by the curve $y^2 = 4x$, y-axis and the line $y = 3$. | |
| 3. | Find the area of the region bounded by the line $y = 3x + 2$, the x-axis and the ordinates $x = -1$ and $x = 1$. | |
| 4. | Find the area under the given curves and given lines:<br>(i) $y = x^2$, $x = 1$, $x = 2$ and x-axis<br>(ii) $y = x^4$, $x = 1$, $x = 5$ and x-axis | |
| 5. | Write an antiderivative for each of the following functions using the method of inspection:<br>(i) cos 2x (ii) $3x^2 + 4x^3$ (iii)$1/x$ | |
| 6. | Find the integration of sin x + cos x. | |

| | ECONOMICS | |
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| 1. | Explain the working of investment multiplier with the help of a numerical example.<br><br>Or Explain with the help of a numerical example how does increase in investment in an economy affect its level of income? | |
| 2. | Given consumption function C = 100 + 0.75 Y (where C = -consumption expenditure and Y = national income) and investment expenditure Rs 1,000, calculate:<br><br>(i) Equilibrium level of national income;<br><br>(ii) Consumption expenditure at equilibrium level of national income. | |
| 3. | An economy is in equilibrium. Find Marginal Propensity to Consume from the following:<br><br>National Income = 2000<br><br>Autonomous Consumption = 400<br><br>Investment Expenditure = 200 | |
| 4. | State the problems of human capital formation in India | |
| 5. | Discuss the key issues of action plan for Rural Development in India. | |
| 6. | Briefly discuss the various causes of unemployment in India? | |

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| 7. | Discuss the strategies which should be followed to achieve sustainable development. |

### BUSINESS STUDIES

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| 1. | Identify the characteristics of management in the following<br><br>(i) McDonalds offers 'Aloo Tikki Burger' to attract Indian customers.<br><br>(ii) An organization consists of diverse individuals with different needs.<br><br>(iii) Effect of management can always be noticed in every successful & unsuccessful organization.<br><br>(iv) It integrates the efforts of all members towards achieving the objectives.<br><br>(v) Management consists of ongoing series of functions.<br><br>(vi) In an organization employees are happy & satisfied & no chaos exists.<br><br>(vii) Management is to be seen in business & non business organizations<br><br>(viii) With the introduction of per second call by a cellular company, other cellular companies also started offering per second calls to maintain market share |
| 2. | Identify the scientific principles of management:<br>(i) Competition should be replaced by cooperation.<br>(ii) Workers should be rewarded for their constructive suggestions. There was only one best method to maximize efficiency. This method can be developed through study & analysis.<br>(iii) The true interest of the workers & the management are one & the same.<br>(iv) To ensure greatest efficiency & prosperity for both company & workers, the concern for efficiency be built right from the process of employee selection |
| 3. | Mr. Ajay after completing MBA from Canada comes to India to start a new business under the banner E com creations Ltd. He launches a new product in elearning for secondary school students in science stream, which already has an established market US & Canada but not in India. His business starts flourishing in India. Now more Indian companies entered into the market with other subjects also. Identify & quote the lines from above para which highlight the significance of understanding business environment. |

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| 4. | Ultra Sports Identify was in the business of manufacturing treadmills and had a monopoly in the market. The business was doing very well and the company was consistently able to meet its objective of 10% increase in sales year after year. Encouraged by the good track record, the Managing Director of the company kept an ambitious target of 15% increase in sales for the next year. The same year, two competitors entered the market and the company was not able to meet its target.<br><br>(i) Identify the limitation of one of the functions of management because of which the company was not able to achieve its target.<br><br>(ii) Identify the type of plan by quoting from the above para |
| 5. | Aman, Avnesh and Amrish have decided to start a business of manufacturing toys. They identified the following main activities which they have to perform: (i) Purchase of raw material (ii) Purchase of machinery (iii) Arrangement of finance (iv) Production of toys (v) Sale of toys (vi) Identifying the areas where they can sell their toys (vii) Selection of employees In order to facilitate the work they thought that four managers should be appointed to look after (a) Production (b) Finance(c) Personnel (d) Marketing .<br><br>(i)  Identify the function of management involved in the above mentioned para.<br><br>(ii)  Quote the lines from the para which help you in identifying this function.<br><br>(iii) State the steps followed in the process of this function of management |
| 6. | Is selection a negative process? Why? What kind of tests will primarily be used and why to select the following :<br><br>(i) An- interior-decorator,<br><br>(ii) A Computer-operator,<br><br>(iii) A Public-dealing officer, and<br><br>(iv) A School Teacher |

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| 7. | Your school has some vacancies of teachers. The eligible staff has been promoted to half of the posts. Explain any four ways through which right-type of people may be invited to fill up rest of the vacancies |
| 8. | Smita had been working as an assistant manager with ' Johnson Enterprises' for the last 10 years. She was very popular amongst her colleagues because of her commitment & dedication towards the work. When the manager senior to her retired , all her colleagues thought that now Smita would be promoted. But to everyone's surprise the vacant post was filled by an outsider, Mrs. Rita. Smita felt demoralized & her performance started declining. She would abstain herself often & could not meet her targets. Mrs Rita was a good leader, who would not only instruct her subordinates but would also guide and inspire them. She noticed Smita's behavior and felt that her performance could be improved. She started involving Smita in decision making- issues related to the organization and made her a part of high level joint management committee. Smita was now punctual in office & her performance started improving.

(i) Identify the function of management being performed

(ii)  Name the element of the above function of management which helped Rita to improve Smita's performance

(iii) Identify the type of the element identified in (ii) above |
| 9. | Honda cars India is facing a peculiar situation, forcing the company to halt dispatches to dealers. Half the vehicles manufactured at its Greater Noida factory were detected with spots on its paint & were thus damaged. On analysis it was found that the workers were not at fault. The spots caused were because of paint fumes from the adjoining plant.

(i) Identify the function of management discussed above. (ii) State the steps in the process of the function identified above. (iii) Identify the value shown by the company. |
| 10. | Read newspaper' The Economics Times' and keep the record of share price of any 10 Companies for 10 days |

Read newspaper' Business Standard' and find out any 5 news related to the topics learned. Make a case study on the 5 news topics selected.

## ACCOUNTANCY

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| 1. | Does a partnership firm possess a separate legal entity ? Give reasons . |
| 2. | Kavita and Laxmi run a charitable dispensary. Kavita wants to have a partnership deed. What is your opinion ? |
| 3. | Distinguish between super profits and average profits . |
| 4. | Why are reserves and surplus distributed at the time of reconstitution of the firm ? |
| 5. | What will happen if retired or deceased partners' dues are not settled immediately? |
| 6. | A, B and C were partners. Their capitals were Rs 30,000, Rs 20,000 and Rs 10,000 respectively. According to the partnership deed, they were entitled to interest on capital @5% per annum. In addition, B was also entitled to draw a salary of Rs 500 per month. C was entitled to a commission of 5% on the profits after charging the interest on capitals but before charging the salary payable to B. The net profits for the year were Rs 30,000 distributed in the ratio of their capitals without providing for any of the above adjustments. The profits were to be shared in the ratio of 2: 2: 1. Pass the necessary adjustment entry showing the working clearly |

| 7. | On 1st April, 2013 Mohan and Sohan entered into partnership for doing business of dry fruits. Mohan introduced Rs 1,00,000 as capital and Sohan introduced Rs 50,000. Since Sohan could introduce only Rs 50,000 it was further agreed that as and when there will be a need Sohan will introduce further capital. Sohan was also allowed to withdraw from his capital when the need for the capital was less. During the year ended 31st March, 2014, Sohan introduced and withdrew the following amounts of capital. |
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| Date | Capital Introduced | Capital withdrawn |
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| 1st May, 2013 | 10,000 | - |
| 30th June, 2013 | - | 5,000 |
| 30th September, 2013 | 97,000 | - |
| 1st February, 2014 | - | 87,000 |

The partnership deed provided for interest on capital @ 6% per annum. Calculate interest on capitals of the partners.

| 8. | X Ltd. was registered with a capital of 23,00,000 in shares of Rs. 10 each. It issued a prospectus inviting applications for 23,000 shares at 40% premium payable as follows:- |
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On application Rs. 5 (including Rs. 1 premium)

On allotment Rs. 4 (including Rs. 1 premium)

On first call Rs. 3 (including Rs. 1 premium)

On second call Rs. 2 (including Rs. 1 premium)

Applications were received for 23,000 shares, all money was duly received. Pass the necessary journal entries.

| 9. | P Ltd. issued a prospectus inviting applications for 25000 shares of Rs. 10 each at a premium of Rs. 2 per share payable as follows:<br><br>Application = Rs. 2<br>Allotment = Rs. 5 (including premium)<br>First call = Rs. 3<br>Final call = Rs. 2<br><br>Applications were received for 37500 shares and prorate allotment was made on applications for 30000 shares. It was decided utilize excess application money towards the amount due on allotment. Ramesh who applied for 600 shares failed to pay the allotment money and on his subsequent failure to pay the first call his shares were forfeited M the holder of 750 shares failed to pay the two calls and on such failure his shares were forfeited. Of these shares forfeited 1000 shares were sold to Krishnan credited as fully paid for Rs. 9 per share the whole of R's shares being included. |

| | PHYSICAL EDUCATION |
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| 1. | While specifying all calculations, prepare a 'Knock-out fixture' for 21 teams. |
| 2. | What is a balanced diet? Elaborate the importance of nutritional elements of a balanced diet. |
| 3. | As part of the International Yoga Day, school Head Boy, Sunil, must introduce students to the history and basics of yoga. The Principal has told him to explain to students the connection of yoga to disease and wellness. He has also been told to focus on diseases in general and obesity.<br><br>(A) What are the eight branches of modern yoga?<br><br>(B) What is the role of yoga in preventing diseases?<br><br>(C) Childhood obesity is on the rise. What yoga asanas ought to be suggested to help fight obesity especially in teenage students? |
| 4. | "This asana helps to increase height and is useful for young children". Discuss its procedure |
| 5. | Write the causes and nature of Oppositional Deficit Disorder (ODD). |
| 6. | Enlist the symptoms of Attention Deficit Hyperactivity Disorder (ADHD). |
| 7. | Discuss in detail about female athletes triad. |
| 8. | Write about Psychological aspect of women athletes. |
| 9 | Describe the measurement of flexibility using the Chair Sit and Reach Test. |
| 10 | How is cardiovascular fitness measured with the help of 'Harvard Step Test'? Write in detail about its administrative procedure. |

| COMPUTER SCIENCE | |
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| 1. | **Knowledge (Remembering)**<br><br>**Define** the terms "data structure" and "algorithm."<br><br>**List** the different types of data structures.<br><br>**Identify** the key characteristics of a stack . |
| 2. | **Comprehension (Understanding)**<br><br>**Explain** the concept of recursion.<br><br>**Describe** the difference between linear and non-linear data structures.<br><br>**Summarize** the steps involved in creating a stack. |
| 3. | **Application (Applying)**<br><br>**Write** a Python program to implement a stack.<br><br>**Design** a data structure to represent a stack.<br><br>**Use** a stack to solve the Tower of Hanoi puzzle. |
| 4. | **Analysis (Analyzing)**<br><br>**Compare** the time and space complexity of different sorting algorithms (e.g., bubble sort, merge sort, quicksort).<br><br>**Evaluate** the suitability of different data structures for specific applications.<br><br>**Analyze** the trade-offs between efficiency and memory usage in data structures. |

| 5. | **Evaluation (Evaluating)**<br><br>16. **Assess** the effectiveness of different searching algorithms (e.g., linear search, binary search). |
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| | **ENGLISH** |
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| 1 | You have been grossly impacted by the growing violence and war in the world. Write a letter in 120-150 words to the editor of a popular national daily expressing your concerns. |
| 2 | You feel that the Indian Education System requires an instant revamp. Write an original article in 120-150 words expressing your ideas and logical arguments for the same. |

| | **APPLIED MATHS** |
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| 1. | Solve the inequalities:<br><br>(i) I x-3 I  I x+2 I              (ii)   I 3x II 6-2x I |
| 2. | Which  of the following systems has non trivial solutions. If so, find these solutions.<br><br>(i) 3x+ y- 2z=0,          x + y + z=0, x - 2y + z= 0<br><br>(ii) x + y - z= 0,    x- 2y + z =0,  3x – 6y- 5z =0 |
| 3. | A balloon which always remains spherical is being inflated by pumping in cubic centimeteres of gas per second. Find the rate at |

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| | which the radius of the balloon is increasing when its radius is 15cm. |
| 4. | Water is leaking from a conical funnel at the rate of 5/sec. If the radius of the base of funnel is 10cm and height is 20 cm, find the rate at which the water level is dropping when it is 5cm from the top |
| 5. | The demand for a certain product is represented by the function<br><br>P = 200 + 20x − $x^2$ (in ₹)<br><br>Where x is the number of units demanded and p is the price per unit.<br><br>(i) Find the marginal revenue.<br><br>(ii) Obtain the marginal revenue when 10 units are sold, and interpret it.<br><br>(iii)Calculate R(11) −R(10) and interpret it |