4008-01

Total Pages: 4

Degree (Part-I) Examination, 2022

(Vocational)

BCA

[ Paper : First ]

[PPU-D-I(H)-BCA-1]

Time: Three Hours

[Maximum Marks: 75

Note: Candidates are required to give their answers in their own words as far as practicable. Answer any five questions in all. Question No. 1 is compulsory.

2/

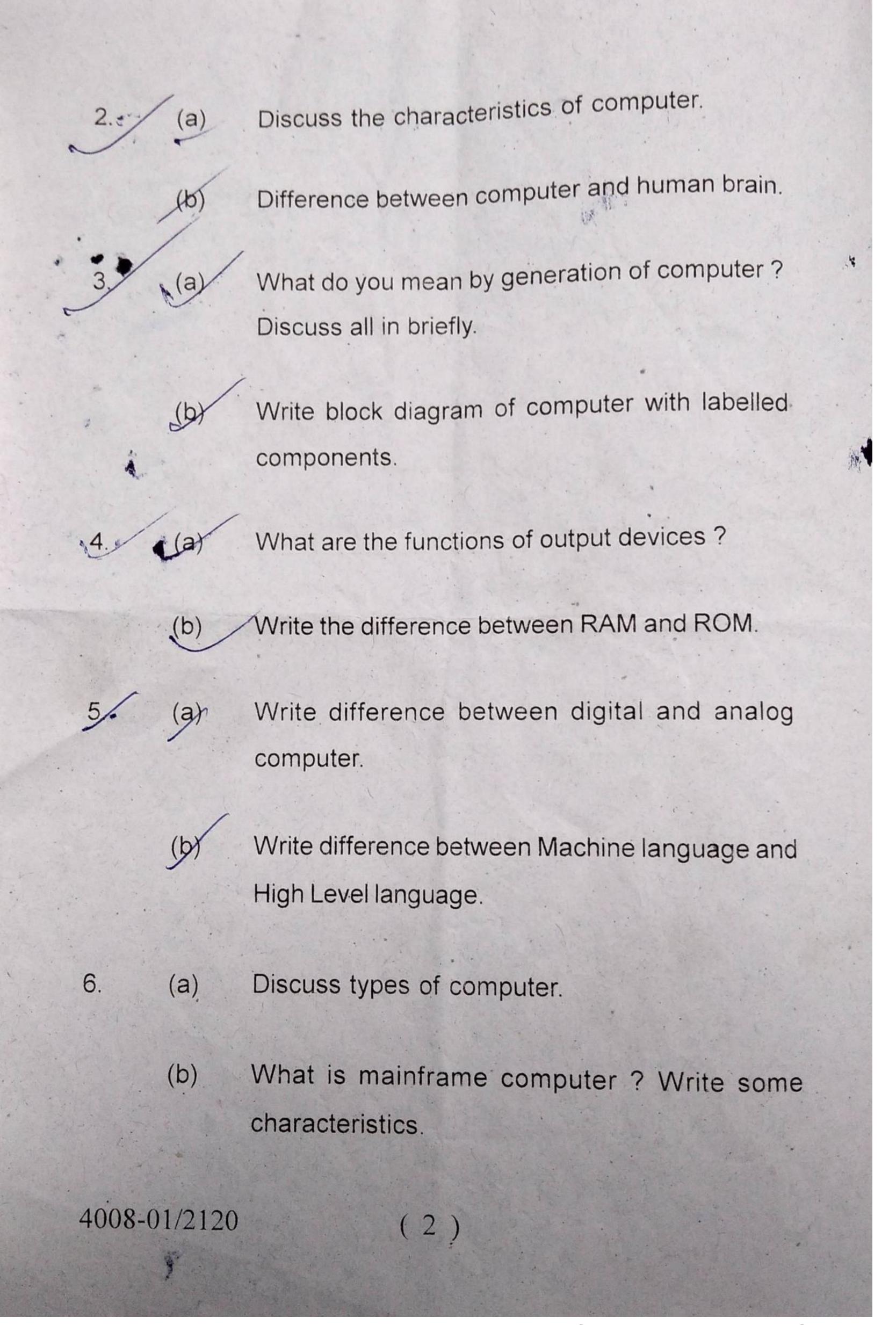
Write short notes on the following terms:

- (a) Impact printer
- (b) RAM
- (c) HDD
- (d) Magnetic Disk
- (e) Magnetic Tape

4008-01/2120

(1





(a) 7. Write rules to convert Decimal number system to Binary Number and vice-versa. (b) Convert (E95F5)<sub>16</sub> to decimal Number System. 8. (a) Write characteristic of good program. (b) What is ASCII and EBCDIC? Discuss in briefly. Write difference between Uniprocessor and (a) Multiprocessor. (b) Discuss Computer Super and characteristics. Discuss the purposed Charles Babbage's Model 10. (a) of computer. Add the following Binary Number: (b) 111011, 001101 010111, 101101 (ii)

4008-02

Total Pages: 8

Degree (Part-I) Examination, 2022

(Vocational)

BCA

[ Paper : Second ]

[PPU-D-I(H)-BCA-2]

Time: Three Hours

|Maximum Marks: 75

Note: Candidates are required to give their answers in their own words as far as practicable. All questions are of equal value. Answer any five questions. Question No.1 is compulsory.

- 1. Choose the correct answer of the following:
  - (i) What is an operating system?
    - (a) Collection of programs that manages hardware resourses
    - (b) Interface between the hardware and application programs
    - (c) System service provides to the application programs.

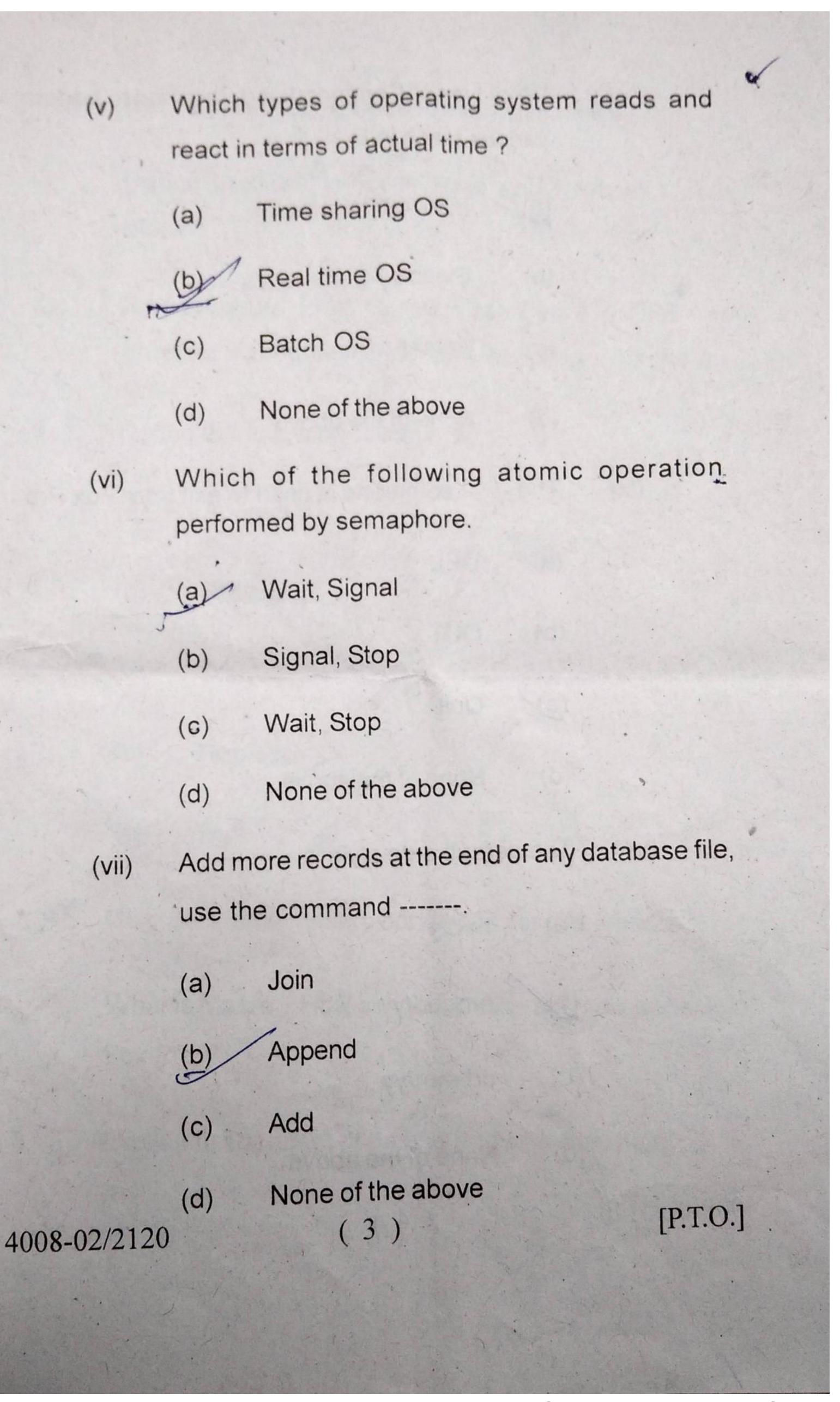
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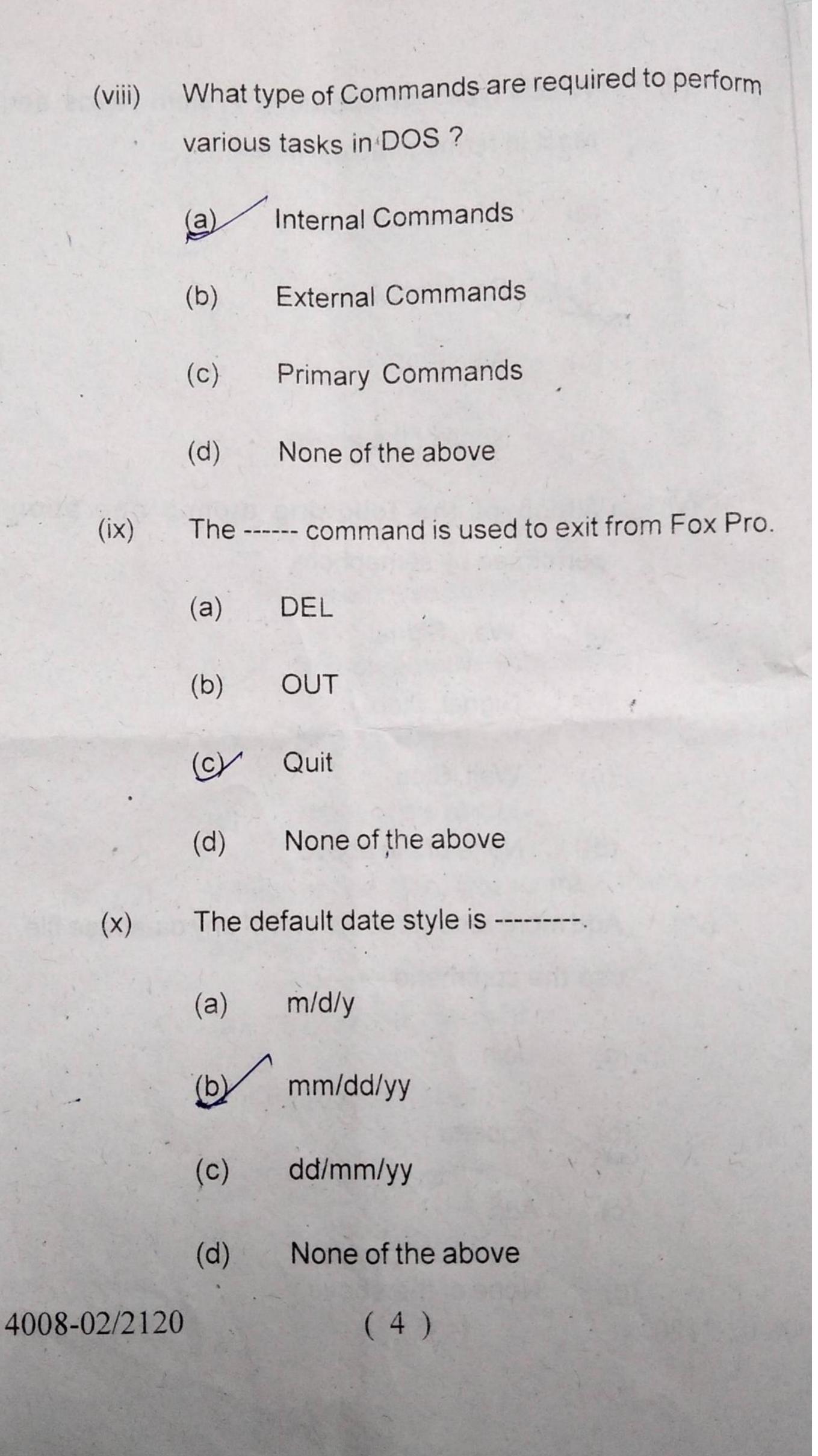
All of the above

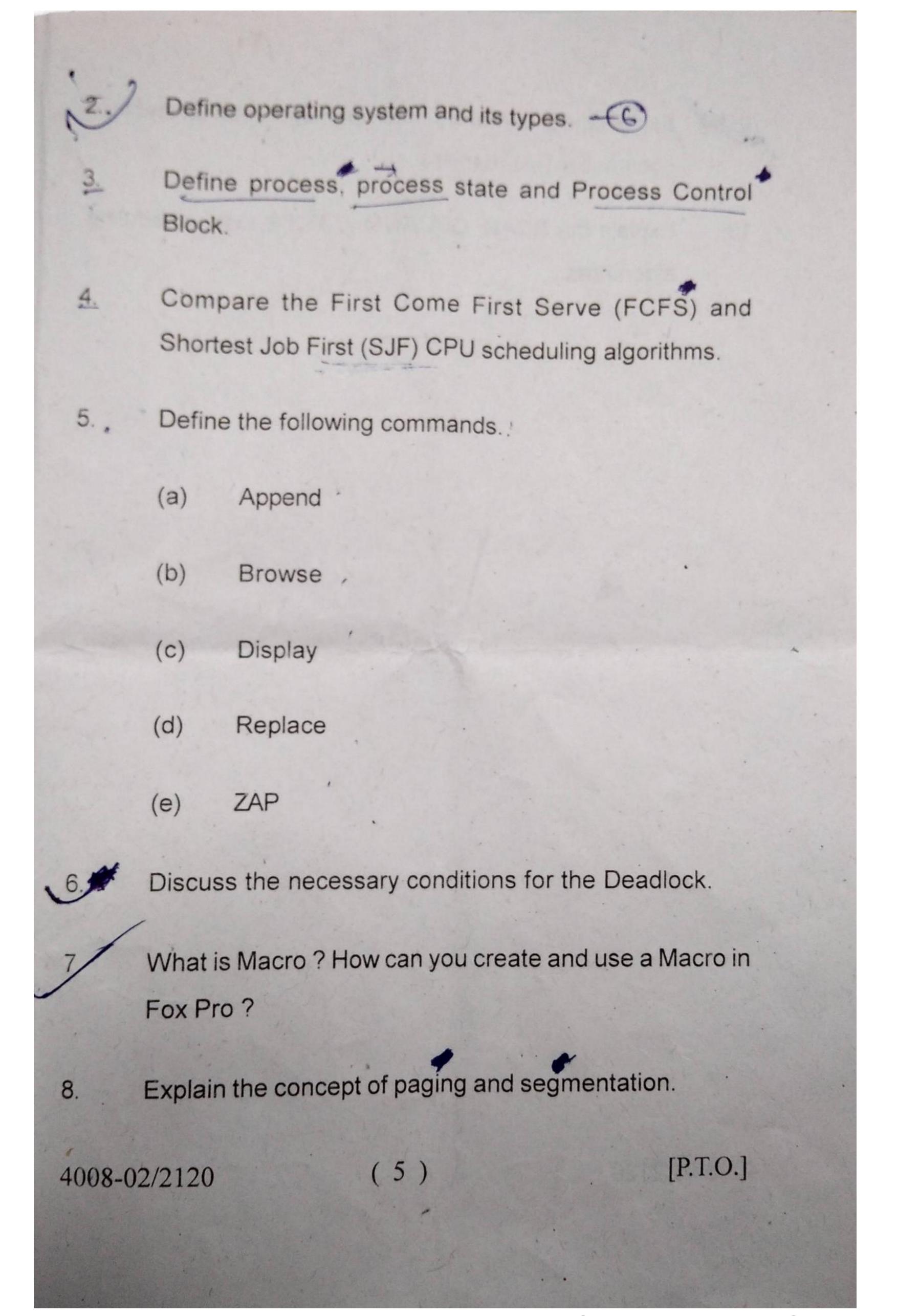
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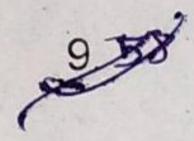
(1)

	In Unix	which system call creates the new ?
	(a)	Fork
	(b)	Create
	(c)	New
	(d)	None of the above
(iii)	FIFO o	r FCFS Scheduling is a type of:
	(a)	Pre-emptive scheduling
	(b) 1	Non-preemptive scheduling
	(c)	Both (a) and (b)
	(d)	None of the above
(iv)	Which	of the following is/are CPU scheduling hm?
	(a)	Shortest Job First
	(b)	Round Robin
	(6)	Both (a) and (b)
	(d)	None of the above
4008-02/2120		(2)



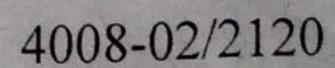






Explain the External and Internal Fragmantation and also compaction mechanism.

10: Explain the SCAN, CSCAN and FCFS disk scheduling algorithms.



1404-01

**Total Pages: 16** 

Degree (Part-I) Examination, 2022

(Vocational)

# MATHEMATICS

[Paper: First]

[PPU-D-I-(Sub)-MATH]

Time: Three Hours]

[Maximum Marks: 100

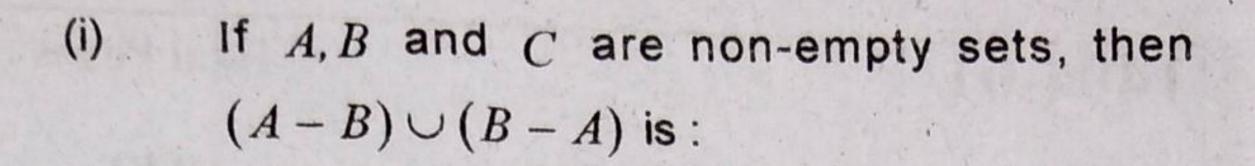
Note: Candidates are required to give their answers in their own words as far as practicable. The questions are of equal value. Answer five questions in all. Question No. 1 is compulsory. Besides this attempt at least one question from each section.

परीथार्थियों यथासंभव अपने शब्दों में ही उत्तर दें। सभी प्रश्न समान अंक के हैं। कुल पाँच प्रश्नों के उत्तर दीजिए। प्रश्न सं. 1 अनिवार्य है। इसके अलावा प्रत्येक खंड से कम से कम से एक प्रश्न का उत्तर दीजिये।

1. Answer all the questions.

सभी प्रश्नों के उत्तर दीजिए:

(1)



(a) 
$$(A \cup B) - (A \cap B)$$

(b) 
$$A-(A\cap B)$$

(c) 
$$(A \cap B) \cup (A \cup B)$$

(d) 
$$(A \cup B) - B$$

यदि A,B और C गैर-रिक्त समुच्चय हैं, तो  $(A-B)\cup(B-A)$  है :

(a) 
$$(A \cup B) - (A \cap B)$$

(b) 
$$A-(A\cap B)$$

(c) 
$$(A \cap B) \cup (A \cup B)$$

(d) 
$$(A \cup B) - B$$

(ii) Suppose  $S = \{1, 2, 3\}, T = \{1, 3, 5\}$  and  $K = \{2, 3, 4, 5\}$ , then which of the following is correct?

(a) 
$$S \cup T = \{1, 2, 3\}$$

(b) 
$$S \cup K = \{1, 2, 3, 4\}$$

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(2)

- (c)  $S \cap T = \{1, 2, 3\}$
- (d) None of these

मान लीजिए  $S = \{1,2,3\}, T = \{1,3,5\}$  और  $K = \{2,3,4,5\}$ , तो निम्नलिखित में से कौन-सा सही है ?

- (a)  $S \cup T = \{1, 2, 3\}$
- (b)  $S \cup K = \{1, 2, 3, 4\}$
- (c)  $S \cap T = \{1, 2, 3\}$
- (d) इनमें से कोई नहीं
- (iii) In the group of non-zero rational numbers under the binary operation "\*" given by a\*b=a+b+1, the inverse of 2 is:
  - (a) -2
  - (b) -1
  - (c) -4
  - (d) None of these

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(3)

a\*b=a+b+1 द्वारा दिए गए बाइनरी ऑपरेशन " \* " के तहत गैर-शून्य परिमेय संख्याओं के समूह में, 2 का व्युत्क्रम है: (a) (b) (c) (d) इनमें से कोई नहीं If  $(1, \omega, \omega^2)$  is an abelian group under multiplication, then identity element is: (a) (b) (c) (d) 0 अगर  $(1, \omega, \omega^2)$  गुणन के तहत एक एबेलियन समूह है, तो पहचान तत्व है: (a) (b)

(iv)

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- (c) -1
- (d) w
- (v) Which of the following are necessarily true?
  - (a) |AB| > |A||B|
  - (b). |AB| < |A||B|
  - (c) |AB| = |A||B|
  - (d) None of these

निम्नलिखित में से कौन-सा आवश्यक रूप से सत्य है ?

- (a) |AB| > |A||B|
- (b) |AB| < |A||B|
- (c) |AB| = |A||B|
- (d) इनमें से कोई नहीं

(vi) If 
$$A = \begin{bmatrix} 2 & x-3 & x-2 \\ 3 & -2 & -1 \\ 4 & -1 & -5 \end{bmatrix}$$
 is a symmetric matrix,

then x =

- (a) 3
- (b). 6

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(5)

- (c) 8
- (d) 4

यदि 
$$A = \begin{bmatrix} 2 & x-3 & x-2 \\ 3 & -2 & -1 \\ 4 & -1 & -5 \end{bmatrix}$$
 एक समित आव्यूह है,

तो 
$$x =$$

- (a) 3
- (b) 6
- (c) 8
- (d) 4
- (vii) Which one of them is not interval?
  - (a) (1,2)
  - (b).  $\left(\frac{1}{2}, \frac{1}{3}\right)$
  - (c)  $(3,\pi)$
  - (d)  $(2\pi, 180)$

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(6)

इनमें से कौन अंतराल नहीं है ?

- (a) (1,2)
- (b)  $\left(\frac{1}{2}, \frac{1}{3}\right)$
- (c)  $(3,\pi)$
- (d)  $(2\pi, 180)$
- (viii) Let  $A = \{x \mid x \in \mathbb{N} \land x^2 \le 7\}$ , then supremum of A is:
  - (a) 7
  - (b) 3
  - (c) Does not exist
  - (d) 0

माना  $A = \{x \mid x \in \mathbb{N} \land x^2 \le 7\}$ , तो A का सर्वोच्च मूल्य है :

- (a) 7
- (b) 3

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(7)

- (c) मौजूद नहीं
- (d) 0
- (ix) The conic  $x^2 + 4xy + y^2 2x + 2y 6 0$  represents:
  - (a) Hyperbola
  - (b) Parabola
  - (c) Ellipse
  - (d) Circle

शंकु 
$$x^2 + 4xy + y^2 - 2x + 2y - 6 - 0$$
 दर्शाता है:

- (a) अतिपरवलय
- (b) परवलय
- (c) दीर्घवृत्त
- (d) वृत्त
- (x) The acute angle between the lines x 2 = 0 and  $\sqrt{3}x y 2 = 0$  is :
  - (a) 0°
  - (b). 30°

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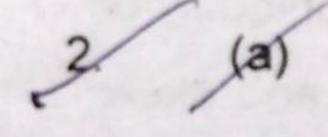
(8)

- (c) 45°
- (d) 60°

रेखाओं x-2=0 तथा  $\sqrt{3}x-y-2=0$  के बीच का न्यून कोण है :

- (a) 0°
- (b) 30°
- (c) 45°
- (d) 60°

#### Section-A / खण्ड-अ



Two finite sets have m and n elements, respectively. The total number of subsets of first set is 56 more than the total number of subsets of the second set. Find the values of m and n.

दो परिमित समुच्चयों में क्रमशः m और n अवयव हैं। पहले समुच्चय के उपसमुच्चयों की कुल संख्या दूसरे समुच्चय के उपसमुच्चयों की कुल संख्या में 56 अधिक है। m और n के मान ज्ञात कीजिए।

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(9)

- Let A, B and C be sets. Then show that  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ .
  - मान लीजिए कि A,B और C समुच्चय हैं। फिर दिखाइए कि  $A\cap (B\cup C)=(A\cap B)\cup (A\cap C)$ ।
- Define group and show that nth root of unity forms a group.

समूह को परिभाषित कीजिए तथा दर्शाइए कि इकाई का गवाँ मूल समूह बनाता है।

(b) State and prove Lagrange's theorem. लैग्रेंज की प्रमेय को लिखिए और सिद्ध कीजिए।

## Section-B / खण्ड-ब

4. (a) Show that every square matrix can uniquely be expressed as a sum of symmetric and skew-symmetric matrix.

दिखाइए कि प्रत्येक वर्ग मैद्रिक्स को विशिष्ट रूप से समित और तिरष्ठा-समित मैद्रिक्स के योग के रूप में व्यक्त किया जा सकता है।

(b) If 
$$A = \begin{bmatrix} 1 & 2 \\ 4 & 1 \end{bmatrix}$$
, then find  $A^2 + 2A + 7I$ .

अगर 
$$A = \begin{bmatrix} 1 & 2 \\ 4 & 1 \end{bmatrix}$$
, तो  $A^2 + 2A + 7I$  खोजें। 1404-01/2700 (10)

5

(a)

Solve the following L.P.P. graphically:

Max.

$$Z = 3x + 5y$$

Subject to

$$3x + 5y \le 15$$

$$5x + 2y \le 10$$

$$x \ge 0, y \ge 0$$

निम्नलिखित को आलेखीय रूप से हल कीजिए:

अधिकतम

$$Z = 3x + 5y$$

बाधाओं के अधीन

$$3x + 5y \le 15$$

$$5x + 2y \le 10$$

$$x \ge 0, y \ge 0$$

(p)

Solve the following L.P.P. using Simplex method:

Max.

$$Z = 40x + 30y$$

Subject to

$$x + y \le 12$$

$$2x + y \le 16$$

$$x \ge 0, y \ge 0$$

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(11)

निम्नलिखित एल.पी.पी. को सिम्प्लेक्स विधि का उपयोग करके हल कीजिए :

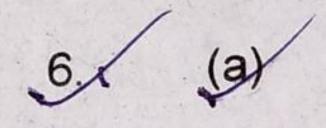
$$Z = 40x + 30y$$

$$x + y \le 12$$

$$2x + y \le 16$$

$$x \ge 0, y \ge 0$$

# Section-C / खण्ड-स



Prove that the subsequence of a convergent sequence is also convergent.

सिद्ध कीजिए कि अभिसारी अनुक्रम का अनुगमन भी अभिसारी होता है।

(b) : Discuss the convergence of the series  $\sum \frac{1}{n^p}$ 

शृंखला  $\sum \frac{1}{n^p}$  के अभिसरण पर चर्चा कीजिए।

7. (a) Simplify:

(i) 
$$(\sqrt{3} + i)^{18}$$

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(12)

(ii) 
$$(1-\sqrt{3}i)^{23}$$

सरल कीजिए:

(i) 
$$\left(\sqrt{3}+i\right)^{18}$$

(ii) 
$$(1-\sqrt{3}i)^{23}$$

- (b) Prove the following:
  - (i)  $\sin 3x = 3\sin x 4\sin^3 x$
  - (ii)  $\cosh 2x = 2(\cosh x)^2 1$

निम्नलिखित को सिद्ध कीजिए:

(i) 
$$\sin 3x = 3\sin x - 4\sin^3 x$$

(ii) 
$$\cosh 2x = 2(\cosh x)^2 - 1$$

8. (a) If  $\sin(\alpha + i\beta) = x + iy$ , then prove that

$$\frac{x^2}{\cosh^2 \beta} + \frac{x^2}{\sinh^2 \beta} = 1 \text{ and } \frac{x^2}{\sin^2 \alpha} - \frac{y^2}{\cos^2 \alpha} = 1.$$

अगर  $\sin(\alpha + i\beta) = x + iy$ , तो सिद्ध कीजिए कि

$$\frac{x^2}{\cosh^2\beta} + \frac{x^2}{\sinh^2\beta} = 1 \quad \pi e = \frac{x^2}{\sin^2\alpha} - \frac{y^2}{\cos^2\alpha} = 1.$$

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(113)

(b) Resolve  $\tan^{-1}(\cos\theta + i\sin\theta)$  into its real and imaginery parts.

 $\tan^{-1}(\cos\theta + i\sin\theta)$  को उसके वास्तविक और काल्पिनक भागों में हल कीजिए।

## Section-D / खण्ड-द

9. (a) Trace the conic

$$3(3x-2y+4)^2+2(2x+3y-5)^2=39$$
.  
शंकु  $3(3x-2y+4)^2+2(2x+3y-5)^2=39$   
को द्रेस कीजिए।

(b) Find the co-ordinates of the focus and equation to its directrix of the parabola

$$9x^2 + 24xy + 16 + y^2 - 2x + 14y + 1 = 0$$

परवलय

 $9x^2 + 24xy + 16 + y^2 - 2x + 14y + 1 = 0$  की अपनी दिशा के लिए फोकस और समीकरण के निर्देशांक खोजिए।

$$\frac{x+3}{2} = \frac{y+3}{2} = \frac{z-4}{-1}$$
 and

$$\frac{x-4}{1} = \frac{y+4}{2} = \frac{z+1}{2}$$

रेखाओं के बीच का कोण ज्ञात कीजिए

$$\frac{x+3}{2} = \frac{y+3}{2} = \frac{z-4}{-1}$$
 और

$$\frac{x-4}{1} = \frac{y+4}{2} = \frac{z+1}{2}.$$

(b) Find the equation of the plane which contains the

line 
$$\frac{x-1}{2} = \frac{y+1}{-1} = \frac{z-3}{4}$$
 and the plane

$$x + 2y + z = 12.$$

उस समतल का समीकरण ज्ञात कीजिए जिसमें रेखा है

$$\frac{x-1}{2} = \frac{y+1}{-1} = \frac{z-3}{4}$$
 और समतल

$$x + 2y + z = 12.$$

2407-01

**Total Pages: 8** 

Degree (Part-I) Examination, 2022

(Vocational)

## **ENGLISH**

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

# (The Golden Treasury, The Literary Heritage, The Merchant of Venice)

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. Attempt all questions:

1

Explain the following lines with reference to the content:

[8×3=24]

(a)

A guest, I answered, worthy to be here:

Love said, You shall be he.

I the unkind, ungrateful? Ah my dear,

I cannot look on thee.

Love took my hand, and smiling did reply,

Who made the eyes but I?

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(1)

### OR

No motion has she now, no force;

She neither hears nor sees;

Rolled round in earth's diurnal course,

With rocks, and stones, and trees.

They all become exactly the same, not worse,
not better. I give any Englishman two years,
be he Turton or Burton. It is only the difference of
a letter. And I give any English woman six months.
All are exactly alike.

### OR

And amidst the little population of that now isolated and forgotten valley the disease ran its course. The old became groping, the young saw but dimly, and the children that were born to them never saw at all.

(c) You may as well go stand upon the beach

And bid the main flood bate his usual height.

You may as well use question with the wolf Why he hath made the ewe bleat for the lamb. You may as well forbid the mountain pines To wag their high tops and to make no noise When they are fretten with the gusts of heaven.

#### OR

Yes, to smell pork; to eat of the habitation which your prophet the Nazarite conjured the devil into.

I will buy with you, sell with you, talk with you, walk with you and so following, but I will not eat with you, drink with you, nor pray with you.

[20×3=60] Answer the following questions:

> Write a critical summary of the poem "Ode to the (a) West Wind" bringing out its theme.

## OR

Write a critical appreciation of the poem "Break, Break, Break" by A. L. Tennyson.

[P.T.O.]

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(b) What is the irony in 'The Country of the Blind'?

#### OR

Describe the character of the postman in Tagore's "The Postman".

Job Shylock a villian or victim in the play "The Merchant of Venice"?

#### OR

Discuss the Casket scene of "The Merchant of Venice" in Detail.

Write a precis of the following passage: [16×1=16]

The great advantage of early rising is the good start it gives us in our day's work. The early riser has done a large amount of hard work before other men have got out of bed. In the early morning the mind is fresh, and there are few sounds or other distractions, so that work done at that time is generally well done. In many cases, the early riser also finds time to take some exercise in the fresh morning air, and this exercise supplies him with a fund of energy that will last until the evening. By beginning so early, he knows that he has plenty of time to do thoroughly all the work he can be expected to do, and is

not tempted to hurry over any part of it. All his work being finished in good time, he has a long interval of rest in the evening before the timely hour when he goes to bed. He gets to sleep several hours before midnight, at the time when sleep is most refreshing and after a sound night's rest, rises early next morning in good health and spirits for the labours of a new day.

It is very plain that such a life as this is far more conducive to health than that of the man who shortens his waking hours by rising late, and so can afford in the course of the day little leisure for necessary rest. Any one who lies in bed late, must, if he wishes to do a full day's work, go on working to a correspondingly late hours and deny himself the hour or two of evening exercise that he ought to take for the benefit of his health. But, in spite of his efforts, he will probably produce as good results as the early riser, because he misses the best working hours of the day.

It may be objected to this that some find the perfect quiet of midnight by far the best time for working. This is no doubt true in certain cases. Several great thinkers have found by experience that their intellect is clearest, and

they can write best, when they burn the midnight oil. But even in such cases the practice of working late at night can not be commended. Few men, if any, can exert the full power of their intellect at the time when nature prescribes sleep, without running their health thereby; and of course the injury done to the health must in the long run have a bad effect on the quality of the work done.

7401-01

**Total Pages: 8** 

Degree (Part-I) Examination, 2022

(Vocational - Composition)

## HINDI

[Paper: First]

[ PPU-D-I-(V)-(COMP)-HIN(100M) ]

Time: Three Hours

[Maximum Marks: 100

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

1 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दीजिए [15×2=30]

- (क) कबीरदास, रहीम, बिहारीलाल में से किसी एक किव का काव्यात्मक परिचय दीजिए।
- सूरदास की भिक्तभावना की विशेषताओं पर प्रकाश डालिए।

- (ग) रामधारी सिंह दिनकर की कविताओं में राष्ट्रीय भावना का परिचय दीजिए।
- 2. निम्नलिखित अवतरणों में से किन्हीं तीन की सप्रसंग व्याख्या कीजिए - [10×3=30]
  - (क) कनक कनक से सौ गुनी, मादकता अधिकाय या खाये बौरात नर, वा पाये बौ राय।।
  - अधी, मोहि ब्रज बिसरत नाहीं।

    बृन्दावन गोकुल तन आवत, सघन तृनन की छाहीं।

    प्रात समय माता जसुमित अरु नन्द देखि सुख पावत।

    माखन रोटी दह्यो सजायी अति हित साथ खवावत।।
  - (ग) यह बिनती रघुवीर गुसांई और आस विश्वास भरोसो, हरो जीव जड़ताई।
  - (घ) कहलाने एकत बसत, अहि, मयूर, मृग, बाघ। जगतु तपोवन सौं कियो। दीरघ दाघ निदाघ।।
  - (ङ) बड़ सुख सार पाओल तुअ तीरे। छोड़इत निकट नयन बह नीरे।।



निम्नलिखित में से किसी एक विषय पर निबन्ध लिखिए -[15×1=15]

- (क) हृदय रोग: आम समस्या
- (ख) सुभाष चन्द्र बोस
- (ग) चुनाव आयोग की चुनाव में भूमिका एवं अधिकार
- (घ) छात्र और बेरोजगारी
- (ङ) साहित्यिक पत्रिका का महत्त्व
- (च) राष्ट्र की मूल समस्या (वर्तमान परिप्रेक्ष्य में)

निम्नलिखित प्रश्नों में से किन्हीं तीन के उत्तर दीजिए-[3×5=15]

(क) निम्न वाक्यों को शुद्ध कीजिए।

(भ) वह गये थे।

- (॥) दूध फट गयी।
- (iii) मेरा भैया बाजार गया है।
  - (iv) वह बोलता था सदा झूठ।

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(3)

(v) मुझे प्याला चाय गरम दो।

(ख) निम्नलिखित मुहावरे एवं लोकोक्तियों में से पाँच का अर्थ लिखिए :-

> अंग टूटना, अंधे की लकड़ी, अन्न जल उठना, अपने पाँव पर कुल्हाड़ी मारना, सिर पीटना, सिर फिर जाना, गर्दन उठाना, अंधों में काना राजा, अधजल गगरी छलकत जाय, आगे नाथ न पीछे पगहा।

- (ग) निम्नलिखित शब्दों के विपरीतार्थक शब्द लिखिए -अल्पज्ञ, अवनत, अथ, अवनि, उपकार, उत्साह, उत्तम, एकता, उत्थान, उदयाचल, क्रय, क्रूर, कोप
- (घ) सर्वनाम की परिभाषा देते हुए उसके भेदों को सोदाहरण लिखिए।
- (ङ). निम्नलिखित शब्दों के दो-दो पर्यायवाची शब्द लिखिए-जल, विष्णु, यमुना, धरती, इन्द्र, पवन।

5 निम्नलिखित वस्तुनिष्ठ प्रश्नों के उत्तर दीजिए - [10×1=10] (क) 'कवितावली' के रचयिता कौन हैं?

(ख) 'सद्गति' कहानी के लेखक कौन हैं? प्रेरिए १६६

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