



DAV PUBLIC SCHOOL

Khetan Lane Dhangawan, Jehanabad
CLASS XII (SCIENCE)



DEEPAWALI & CHHATH PUJA ASSIGNMENT

SUB _ MATHEMATICS

(PREVIOUS YEAR QUESTIONS ON THE TOPIC DIFFERENTIAL EQUATION) 2023

1. Find the general solution of the differential equation:

$$\frac{dy}{dx} = \frac{x+y}{x}$$

2. Solve the differential equation:

$$(1+x^2)\frac{dy}{dx} + 2xy = \frac{1}{1+x^2}$$

3. Find the particular solution of the differential equation:

$$\frac{dy}{dx} = \frac{x(2\log x + 1)}{\sin y + y \cot y}, \text{ given that } y = \frac{\pi}{2} \text{ when } x = 1$$

4. Solve the differential equation:

$$\frac{dy}{dx} + y \cot x = 2x + x^2 \cot x, \text{ given that } y(0) = 0$$

5. Find the general solution of the differential equation:

$$e^x \tan y dx + (1 - e^x) \sec^2 y dy = 0$$

6. Solve the differential equation:

$$\frac{dy}{dx} + y = \cos x - \sin x$$

7. Find the particular solution of the differential equation:

$$(x-y)\frac{dy}{dx} = x + 2y, \text{ given that } y = 0 \text{ when } x = 1$$

8. Solve the differential equation:

$$\frac{dy}{dx} + 2y \tan x = \sin x, \text{ given that } y = 0 \text{ when } x = \frac{\pi}{3}$$

9. Find the general solution of the differential equation:

$$\frac{dy}{dx} = \frac{1+y^2}{1+x^2}$$

10. Solve the differential equation:

$$x \frac{dy}{dx} + y = x \cos x + \sin x, \text{ given that } y$$

$$= 1 \text{ when } x = \frac{\pi}{2}$$

11. Find the particular solution of the differential equation:

$$\frac{dy}{dx} = 1 + x + y + xy, \text{ given that } y = 0 \text{ when } x = 1$$

12. Solve the differential equation:

$$(1 + x^2) \frac{dy}{dx} + y = e^{\tan^{-1} x}$$

(4 Marks)

LONG ANSWER TYPE QUESTIONS (6 Marks Each)

13. Solve the differential equation:

$$x \frac{dy}{dx} + y - x + x y \cot x = 0, \text{ given that}$$

$$y = 0 \text{ when } x = \frac{\pi}{2}$$

14. Find the particular solution of the differential equation:

$$\frac{dy}{dx} = \frac{x(2 \log x + 1)}{\sin y + y \cos y}, \text{ given that } y = \frac{\pi}{2} \text{ when } x = 1$$

15. Solve the differential equation:

$$(x^2 + 1) \frac{dy}{dx} + 2xy = \sqrt{x^2 + 4}, \text{ given that } y = 0 \text{ when } x = 1$$

APPLICATION BASED QUESTIONS

16. The slope of the tangent to a curve at any point (x, y) is $\frac{2y}{x}$. If the curve passes through the point $(1, 1)$, find its equation.

17. The population of a city grows at a rate proportional to the number of inhabitants present at any time. If the population doubles in 10 years, in how many years will it triple? (4 Marks)

Subject – English Core
Section – A (Reading Comprehension)

Q.1. Read the following extract on Mental Health and answer the five MCQs that follow:

Extract 1 – Mental Health Awareness

In today's fast-paced world, mental health has become as important as physical well-being. Stress, anxiety, and depression are common among students who face academic pressure and uncertainty about their future. Developing a healthy routine, sharing feelings with trusted people, and engaging in creative activities can help maintain mental balance. Schools must also promote awareness programs to help students overcome emotional challenges and build resilience.

1. What does the passage mainly focus on?
(a) Academic excellence (b) Mental well-being (c) Sports activities (d) Physical strength
2. According to the passage, which of the following is not a way to maintain mental balance?
(a) Sharing feelings (b) Following a routine (c) Ignoring emotions (d) Doing creative work
3. What should schools promote to support students' emotional health?
(a) Extra classes (b) Awareness programs (c) Sports events (d) Study tours
4. The word resilience in the passage means —
(a) Confidence (b) Flexibility (c) Ability to recover quickly (d) Calmness
5. What type of world does the passage describe?
(a) Traditional (b) Slow-paced (c) Fast-paced (d) Peaceful

Q.2. Read the following extract on Entrepreneurship and answer the five MCQs that follow:

Extract 2 – The Spirit of Entrepreneurship

Entrepreneurship is the backbone of economic growth. It encourages innovation and creates new job opportunities. Successful entrepreneurs are those who combine creativity with determination and take calculated risks to turn ideas into reality. In today's world, even young students are exploring start-up ideas, proving that entrepreneurship is not limited by age but driven by passion and vision.

1. What is the backbone of economic growth according to the passage?
(a) Government (b) Technology (c) Entrepreneurship (d) Agriculture
2. Which quality is essential for a successful entrepreneur?
(a) Laziness (b) Determination (c) Dependence (d) Hesitation
3. Entrepreneurship mainly leads to —
(a) Decrease in jobs (b) New job opportunities (c) Loss in economy (d) Unemployment
4. What motivates young students to become entrepreneurs?
(a) Age (b) Wealth (c) Passion and vision (d) Parental pressure
5. The word innovation means —
(a) Discovery (b) Imitation (c) Creativity (d) Modification

Section – B (Literature: On The Face of It)

Answer the following questions in about 40–50 words each:

- Q.3. How does Derry's meeting with Mr. Lamb change his perception of life?
- Q.4. What message does the play On the Face of It convey about acceptance and self-confidence?

- Q.5. Describe the character of Mr. Lamb. How is he different from other people Derry meets?
Q.6. Why does Derry initially avoid people? How does this reflect the theme of isolation in the play?

Section – C (Writing Skills)

Q.7. Write an article in about 150–200 words on the topic:
"Role of Literature in Building Career"

Subject – Hindi

- 1- बिहार से प्रकाशित होने वाले किसी समाचारपत्र याअखबार के सम्पादक को पत्र लिखिए और किसी भी स्तर जातिगत मतभेद को मिटाने के लिए जातिकेउत्थान के नाम पर होनेवाली सभाअथवा रैली केविरुद्ध जनजागरण अभियान चलाने कानिवेदन कीजिए।
- 2- अपने छोटे भाई या बहन को पत्र लिखिए और दीपावली कामहत्व बताइए।
- 3- किसी कवि अथवा लेखक कीजीवनी लिखिए और उसकी चर्चित पुस्तकों काउल्लेख कीजिए।
- 4- किसी कविताअथवा कहानी काभावसारअथवा सारांश लिखिए।
- 5- उषाकविता काभावार्थ लिखिए और उसका काव्यसौन्दर्य समझाइए।
- 6- नमकपाठ के माध्यम से लेखक क्या कहना चाहता है ? स्पष्ट कीजिए।
- 7- हालही पढीगईकिसी पुस्तक अथवा कथा,कहानीया कविता कीविशेषताएं लिखिए।
- 8- सोशल मीडिया कामहत्व अथवा सोशल मीडिया से लाभ -हानिविषय पर निबंध लिखिए।
- 9- मेराजीवन कालक्षय अथवा मेरासपना विषय पर अपने विचार व्यक्त कीजिए।
- 10-काश, मैं शिक्षा मंत्री होता या होती -विषयपर अपनादृष्टिकोण स्पष्ट कीजिए।

Sub: - SCIENCE

Sub: PHYSICS

Sub: CHEMISTRY

1. Do Complete Practical work

Sub: Biology:

1. Prepare a project work on any of the following topic . :-
 - a. Cancer
 - b.AIDS
 - c Sewage treatmen plant
 - d.DNA finger printing
 - e.Microbes

Sub- I.P

1. Do Complete Practical work

Sub- Phy.Education

1. What do you mean by oxygen intake and oxygen uptake?
2. Explain any three physiological factors determining strength
3. Elaborate any three physiological factors determining endurance
4. Discuss any three effects of aging process
5. Classify the different types of sports injuries