

4008-03

Total Pages : 4

Degree (Part-II) (Vocational)

Examination, 2023

(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 ISP ? Discuss the role of ISP.
(b) What is E-mail ? Write steps to send a mail to many recipients.
2. (a) What is Internet ? Discuss advantages of Internet.
(b) Discuss encoder and decoder with suitable example.

3. (a) What is Operator ? Discuss Binary operator with suitable example.
- (b) What is type-casting ? Discuss the types of Type casting.
4. (a) Discuss dynamic memory allocation with suitable example.
- (b) Write a program to take a number and print factorial of that number.
5. (a) What is Structure ? Discuss the advantages of structure.
- (b) Write a program to take student name, roll no. and marks display using structure.
6. (a) Explain size of() operator with example.
- (b) Write your own function for the following operations, without using library functions :
- (i) Copy string
- (ii) Compare two strings

7. (a) What is the difference between Structure and Union in C language ? Explain by giving a suitable example.
- (b) Write a function (using pointer) that compares two integer arrays to see whether they are identical or not.
8. (a) What is Boolean algebra ? Describe the basic rules and theorems.
- (b) How K-Map is used to minimize a Boolean algebra ? Describe with an example.
9. (a) Discuss Mesh topology, Star topology, Bus topology, and Ring topology with diagrams.
- (b) What are the responsibilities of the Data link layer and Network layer in the OSI model ?
10. Write short notes on any four of the following :
- (a) f print f ()
- (b) Recursion function
- (c) Call by reference function

(d) Union

(e) melloc()

(f) Packet Switching

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4008-04

Total Pages : 4

Degree (Part-II) (Vocational)
Examination, 2023

(Honours)

COMPUTER APPLICATION

[Paper : Fourth]

[PPU-D-II-(V)-(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. Attempt **any five** questions in all. All the questions are of **equal** value.

1. (a) What is Linear Data Structure? Discuss with some suitable example.
- (b) ^{5/5} What is STACK? Write a function using C-language PUSH, POP operation of stack.

2. (a) What is Circular Queue? . Duscuss its advantages over simple queue.
- (b) Write a function to insert a number in circular queue.
3. (a) What is Tree? Discuss the types of Tree.
- (b) Construct a Binary Tree for in-order 4, 7, 8, 5, 1, 6, 9, 3.
4. (a) Write a function to count the nodes of Binary Tree.
- (b) What is GRAPH? Discuss the types of Graph.
5. (a) What is AUTOCAD? Write the features of AUTOCAD.
- (b) Writer the steps to design a building layout and interior design.
6. (a) Write the algorithm of sorting a set of numbers in descending order using Straight Selection Sort. Analyze the algorithm.

- (b) Show the steps of sorting the following sequence in ascending order using quick sort method :
25, 57, 48, 37, 12, 92, 86, 33
7. (a) What is Hashing? Give the characteristics of Hash function.
- (b) What are the different methods of handling overflow in hashing?
8. (a) Write the different operations that can be performed on a stack. Give array implementation of a stack.
- (b) Illustrate with the help of an example, how an arithmetic expression can be evaluated by using a stack.
9. (a) What do you mean by Graph Traversal? Compare and contrast : Depth First Traversal (DFS) and Breadth First Traversal (BFS).
- (b) Write an algorithm of non-recursive Depth First Traversal (DFS) of a graph.

10. Write short notes on any five of the followings :

- (a) Hash Table
- (b) DFS
- (c) Binary Search
- (d) Heap Sort
- (e) Radix Sort
- (f) Quick Sort

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1404-02

Total Pages : 8

Degree (Part-III) Examination, 2023

(Vocational)

MATHEMATICS

[PPU-D-II(VOC)-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 at least one question from each Section.

1. Answer the following multiple choice questions :

[10x2=20]

(i) If $x = u + v, y = u - v$, then value of $\frac{\partial u}{\partial x}$ and $\frac{\partial v}{\partial y}$

is respectively :

(a) 1, -1

(b) -1, 1

(c) $-\frac{1}{2}, \frac{1}{2}$

(d) $\frac{1}{2}, -\frac{1}{2}$

(ii) $\int_0^{\pi} \frac{1}{3 + 2 \sin x + \cos x} dx =$

(a) $\frac{\pi}{4}$

(b) $\frac{\pi}{3}$

(c) $\frac{\pi}{2}$

(d) π

(iii) The absolute maximum value of a function f given by $f(x) = (x-1)(x-2)(x-3)$, $x \in [1, 3]$ is :

(a) $\frac{2}{\sqrt{3}}$

(b) $\frac{2}{3\sqrt{3}}$

(c) $\frac{2}{3}\sqrt{3}$

(d) $2\sqrt{3}$

(iv) The singular solution of the differential equation

$(xp - y)^2 = p^2 - 1$, where $p = \frac{dy}{dx}$ is :

(a) $x^2 + y^2 = 1$

(b) $x^2 + y^2 = -1$

(c) $x^2 - y^2 = 1$

(d) $x^2 - y^2 = 0$

(v) Three vectors $\bar{a}, \bar{b}, \bar{c}$ satisfy the condition

$\bar{a} + \bar{b} + \bar{c} = 0$. If $|\bar{a}| = 1, |\bar{b}| = 4, |\bar{c}| = 2$, then

the value of $\bar{a} \cdot \bar{b} + \bar{b} \cdot \bar{c} + \bar{c} \cdot \bar{a}$ is :

(a) $\frac{-21}{2}$

(b) $\frac{21}{2}$

(c) 21

(d) -21

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

(d) None of the above

Section-A

2. (a) If $z = \tan^{-1}\left(\frac{y^2}{x}\right)$, then find

$$x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} \quad [10]$$

(b) Find radius of curvature at any point (r, θ) for

the curve $\theta = \frac{1}{a} \sqrt{r^2 - a^2} - \cos^{-1}\left(\frac{a}{r}\right)$. [10]

3. (a) Find the area of the region bounded by the curves $y^2 = 2ax - x^2$ and $y^2 = ax$ in the first quadrant. [10]

(b) Find the orthogonal trajectories of a family of curves $3xy = x^3 - a^3$. [10]

4. (a) If n th derivative of $\frac{x^4}{(x-1)(x-2)}$ is

$$\frac{a}{(x-2)^{n+1}} + \frac{b}{(x-1)^{n+1}}, n > 2, \text{ then find the}$$

value of a and b . [10]

(b) Find asymptotes of the curve

$$x^3 + 2x^2y - xy^2 - 2y^3 + xy - y^2 = 1. \quad [10]$$

5. (a) Solve $\frac{dy}{dx}(1+x^2) \cdot \tan^{-1} x + y = 0$. [10]

(b) Solve $\frac{dy}{dx} = \frac{y}{x} + \tan \frac{y}{x}$. [10]

Section-B

6. (a) If

$$\bar{a} = 4\hat{i} + 2\hat{j} - \hat{k}, \bar{b} = m\hat{i} + \hat{j} + \hat{k}, \bar{c} = 3\hat{i} - \hat{j} - 5\hat{k}$$

are three vectors then find value of m such that

$\bar{a}, \bar{b}, \bar{c}$ are coplanar and hence find the value of

$$\bar{a} \times (\bar{b} \times \bar{c}). \quad [10]$$

(b) If

$$\text{grad } f = (y^2 - 2xyz^3)\hat{i} + (3 + 2xy - x^2z^3)\hat{j} + (6z^3 - 3x^2yz^2)\hat{k}$$

then find $f(x, y, z)$ if $f(1, 0, 1) = 8$. [10]

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. [20]

Section-C

8.

A light elastic string of natural length l has one extremity fixed at a point A and the other attached to a particle, the weight of which in equilibrium would extend the string to a length l_1 , show that if particle be dropped from rest at A , it will come to instantaneous rest at a depth $\sqrt{l_1^2 - l^2}$ below equilibrium position show also that this depth is attained in time

$$\sqrt{\frac{2l}{g}} + \sqrt{\left[\left(\frac{l_1 - l}{g}\right) \left\{ \pi - \cos^{-1} \sqrt{\frac{l_1 - l}{l_1 + l}} \right\} \right]} \quad [20]$$

9.

The speed of a train increases at a constant rate f from 0 to v and remains constant for an interval and finally decreases to zero at a constant rate f_1 . If total distance travelled by train is x , then prove that time taken to

complete the journey is $\frac{x}{v} + \frac{v}{2} \left(\frac{1}{f} + \frac{1}{f_1} \right)$. For what value of v is the time least? [20]

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2407-02

Total Pages : 8

Degree (Part-II) Examination, 2023

(Vocational)

ENGLISH

[PPU-D-II-(VOC)LL-ENG]

Time : Three Hours]

[Maximum Marks : 100

Note : Candidates are required to give their answers in their own words as far as practicable. There are three groups-A, B and C. Answer as per the directions given in each group. The figures in the margin indicate marks.

Group-A

Note : Answer all ten of the following questions : [10×2=20]

1. (i) In the essay "On Habits" the essayist explores the theme of :
- (a) Fear
 - (b) Routine
 - (c) Manners
 - (d) Discipline

2407-02/3430

(1)

[P.T.O.]

(ii) What is the real courage according to A.G. Gardiner ?

(a) Course of action

(b) Boldness

(c) Confidence

(d) Leadership

(iii) "Man is nothing but a bundle of errors" has been taken from which essay ?

(a) Forgetting

(b) Our Own Civilization

(c) Good Manners

(d) None of these

(iv) A man who studies a lot is temperamentally :

(a) Smart

(b) Lazy

(c) Active

(d) Proactive

(v) Chekhov trained in and carried on another profession alongside his literary work. What was his original profession ?

- (a) Lawyer
- (b) Doctor
- (c) School teacher
- (d) Architect

(vi) Who is known as the father of the Indian English Novel ?

- (a) R.K. Narayan
- (b) Raja Rao
- (c) Mulk Raj Anand
- (d) Khushwant Singh

(vii) Who wrote "The Doll's House"?

- (a) Katherine Mansfield
- (b) Aunt Beryl
- (c) Virginia Woolf
- (d) Kezia Burnell

(viii) How does Napoleon express his contempt for Snowball's windmill plans?

- (a) By spitting on them
- (b) By giving a scathing speech
- (c) By urinating on them
- (d) By writing Snowball a letter

(ix) According to Bacon, the chief use of study is :

- (a) Ability
- (b) Ornament
- (c) Delight
- (d) Adornment

(x) Who wrote the story "The Parrot in the Cage"?

- (a) Mulk Raj Anand
- (b) Lekhnath Paudyal
- (c) Anita Desai
- (d) Charles Dickens

Group-B

Note : Answer in short any four of the following questions :

[4×5=20]

2. Why were Jim and Della said to be Magi?

3. What are some of the problems that the animals faced during the winter? Why did animals wish to conceal their suffering?

4. What are A.G. Gardiner's views on habits?

5. Explain any one of the following with reference to the context :

(a) The commonest form of forgetfulness, I suppose, occurs in the matter of posting letters. So common is it that I am always reluctant to trust a departing visitor to post an important letter. So little do I rely on his memory that I put him on his oath before handing the letter to him.

(b) This is a real masterpiece. Just look at it! Such is the harmonious beauty that just to contemplate it fills the soul with ecstasy.

6. How did the bloodshed at the "Animal Farm" affect its residents?

7. What are the main benefits of study in the essay 'Of Studies' by Francis Bacon?

Group-C

Note : Answer in detail any three of the following questions :

[3x20=60]

8. Why do you think Orwell chose to represent political figures as animals?
9. Examine the significance and appropriateness of the title of the story "The Gift of the Magi".
10. Trace the elements of satire and allegory in the "Animal Farm".
11. Discuss the "Ideas That Have Helped Mankind" as discussed by Russell.
12. The story "The Last Leaf" is a story of supreme sacrifice by an old artist. Do you agree?
13. What is the central theme in Katherine Mansfield's short story "The Doll's House".

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7401-02

Total Pages : 4

Degree (Part-II) Examination, 2023

(Vocational – Composition)

HINDI

(Hindi Rachna)

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

Time : Three Hours]

[Maximum Marks : 100

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

1. निम्नलिखित प्रश्नों में से किन्हीं दो के उत्तर दीजिए - [2×20=40]

(क) 'हमारा सांस्कृतिक पतन' निबंध के आलोक में भारत की सांस्कृतिक गरिमा को अपने शब्दों में व्यक्त कीजिए।

(ख) 'आजादी के बाद भारतीय विज्ञान' शीर्षक निबंध में निहित गुणाकर मुले के विचारों पर प्रकाश डालिए।

(ग) 'यज्ञ' शीर्षक निबंध के आधार पर गाँधीजी के विचारों को प्रस्तुत कीजिए।

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

(ड) 'मुक्ति योद्धाओं के शिविर में' की प्रमुख विशेषताओं को उद्घाटित कीजिए।

2. निम्नलिखित में से किन्हीं दो की सप्रसंग व्याख्या कीजिए : [2×10=20]

(क) जिस प्रकार तेरे किनारे रामचन्द्र ने दुष्ट रावण के नाश का संकल्प लिया था वैसा ही संकल्प मैं कब से अपने मन में लिये हूँ। तेरी कृपा होगी तो हृदय में से तथा देश में से रावण का राज्य मिट जायेगा।

(ख) "हम विज्ञान को शासन तंत्र, समाज-व्यवस्था यहाँ तक कि धार्मिक विश्वासों व अंधविश्वासों से भी अलग करके नहीं देख सकते। विज्ञान इन सभी अन्य व्यवस्थाओं से प्रभावित होता है और स्वयं भी इन व्यवस्थाओं को प्रभावित करता है।"

(ग) यत्नपूर्वक जिस लक्ष्मी का उपार्जन किया गया है अंत में उसके भार को हल्का कर लेना अर्थात् लोकहित के लिये उसको विसर्जित कर देना आवश्यक है। यही सप्तसागर महादान का लौकिक स्वरूप है।

(घ) कर्मभूमि है निखिल महीतल, जब तक नर की काया जब तक है जीवन के अणु-अणु में कर्तव्य समाया, क्रिया धर्म की छोड़ मनुज, कैसे निज सुख पावेगा ? कर्म रहेगा साथ भाग वह जहाँ कहीं जायेगा।

(ड) पड़ी रह तू मेरी भव-मुक्ति!

मुक्ति हेतु जाता हूँ मैं, मुक्ति, मुक्ति बस मुक्ति!

मेरा मानस हंस सुनेगा और कौन सी युक्ति ?

मुक्ताफल निर्द्वन्द्व चुनेगा, चुन ले कोई शुक्ति।

3. निम्नलिखित में से किन्हीं दो के उत्तर दीजिए : [2×15=30]

(क) यात्रा-वृत्तांत और संस्मरण में अंतर बताते हुए यात्रा-वृत्तांत की विशेषताएँ बताइए।

(ख) जनसंचार के विविध माध्यमों का उल्लेख करते हुए समाचार लेखन की विशेषताओं पर प्रकाश डालिए।

(ग) निम्नलिखित में से किन्हीं तीन को परिभाषित कीजिए :

(i) टिप्पण

(ii) प्रतिवेदन

(iii) कार्यसूची

(iv) दृश्य माध्यम

(v) औपचारिक पत्र

(vi) संवाददाता



(घ) 'कुरुक्षेत्र' के आधार पर चारित्रिक सुचिता पर विचार व्यक्त कीजिए।

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

4. निम्नलिखित वाक्यों में से किन्हीं पाँच का हिन्दी में अनुवाद कीजिए : [5×2=10]

(क) Our duty is to encourage every one.

(ख) Knowledge purifies the mind and heart.

(ग) Students must be taught to be practical.

(घ) You may see stars in the sky at midnight, but not when the Sun rises.

(ङ) India must conquer the world.

(च) The tree laden with fruits always bends low.

(छ) Give up useless discussions.

(ज) Inactivity must be avoided by all means.

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