Degree (Part-II) (Vocational) Examination, 2022

(Honours)

COMPUTER APPLICATION

[Paper : Third]
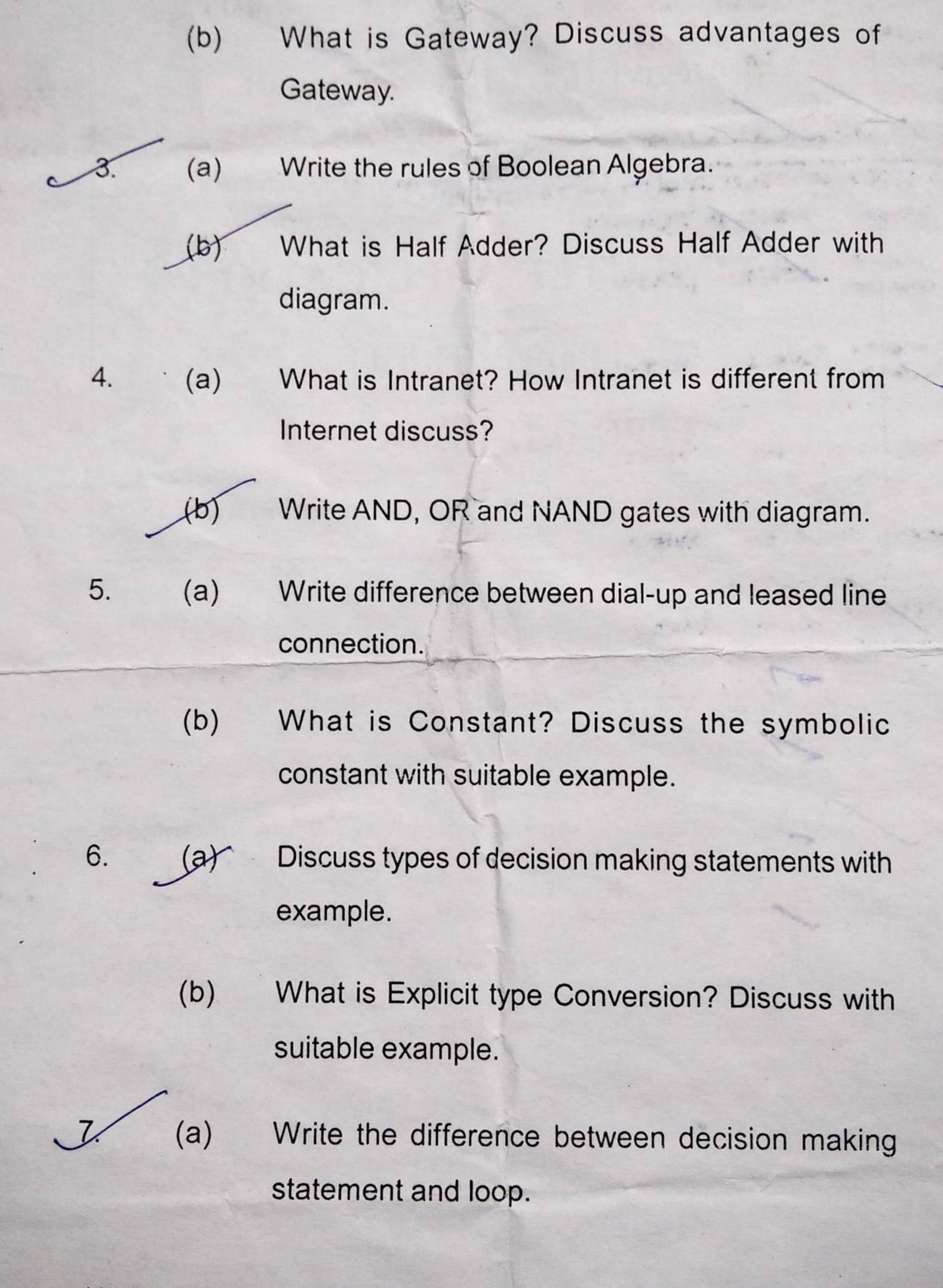
[PPU-D-II-(H)-BCA-3]

Time : Three Hours]   [Maximum Marks : 75

Note : Candidates are required to give their answers in their own words as far as practicable. The questions are of **equal** value. Answer **any five** questions.

1.   (a)   What is Computer Network? Write advantages of Computer Network.

      (b)   Discuss twisted wire and its role in Computer Network.

2.   (a)   Write difference between Circuit switching and Packet switching.

(b) What is Gateway? Discuss advantages of Gateway.

3. (a) Write the rules of Boolean Algebra.

(b) What is Half Adder? Discuss Half Adder with diagram.

4. (a) What is Intranet? How Intranet is different from Internet discuss?

(b) Write AND, OR and NAND gates with diagram.

5. (a) Write difference between dial-up and leased line connection.

(b) What is Constant? Discuss the symbolic constant with suitable example.

6. (a) Discuss types of decision making statements with example.

(b) What is Explicit type Conversion? Discuss with suitable example.

7. (a) Write the difference between decision making statement and loop.

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(b)   Discuss types of Pointer with suitable example.

8.   (a)   Define malloc (). Calloc () and free () with example.

    (b)   Write a program to take a number and print sum of factors of a number.

9.   (a)   What is Union? Discuss advantages of Union.

    (b)   Write a program to take EmpCode, name and salary of employee and display using union.

10.   Write short notes on **any four** of the following :

    (a)   printf()

    (b)   scanf()

    (c)   puts()

    (d)   gets()

    (e)   getchar()

    (f)   eof()

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Degree (Part-II) (Vocational) Examination, 2022

(Honours)

COMPUTER APPLICATION

[Paper : Fourth]

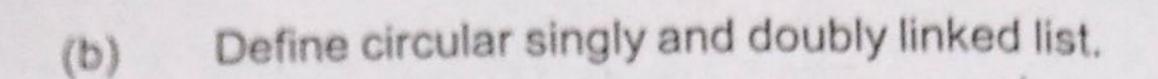## [PPU-D-II-(H)-BCA-4]

Time : Three Hours]　　　　　　　[Maximum Marks : 75

Note : Candidates are required to give their answers in their own words as far as practicable. The questions are of equal value. Attempt **any five** questions.

1. (a) Define Date Structure and Operations perform on it.

   (b) Define Time and Space Complexities analysis of an Algorithm.

2. (a) Define the singly linked list. Also write a program to create singly linked list.

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(b) Define circular singly and doubly linked list.

3. (a) Write an algorithm to convert an infix expression into postfix expression.

(b) Write a program to implement a stack using a array.

4. (a) Define linear queue. How circular queue is better than linear queue.

(b) Write a function to delete a number in circular queue.

5. (a) . Define binary tree and its types.

(b) Define the traverse of a Binary tree with an example.

6. (a) Define the Expression tree. Create the expression tree of the following expressions :

(i) $(a-b)+(c \times d)$

(i) $a+b/c \times d-e$

(b) Write a function to insert a number into a Binary search tree.

7. (a) Define the threaded Binary tree.

    (b) Define the AVL tree and also discuss the advantages of it.

8. (a) Discuss the representation of Graph.

    (b) Define the depth first search Algorithm.

9. Define the AUTOCAD with its features.

10. Write short notes on **any three** of the following :

    (a) Binary search

    (b) Bubble sort

    (c) Selection sort

    (d) Minimum spanning tree

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Degree (Part-II) Examination, 2022

(Vocational - Subsidiary)

MATHEMATICS

[PPU-D-II-(SUB)-MATH]

Time : Three Hours]   **[Maximum Marks : 100**

Note : Candidates are required to give their answers in their own words as far as practicable. The questions are of **equal** value. Answer **any five** questions in all. Question no.1 is **compulsory**. Besides this, attempt one question from each Group.

1.   Choose the correct option of the following :

(i)   If $y = \sqrt{\sin x}$ then $\dfrac{dy}{dx}$ is :

(a) $\dfrac{1}{2}\sin x.\cos x$

(b) $\sqrt{\cos x}$

(c) $\sqrt{\sin x . \cos x}$

(d)   None of these

(ii)   If $y = x \sin(a+y)$ then $\dfrac{dy}{dx}$ is

(a) $\dfrac{\sin^2(a+y)}{\sin a}$

(b) $\dfrac{\sin a}{\sin^2(a+y)}$

(c) $\dfrac{\sin(a+y)}{\cos a}$

(d)   None of the above

(iii)   If $y = \sin(\log x)$ then $\dfrac{dy}{dx}$ is :

(a) $\dfrac{\log x}{\sin x}$

(b) $\dfrac{1}{x} \cdot \cos(\log x)$

(c) $\cos(\log x)$

(d)   None of these

(iv)   If $x^x = y^y$ then $\dfrac{dy}{dx}$ is :

(a) $-\dfrac{y}{x}$

(b) $-\dfrac{x}{y}$

(c) $\dfrac{1+\log x}{1+\log y}$

(d)   None of the above

(v) $\int \log x \, dx$ is equal to :

(a) $x\log x - x + c$

(b) $\dfrac{1}{x} + c$

(c) $x\log x + c$

(d)   None of the above

(vi)   If $x\dfrac{dy}{dx} + 3y = x$ then solution is :

(a) $x^3 y = \dfrac{x^4}{4} + c$

(b) $x^2 y^2 = c$

(c) $xy + y^2 + c = 0$

(d)   None of the above

(vii)   If $\dfrac{dy}{dx} + y\log x = x^2$ then solution is :

(a) $y = \dfrac{x^3}{4} + c$

(b) $y = \dfrac{x^4}{4} + c$

(c) $y = x + c$

(d)   None of the above

(viii) The equation of line of action of the resultant of coplanar forces is :

    (a) $Yx - Xy = 0$

    (b) $Yx - Xy + G = 0$

    (c) $Xx - Yy + G = 0$

    (d)   None of the above

(ix) Change of velocity with respect to time is :

    (a)   Force

    (b)   Displacement

    (c)   Acceleration

    (d)   None of the above

(x) The differential equation of S.H.M. is :

    (a) $\dfrac{d^2x}{dt^2} = -\mu x$

    (b) $\dfrac{dx}{dt} = -\mu x$

(c) $\dfrac{d^2 x}{dt^2} = \mu x$

(d)   None of these

Group-A

2. (a) · State and prove Leibnitz theorem on successive differentiation.

   (b)   If $y = \sin(ax + b)$ then find y_n.

3. (a) Evaluate $\displaystyle\int \dfrac{x\sin^{-1} x}{\sqrt{1 - x^2}}\,dx$.

   (b)   Show that $\displaystyle\int_0^1 \dfrac{\log(1 + x)}{1 + x^2}\,dx = \dfrac{\pi}{8}\log 2$.

4. (a) Solve $\dfrac{dy}{dx}(1 + x^2) \cdot \tan^{-1} x + y = 0$.

   (b)   Solve $\dfrac{dy}{dx} = \dfrac{y}{x} + \tan\dfrac{y}{x}$.

5. (a) Solve $x\dfrac{dy}{dx} + 3y = x$.

(b) Solve $(x+1) \cdot \dfrac{dy}{dx} + 1 = 2e^{-y}$.

Group-B

6. (a) Write down the necessary and sufficient condition that the three non-parallel, non-zero vectors $\vec{a}, \vec{b}, \vec{c}$ be coplanar.

   (b) Prove that $(\vec{a} \times \vec{b}) \times \vec{c} = (\vec{a} \cdot \vec{c})b - (\vec{b} \cdot \vec{c})\vec{a}$.

7. If $\vec{a}, \vec{b}, \vec{c}$ are three non-coplanar vectors then prove that $\vec{b} \times \vec{c}, \vec{c} \times \vec{a}, \vec{a} \times \vec{b}$ are also non-coplanar.

Group-C

8. (a) Find the equation of the line of action of the resultant of coplanar system of forces acting on a rigid body.

   (b) Obtain necessary and sufficient conditions for the equilibrium of a system of coplanar forces acting on a rigid body.

9. (a) Find the radial velocity of a particle $P(r, \theta)$ describing a smooth curve.

(b)   Find the radial acceleration of a particle $P(r, \theta)$ describing a smooth curve.

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Degree (Part-II) Examination, 2022

(Vocational - Subsidiary)

ENGLISH

[PPU-D-II-(Sub)-ENG]

Time : Three Hours]   [Maximum Marks : 100

Note : Candidates are required to give their answers in their own words as far as practicable. The figure in the margin indicate full marks. Answer **all** questions as directed.

1. Explain with reference to the context of **any three** of the following :   [8x3=24]

   (a) Beasts of England, Beasts of Ireland,

   Beasts of every land and clime,

   Hearken to my joyful tiding,

   Of the golden future time.

   (b) Crafty men condemn studies, simple men admire them, and wise men use them; for they teach not their own use; but that is a wisdom without them, and above them, won by observation.

(c)   If he be an unbeliever, he will be too profound and large-minded to ridicule religion or to act against it; he is too wise to be a dogmatic or fanatic in his infidelity. He respects piety and devotion; he even supports institutions as venerable, beautiful or useful, to which he does not assent; he honours the ministers of religion, and it contents him to decline its mysteries without assailing or denouncing them.

(d)   Modern man remembers even telephone numbers and names of actors and actresses and cricketers and footballers and murderers. Thus he can remember almost everything in his life.

(e)   I have been performing tricks for you, Torvald. That's how I've survived. You wanted it like that. You and papa have done me a great wrong. It's because of you I've made nothing of my life.

(f)   Life is made up of sobs, sniffles and smiles, with sniffles predominating.

2.   Attempt **any three** from the following :   [17x3=51]

(a) Orwell's 'Animal Farm' is full of symbolism. Comment.

(b) What is the central theme in Katherine Mansfield's short story "The Doll's House"?

(c) Write the plot of the short story "The Parrot in the Cage" by Mulk Raj Anand.

(d) What does Robert Lynd say in defense of forgetfulness?

(e) What are the chief characteristics of A.G. Gardiner as an essayist?

(f) Explain the theme of 'Sacrificial Love' in "The Gift of the Magi".

3. Write an essay on **any one** of the following : [15x1=15]

(a) Addiction of Social Media

(b) Corona and its Impact on Human Life

(c) Pollution

4. Rewrite the following sentences as directed without changing the meaning : [1x10=10]

(a) Please help the poor girl. (Change into passive voice)

(b)   Hari as well as his father are coming. (Correct the sentence)

(c)   Do you know that he is having a lot of money. (correct the sentence)

(d)   He said that he was playing tennis. (Change into direct speech)

(e)   She says, "His car is blue". (Change into indirect speech)

(f)   There is nothing wrong with me. (Change into interrogative)

(g)   He worked hard, for he wanted to succeed. (Change into simple sentence)

(h)   Everyone will like it. (Change into negative)

(i)   No other boy is as good as Hari. (Change into superlative degree)

(j)   You can have tea. You can have coffee. (Combine to form compound sentence)

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Degree (Part-II) Examination, 2022

(Vocational – Composition)

HINDI RACHANA

[Paper : Second]

[PPU-D-II-(COMP.)-HIN/100M(SC.)]

Time : Three Hours]   [Maximum Marks : 100

निर्देश : परीक्षार्थी यथासंभव अपने शब्दों में ही उत्तर दें। उपान्त के अंक पूर्णांक के द्योतक हैं। **सभी** प्रश्नों के उत्तर निर्देशानुसार दीजिए।

1. निम्नलिखित प्रश्नों में से **किन्हीं दा** के उत्तर दीजिए :   [2×20=40]

   (क) 'यज्ञ' शीर्षक निबन्ध की भाषा-शैली पर प्रकाश डालिए।

   (ख) हिन्दी निबन्ध के विकास का संक्षिप्त इतिहास प्रस्तुत कीजिए।

   (ग) 'हमारा सांस्कृतिक पतन' की प्रमुख विशेषताओं पर प्रकाश डालिए।

   (घ) 'सप्तसागर महादान' का उद्देश्य स्पष्ट कीजिए।

(ङ) 'आजादी के बाद भारतीय विज्ञान' की प्रासंगिकता पर विचार व्यक्त कीजिए।

2. निम्नलिखित में से **किन्हीं दो** की सप्रसंग व्याख्या कीजिए– [2x10=20]

(क) मजहब का सार होता है किसी एक उपास्य और उपासना पद्धति पर अटल श्रद्धा।

(ख) ऐसे समृद्ध देश को स्वतंत्र रखने की शक्ति जब हमारे लोग खो बैठे, तब डच, अंग्रेज और फ्रैंच लोग भी गोदावरी के किनारे पड़ाव डालने को इकट्ठा हुए।

(ग) भुखमरी से ग्रस्त देशों के लाखों करोड़ों लोग के सामने सत्य, ईश्वर और जीवन की बेहतरीन बातों की चर्चा करना उनका उपहास करना जैसा है।

(घ) शुद्ध जीवन व्यतीत करने की इच्छा रखनेवालों के समस्त कार्य यज्ञ रूप के अन्तर्गत आते हैं। हम यज्ञ को साथ लेकर पैदा हुए हैं – अर्थात सदा यज्ञ के ऋणी ही रहेंगे।

(ङ) निष्काम सेवा परोपकार नहीं, अपना उपकार है। जैसे कर्ज अदा करना परोपकार नहीं बल्कि निज की सेवा है, अपना उपकार है।

3. निम्नलिखित में से **किन्हीं दो** के उत्तर दीजिए : [2x15=30]

(क). 'जीवनी और आत्मकथा' में अन्तर स्पष्ट करते हुए आत्मकथा की विशेषताएँ लिखिए।

(ख) 'जनसंचार' माध्यमों का उल्लेख करते हुए विज्ञापन लेखन की भाषिक विशेषताओं पर प्रकाश डालिए।

(ग) औपचारिक एवं अनौपचारिक पत्रों में अन्तर बताते हुए दोनों के प्रकारों का संक्षिप्त वर्णन कीजिए।

(घ) 'समाचार' लेखन की विशेषताओं पर प्रकाश डालिए।

(ङ) निम्नलिखित में से **किन्हीं तीन** को परिभाषित कीजिए :

(i)   प्रतिवेदन

(ii) दृश्य माध्यम

(iii) संवाददाता

(iv) कार्यसूची

(v)   जनसंचार भाषा

(vi) वाणिज्य की भाषा

4.   निम्नलिखित वाक्यों में से **किन्हीं पाँच** का हिन्दी अनुवाद कीजिए :   [2x5=10]

(क)   Students should not be taught to imitate.