

(6 pages)

Reg. No. : .....

Code No. : 21243

Sub. Code : JMCA

B.C.A. (CBCS) DEGREE EXAMINATION, APRIL, 2016

Third Semester

Computer Application — Main

JAVA PROGRAMMING

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Java is

- (a) Simple                      (b) Portable  
(c) OOP                         (d) All of these

2. What is the value of  $7\%10$ ?

- (a) 1                              (b) 3  
(c) 7                              (d) 0

Which keyword refers the current object?

- (a) This                              (b) Final  
(c) Static                            (d) Finalize

\_\_\_\_\_ keyword refers the super class.

- (a) This  
(b) Super  
(c) Abstract  
(d) None of these

What is the name of method used to start thread execution?

- (a) Start                              (b) Init  
(c) Run                                (d) Resume

Which visibility label is default in Java?

- (a) Public  
(b) Private  
(c) Protected  
(d) None of these

7. To get input from keyboard package is used.
- (a) Applet (b) AWT  
(c) IO (d) NET
8. HTML stands for
- (a) Hyper Text Markup Language  
(b) Hybrid Markup Language  
(c) Hyper Text Media Language  
(d) Hyper Transfer Markup Language
9. AWT stands for
- (a) Abstract Window Toolkit  
(b) Abstract Window Toolbar  
(c) Auto Window Toolkit  
(d) Auto Window Toolbar
10. Which of the following is default layout?
- (a) Flow  
(b) Grid  
(c) Border  
(d) Card

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) Explain about operators used in Java.

Or

- (b) Explain about type conversion and casting.

- (a) Explain about constructor with example.

Or

- (b) What is Access control? Explain about Access specifiers.

- (a) Explain about packages.

Or

- (b) Explain about try and catch with example.

- (a) Explain about simple applet display method.

Or

- (b) Explain about any five Event Listener interfaces.



15. (a) Describe about window fundamentals with example.

Or

(b) Describe about labels with example.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. (a) Explain about the data types of Java.

Or

(b) What is array and explain about arrays with example.

17. (a) Explain about: (i) Argument  
(ii) Returning object.

Or

(b) Explain about inheritance basis.

18. (a) Explain about interfaces with example.

Or

(b) Explain about throw, throws and finally.

- (a) What is event class? Explain about any five event class with example.

Or

- (b) Explain about:

(i) The html applet tag 4

(ii) Passing parameters to Applets 3

(iii) Write a simple program for status window creation using Applets.

- (a) Explain about working with Graphics AWT components.

Or

- (b) Explain about any four control fundamentals.
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Reg. No. : .....

Code No. : 21195

Sub. Code : JMCA 31

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2017.

Third Semester

Computer Application – Main

JAVA PROGRAMMING

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Java was originally called as

- (a) Oak
- (b) Hot java
- (c) J2EE
- (d) Structured language

2. \_\_\_\_\_ means the ability to take more than one form.

- (a) Encapsulation
- (b) Dynamic binding
- (c) Polymorphism
- (d) Inheritance

3. A package is a collection of

- (a) Classes
- (b) Interfaces
- (c) Editing tools
- (d) Classes and Interfaces

4. \_\_\_\_\_ is an open ended information retrieval system designed to be used in Internet's distributed environment.

- (a) HTML
- (b) WWW
- (c) Applet
- (d) Hot Java

5. Math class was defined in the \_\_\_\_\_ package.

- (a) Java.io
- (b) Java.util
- (c) Java.net
- (d) Java.long.

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6. Finalise is a  
(a) Method (b) Class  
(c) Keyword (d) Access specifier
7. \_\_\_\_\_ variables are used when we want to have a variable common to all instance of a class.  
(a) Static  
(b) Local  
(c) Class  
(d) Default
8. What is the value of 7%10?  
(a) 1 (b) 3  
(c) 7 (d) 0
9. A cast is simply an \_\_\_\_\_ conversion.  
(a) Implicit  
(b) Explicit  
(c) Type conversion  
(d) All the above
10. \_\_\_\_\_ method is used to initiate the thread executor.  
(a) Flow (b) Grid  
(c) Border (d) Card

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Why Java is important to Internet?  
Or  
(b) Discuss the data types in java.
12. (a) Explain finalizer () method.  
Or  
(b) Write short notes on command line arguments.
13. (a) Write short notes on Interface.  
Or  
(b) Explain any five methods of thread class.
14. (a) Explain applet architecture with suitable example.  
Or  
(b) Discuss various html applet tags.

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15. (a) Explain any five methods of graphics class.

Or

(b) How to use AWT Controls?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the basic concepts of OOP.

Or

(b) Explain all operators in java.

17. (a) Explain method overloading with suitable example.

Or

(b) Explain the concept of constructors.

18. (a) What is package? How to import package? Explain.

Or

(b) Write a java program to implement multithreading.

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19. (a) Explain JDBC architecture with database.

Or

(b) Explain the life cycle of applet.

20. (a) Explain any two AWT controls with example.

Or

(b) How to create menus in Java?

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Reg. No. : .....

Code No. : 21244

Sub. Code : JMCA 32

B.C.A. (CBCS). DEGREE EXAMINATION,  
APRIL 2018.

Third Semester

Computer Application – Main

ESSENTIALS OF FINANCIAL ACCOUNTING

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

Drawing is opposite of

- |            |             |
|------------|-------------|
| (a) income | (b) capital |
| (c) assets | (d) expense |

\_\_\_\_\_ is one to whom a debt is owed.

- |                |            |
|----------------|------------|
| (a) proprietor | (b) debtor |
| (c) creditor   | (d) none   |

3. A commences a business with a capital of Rs 10,000 ————— account is debited in the books
- (a) A's
  - (b) cash
  - (c) capital
  - (d) none
4. Goods returned by customers are recorded in
- (a) sales book
  - (b) purchase book
  - (c) sales return book
  - (d) purchase return book
5. Trial balance is prepared to find out the
- (a) profit and loss
  - (b) financial position
  - (c) arithmetical accuracy of the account
  - (d) balance sheet
6. State which of the following errors will not be revealed by the Trial balance
- (a) errors of complete omission
  - (b) error of carrying forward
  - (c) wrong totaling of the purchase book
  - (d) error of carrying backward

Opening stock is

- (a) debited in trading account
- (b) credited in trading account
- (c) credited in profit and loss account
- (d) debited in profit and loss account

Balance sheet is a

- (a) statement
- (b) account
- (c) ledger
- (d) journal

Receipts and payment account shows

- (a) income and expenditure
- (b) cash receipts and payments
- (c) assets and liabilities
- (d) none

Non trading institutions prepare

- (a) profit & loss a/c
- (b) manufacturing a/c
- (c) income and expenditure a/c
- (d) none



Answer ALL questions, choosing either (a) or (b).

11. (a) Describe the objectives of accounting.

Or

(b) Explain the "Bases of accounting".

12. (a) Journalise the following transactions in the books of Mr. Arun.

Date	Particulars	Rs.
2017 Jan 1	Mr. Arun commenced business with cash	6000
2	Purchased goods for cash	1000
3	Purchased goods from Mr. Balu on credit	7000
7	Paid into Bank	6000
10	Purchased furniture	2000
21	Sold goods to Geetha on credit	6000
25	Cash Sales	3000
26	Paid to Mohan on account	1000
31	Paid salaries	2000

Or

(b) Explain how to post journal entry in the Ledger.

(a) Explain how to locate errors in trial balance.

Or

(b) Write the Specimen form of trial balance.

(a) State the difference between trading and profit and loss account.

Or

(b) State the difference between trial balance and balance sheet.

(a) Distinguish between income and expenditure account and profit and loss account.

Or

(b) Prepare income and expenditure account from the following receipts and payment account of Kamaraj Sports club for the year ending 31<sup>st</sup> Dec 2005

	Rs.	Payments	Rs.
Receipts			
Balance b/d	1,000	By rent	400
Donations	520	By sundry expenses	420
	6,600	By postage & Telegram	140
Disbursements		By stationary	60
		By investment	2,000

By Balance c/d:

Cash in Bank

Cash in hand

8,120

Additional information :

- (i) Subscription from member outstanding in 31<sup>st</sup> Dec 2005, Rs. 400.
- (ii) Rent due but not paid on 31<sup>st</sup> Dec 2005, Rs. 120.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

16. (a) Briefly explain various types of accounts.

Or

- (b) What are accounting conventions? List them.

17. (a) Enter the following transactions in the subsidiary records

- May 1 Purchased goods from John for Rs 500 less 10% trade discount
- 4 Returned John goods worth Rs.100
- 8 Sold goods to Ram for Rs. 400 less 10% discount

11 Ram returned us goods worth Rs 100

15 Sold goods to Dani for Rs. 300 less 10% trade discount

17 Dani returned us goods worth Rs. 50

20 Bought goods from Easwer for Rs 300

25 Sold goods to Gopal for Rs. 130

Or

- (b) Enter the following transaction in a cash book 2003.

		Rs.
May	1	Balance of cash in hand 1,200
	1	Cash sales 3,000
	2	Paid for cash purchases 1,500
	4	Received from Seenu 2,500
	7	Deposited into bank 1,000
	9	Bought goods 250
	13	Paid Taxi charges 140
	15	Paid wages 100
	20	Cash sales 1,300
	21	Received from Gopal 2,000
	24	Paid auto charges 40

26	Bought goods	1,600
30	Bought furniture	1,000
29	Paid salary	1,500
30	Paid wages	470
30	Paid rent	1,000
31	Paid to Mahesh	550

(a) Explain any one structure of the balance sheet.

Or

(ii) Write the specimen form of Profit and loss account.

(iii) Write the specimen form of Receipts and payments account.

Or

(iii) Compute the expenditure to be shown in income and expenditure account from the following

Rs.

(i) Sports materials purchased for cash	20,000
Opening stock of sports material	5,000
Closing stock of sports materials	8,000
Opening creditors for sports materials	7,000
Cash paid to creditors for sports materials	22,000
Closing creditors for sports materials	6,000

18. (a) Rectify the following errors

Purchase book is overcast by Rs. 1,300

Sales book undercast by Rs. 2,500

Purchase return book overcast by Rs. 700

Sales return book under cast by Rs. 600

Or

(b) Prepare Trial balance from the following

Capital	75,000	Sales	1,30,000
Stock	30,000	Debtors	40,000
Purchases	50,000	salary	10,000
Interest (Cr.)	5,000	Loan	20,000
Bills Payable	9,000	wages	1,000
Bad debts	2,000	cash	1,00,000

(ii) Stationary purchased during the year	40,000
Opening stock of stationary	8,000
Closing stock of stationary	9,000

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- (b) From the following find how much is to be shown in income and expenditure account for the year ending 31.12.97 for subscriptions

	Rs.
Subscription received during the year as	
Per receipts and payment accounts	28,680
Subscription outstanding on 01.01.97	2,400
Subscription outstanding on 31.12.97	3,000
Subscription received in advance on 01.01.97	1,800
Subscription received in advance on 31.12.97	1,080

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Sub. Code : JMCA 32

B.C.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2017.

Third Semester

Computer Application — Main

ESSENTIALS OF FINANCIAL ACCOUNTING

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Assets=?
  - Capital – liabilities
  - Capital – depreciation
  - Liabilities – assets
  - Capital + liabilities





2. The concept closely related to going concern concept is

- (a) Cost concept      (b) Dual aspect
- (c) Accounting        (d) Going concern

3. Journal proper is used to record

- (a) total purchase
- (b) credit purchases or assets
- (c) all expenses paid in cash
- (d) all adjusting and rectified entries

4. The appropriate book which is used to record credit purchase of land is

- (a) purchase book    (b) journal proper
- (c) cash book        (d) sales book

5. Any difference in Trial balance is normally transferred to

- (a) Capital account
- (b) Suspense account
- (c) Sundry expense account
- (d) None

6. Errors of carry forward affect

- (a) personal a/c      (b) impersonal a/c
- (c) nominal a/c      (d) real a/c

7. Capital is

- (a) income            (b) asset
- (c) liability           (d) loss

8. Current liabilities are recorded in the balance sheet on

- (a) liability side      (b) asset side
- (c) both side         (d) none

9. Receipts and payments account shows

- (a) income and expenditure
- (b) cash receipts and payments
- (c) assets and liabilities
- (d) profit and loss

10. Legacies are generally

- (a) treated as income
- (b) capitalized and taken to balance sheet
- (c) treated as expenditure
- (d) treated as loss





SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Distinguish between accounting and book keeping.

Or

- (b). Explain various methods of accounting.

12. (a) Journalise the following transactions in the books of Tmt. Amutha

		Rs.
2014	TmtAmutha commenced business with	50,000
Jan	cash	
1		
2	Purchased goods for cash	10,000
5	Purchased goods from Mohan on credit	6,000
7	Paid into Bank	5,000
10	Purchased furniture	2,000
20	Sold goods to Suresh on credit	5,000
25	Cash Sales	3,500
26	Paid to Mohan on account	3,000
31	Paid salaries	2,800

Or

- (b) Write the Difference between Journal and Ledger.

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13. (a) List the advantages of trial balance.

Or

- (b) Explain various kinds of errors committed in accounting process.

14. (a) Write the specimen form of a Trading account.

Or

- (b) Explain the classification of assets and liabilities.

15. (a) State the difference between Receipts and Payment account and Income and Expenditure account.

Or

- (b) Distinguish between income and expenditure account and profit and loss account.

SECTION C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 600 words.

16. (a) Explain various steps in the process of accounting in detail.

Or

- (b) Briefly explain Dual aspect concept and cost concepts.

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17. (a) Enter the following transaction in a cash book

2005		Rs.
March 1	Balance of cash in hand	200
1	Cash sales	3,000
2	Paid for cash purchases	1,500
4	Received from Ramu	2,500
7	Deposited into bank	1,000
9	Bought goods	250
13	Paid Taxi charges	140
15	Paid wages	100
20	Cash sales	1,300
21	Received from Gopal	2,000
24	Paid auto charges	40
28	Bought goods	1,500
29	Bought furniture	1,000
30	Paid salaries	1,500
30	Paid wages	470
31	Paid rent	1,000
31	Paid to Mahesh	250

Or

- (b) Briefly explain various types of Subsidiary Books.

18. (a) Rectify the following errors

- (i) Purchase book is overcast by Rs. 1,300
- (ii) Sales book undercast by Rs. 2,500
- (iii) Purchase return book overcast by Rs. 750
- (iv) Sales return book under cast by Rs. 600

Or

- (b) The following balances were extracted from the ledger of Mr. Pramod as on 31<sup>st</sup> March 2016. You are requested to prepare a trial balance as on that date

Drawings	60,000	Salaries	95,000
Capital	2,40,000	Sales return	10,000
Sundry creditors	4,30,000	Purchase return	11,000
Bills Payable	40,000	Commission paid	1,000
Sundry debtors	5,00,000	Trading expenses	25,000
Bills receivable	52,000	Discount earned	5,000
Plant & Machinery	45,000	Rent	20,000
Opening stock	3,70,000	Bank overdraft	60,000
Cash in hand	9,000	Purchases	7,08,000
Cash at bank	25,000	Sales	11,80,000





19. (a) Write the Proforma of a Profit and Loss account.

Or

- (b) From the following Trial balance of M/S Ram and Sons, prepare trading and profit and loss account for the year ending on 31<sup>st</sup> March 2012 and the balance sheet as on the date

Trail Balance as on 31 <sup>st</sup> March 2012			
Particulars	Debit		Credit
	Rs.	Rs.	
Opening stock (1.4.2011)	5,000		
Purchases	16,750		
Discount allowed	1,300		
Wages	6,500		
Sales			30,000
Travelling expense	400		
Commission	425		
Carriage inwards	275		
Administration expenses	105		
Trade expenses	600		
Interest	250		
Building	5,000		
Furniture	200		
Debtors	6,250		
Creditors			2,100
Capital			13,000
Cash	2,045		
	<u>45,100</u>	<u>45,100</u>	

Stock on 31<sup>st</sup> March 2012 was Rs. 6,000.

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20. (a) The Chennai Cultural association gives you the following information and requires you to prepare the receipts and payments Account for the year 2015 Cash on 1.1.2015 was Rs. 2,50,000 and the same on 31.12.2015 was Rs. 2,40,000.

The receipts during the year were:

	Rs.
Subscription for 2013	5,000
Subscription for 2014	1,00,000
Subscription for 2015	5,750
Donation	20,000
Sale proceeds of waste paper	1,750
Hall Rent	15,000
Bank Interest	2,500
Admission fee of new members (20% to be capitalized)	10,000
The payments were	
Salary and wages	20,000
Telephone Expenses	3,500
Postage and stationary	9,750
Purchase of books	35,000
Entertainment Expenditure	15,000
Purchase of machinery	80,000
Miscellaneous expenses	6,750

Or

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Reg. No. : .....

Code No. : 21245

Sub. Code : JMCA 41

B.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Fourth Semester

Computer Application — Main

VISUAL BASIC

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A \_\_\_\_\_ method is used to display a form object.  
(a) Unload                      (b) Hide  
(c) Show                        (d) View
2. Visual basic project files are saved with an extension  
(a) .frm                         (b) .vb  
(c) .vbp                         (d) .obj

3. \_\_\_\_\_ and \_\_\_\_\_ functions are used to add predefined dialog boxes.  
(a) input ( ), msg box ( )  
(b) input ( ), dialogue box ( )  
(c) dialogue box ( ), input ( )  
(d) both (a) and (b)
4. \_\_\_\_\_ event occurs whenever the size of the form is changed.  
(a) Auto size                      (b) Minimize  
(c) Resize                         (d) Restore
5. A \_\_\_\_\_ is a collection of object classes that model the structure of relational database system.  
(a) DAO                              (b) ODBC  
(c) RDO                              (d) SQL
6. The data control implements data access by using \_\_\_\_\_.  
(a) Microsoft Jet engine  
(b) ODBC  
(c) Open source  
(d) Open database

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7. \_\_\_\_\_ is used to link or embed object display and manipulate data from other windows based applications.

- (a) OLE
- (b) Data control
- (c) ODBC
- (d) None of the above

8. The \_\_\_\_\_ is a spread sheet like bound control that displays a series of rows and columns representing rows and fields from a record set object.

- (a) Flex grid control
- (b) Tree view control
- (c) Db grid control
- (d) None of the above

9. An \_\_\_\_\_ is an object that we place on a form to enable or enhance a user's interaction with an application.

- (a) Active control
- (b) Tree view
- (c) Status bar
- (d) Tab strip

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10. \_\_\_\_\_ files are accessed byte by byte.

- (a) Sequential
- (b) Random
- (c) Binary
- (d) Text files

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Discuss about variables in visual basic.

Or

(b) Write about control arrays in visual basic.

12. (a) Explain with example any two mouse events.

Or

(b) Create a graphics application to draw different shapes.

13. (a) Discuss about evolution of computer architecture.

Or

(b) Discuss about record set.

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[P.T.O.]





14. (a) Discuss about OLE DRAG and DROP.

Or

(b) How to create an embedded object at runtime? Explain.

15. (a) Discuss about working with built-in active X controls.

Or

(b) Write about binary access file.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain about conditional structures in VB.

Or

(b) Develop an application for designing simple calculator and discuss.

17. (a) Explain about Menu creation in VB with an example.

Or

(b) Illustrate the properties and methods of Label control, Command Button and Scroll Bar.

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18. (a) Illustrate step by step procedure to link the controls through the ODBC.

Or

(b) Write a program to calculate Matrix Multiplication in VB.

19. (a) Discuss about Data environment designer.

Or

(b) Explain about OLE container controls.

20. (a) Discuss about built in ActiveX controls.

Or

(b) Discuss about ADO object model.

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(ஆ) கொடுக்கப்பட்ட தகவல்களியிருந்து ஒட்டுறவுக்  
கெழு மற்றும் உடன் தொடர்பு கோடுகளை  
கணக்கிடு.

x	1	2	3	4	5	6	7	8	9
y	9	8	10	12	11	13	14	16	15

Calculate the coefficient of correlation and  
obtain the lines of regression for the  
following data.

x	1	2	3	4	5	6	7	8	9
y	9	8	10	12	11	13	14	16	15

Reg. No. : .....

Code No. : 21137

Sub. Code : JNMA 3 B/  
JNMC 3 B

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2017.

Third Semester

Mathematics/Maths with CA

Non-Major Elective – I — FUNDAMENTALS OF  
STATISTICS – I

(For those who joined in July 2016 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. தகவல்கள் ஏறுவரிசை அல்லது இறங்கு வரிசையில்  
எழுதப்படுவது ————— என அழைக்கப்படும்

(அ) வரிசை

(ஆ) வீச்சு

(இ) அலைவெண்

(ஈ) இவை ஏதுமில்லை

Data expressed in ascending or descending order  
is called an —————

(a) array

(b) range

(c) frequency

(d) none





2. இவற்றில் எது ஒரு பரிமாண வரைபடம்?

(அ) கோல் (ஆ) வட்டம்

(இ) செவ்வகம் (ஈ) பை

Which is the one-dimensional diagram?

(a) Bar (b) Circles

(c) Rectangles (d) Pie

3. முதல்  $n$  இயல் எண்களின் கூட்டுச் சராசரியானது \_\_\_\_\_

(அ)  $\frac{1}{3}(2n+1)$  (ஆ)  $\frac{1}{2^n}$

(இ)  $\frac{(n+1)}{2}$  (ஈ)  $2^n$

Arithmetic mean of the first  $n$  natural number is \_\_\_\_\_

(a)  $\frac{1}{3}(2n+1)$  (b)  $\frac{1}{2^n}$

(c)  $\frac{(n+1)}{2}$  (d)  $2^n$

4. அலையெண் பரவல் தொகுப்பின் இடைநிலையானது \_\_\_\_\_

(அ)  $\frac{N}{2}$  (ஆ)  $l + \frac{(N/2 - m)h}{f_k}$

(இ)  $l + \frac{(N/4 - m)h}{f_k}$  (ஈ)  $l + \frac{(3N/2 - m)h}{f_k}$

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The median of grouped frequency distributions is \_\_\_\_\_

(a)  $\frac{N}{2}$  (b)  $l + \frac{(N/2 - m)h}{f_k}$

(c)  $l + \frac{(N/4 - m)h}{f_k}$  (d)  $l + \frac{(3N/2 - m)h}{f_k}$

5. அலையெண் பரவலின் திட்ட விலக்கமானது \_\_\_\_\_

(அ)  $\left[ \frac{\sum f_i (x_i - \bar{x})^2}{N} \right]^{1/2}$  (ஆ)  $\left[ \frac{\sum f_i (x_i - A)^2}{N} \right]^{1/2}$

(இ)  $\frac{\sum f_i |x_i - A|}{N}$  (ஈ) இவை ஏதுமில்லை

The standard deviation of a frequency distribution is \_\_\_\_\_

(a)  $\left[ \frac{\sum f_i (x_i - \bar{x})^2}{N} \right]^{1/2}$  (b)  $\left[ \frac{\sum f_i (x_i - A)^2}{N} \right]^{1/2}$

(c)  $\frac{\sum f_i |x_i - A|}{N}$  (d) None

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6. முதல்  $n$  இயல் எண்களின் மாறுபாடானது —————

(அ)  $\left[ \frac{n(n+1)}{2n} \right]^2$  (ஆ)  $\frac{(n^2-1)}{12}$

(இ)  $\left[ \frac{\sum x_i^2}{n} - \left( \frac{\sum x_i}{n} \right)^2 \right]^{1/2}$  (ஈ) இவை ஏதுமில்லை

The variance of the first  $n$  natural numbers is

(a)  $\left[ \frac{n(n+1)}{2n} \right]^2$  (b)  $\frac{(n^2-1)}{12}$

(c)  $\left[ \frac{\sum x_i^2}{n} - \left( \frac{\sum x_i}{n} \right)^2 \right]^{1/2}$  (d) None

7. ஒட்டுறவுக் கெழுவானது ————— சாராதவை

(அ) துவக்க புள்ளி மாற்றத்தை மட்டும்

(ஆ) அளவு மாற்றத்தை மட்டும்

(இ) துவக்க புள்ளி மற்றும் அளவு மாற்றத்தை

(ஈ) (அ)-ம் அல்ல, (ஆ)-ம் அல்ல

The correlation coefficient is independent of

(a) Change of origin only

(b) Change of scale only

(c) Change of origin and scale

(d) Neither (a) nor (b)

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8. தர ஒட்டுறவுக் கெழு  $\rho$ -ன் சரியான கூற்றானது —————

(அ)  $-1 < \rho < 1$  (ஆ)  $-1 \leq \rho \leq 1$

(இ)  $0 < \rho < 1$  (ஈ)  $-\infty < \rho < \infty$

For rank correlation coefficient  $\rho$  the correct statement is —————

(a)  $-1 < \rho < 1$  (b)  $-1 \leq \rho \leq 1$

(c)  $0 < \rho < 1$  (d)  $-\infty < \rho < \infty$

9.  $x$ -ன் மீதான  $y$ -ன் உடன் தொடர்பு கெழுவானது —————

(அ)  $\gamma \frac{\sigma_x}{\sigma_y}$  (ஆ)  $\gamma \frac{\sigma_y}{\sigma_x}$

(இ)  $\frac{\sigma_y}{\gamma \sigma_x}$  (ஈ)  $\frac{\sigma_x}{\gamma \sigma_y}$

The regression coefficient of  $y$  on  $x$  is —————

(a)  $\gamma \frac{\sigma_x}{\sigma_y}$  (b)  $\gamma \frac{\sigma_y}{\sigma_x}$

(c)  $\frac{\sigma_y}{\gamma \sigma_x}$  (d)  $\frac{\sigma_x}{\gamma \sigma_y}$

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10.  $\gamma = 0$  எனில் இரு உடன் தொடர்பு கோடுகள் —————

- (அ) இணையானவை  
(ஆ) செங்குத்து  
(இ) ஒன்றாக  
(ஈ) செங்குத்து தொடுகோடு

If  $\gamma = 0$  then the two regression lines are —————

- (a) Parallel (b) Perpendicular  
(c) Coincident (d) Normal

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 250 words.

11. (அ) வகைப்படுத்துதலின் பொருள்களை எழுதுக.

Write down the objects of classification.

Or

(ஆ) ஒரு குறிப்பிட்ட காலகட்டத்தில் வெவ்வேறு நாடுகளின் பிறப்பு விகிதம் ஆயிரத்தில் கீழ்க்காணும் அட்டவணையாக கொடுக்கப்பட்டுள்ளது.

நாடு	பிறப்பு விகிதம்	நாடு	பிறப்பு விகிதம்
இந்தியா	33	சீனா	40
ஜெர்மனி	16	நியூஸிலாண்ட்	30
யூ.கே.	20	ஸ்வீடன்	15

மேற்காணும் தகவல்களுக்கு கோல் வரைபடம் காண்.

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Following table gives the birth rate per thousand of different countries over a certain period.

Country	Birth rate	Country	Birth rate
India	33	China	40
Germany	16	New Zealand	30
U.K.	20	Sweden	15

Represent the above data by a bar diagram.

12. (அ) கீழ்க்காணும் அலையெண் அட்டவணைக்கு கூட்டுச் சராசரி காண்க.

எடை (கி.கி)	50	48	46	44	42	40
நபர்களின் எண்ணிக்கை	12	14	16	13	11	09

Calculate the arithmetic mean from the following frequency table.

Weight in kgs	50	48	46	44	42	40
No. of persons	12	14	16	13	11	09

Or

(ஆ) முழுமை பெறாத பரவல் ஒன்று கீழே கொடுக்கப்பட்டுள்ளது அதன் இடைநிலை 35 எனில் விடுபடும் அலையெண்களை காண்க.

பிரிவு	0-10	10-20	20-30	30-40	40-50	50-60	60-70
அலையெண்	10	20	?	40	?	25	15

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An incomplete distribution is given below.  
The median is 35. Find the missing frequencies.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	10	20	?	40	?	25	15

13. (அ) கீழ்க்காணும் தகவல்களுக்கு திட்ட விலக்கம் காண்க.  
மதிப்பெண் 00-09 10-19 20-29 30-39 40-49  
பிரிவு அலையெண் 11 20 16 36 17

Find the standard deviation for the given data.

Marks class	00-09	10-19	20-29	30-39	40-49
Frequency	11	20	16	36	17

Or

- (ஆ) 200 பொருள்களின் சராசரி மற்றும் திட்ட விலக்கம் 60 மற்றும் 20 என கணக்கிடப்பட்டது. கணக்கிடும் போது இரு பொருள்கள் தவறுதலாக 13 மற்றும் 17-க்கு பதிலாக 3 மற்றும் 67 என எடுத்துக் கொள்ளப்பட்டது எனில், சரியான சராசரி மற்றும் சரியான திட்ட விலக்கம் காண்க.

The mean and standard deviation of 200 items are found to be 60 and 20. If at the time of calculation two items are wrongly taken as 3 and 67 instead of 13 and 17, find the correct mean and standard deviation.

14. (அ) ஐந்து மாணவர்களின் எடை மற்றும் உயரங்கள் கீழே கொடுக்கப்பட்டுள்ளன.

உயரம் செ.மீ.	160	161	162	163	164
எடை கி.கி.	50	53	54	56	57

காரல் பியர்சனின் ஒட்டுறவுக் கெழுவை கண்டுபிடி.

The heights and weights of five students are given below.

Height in c.m.	160	161	162	163	164
Weight in k.g.	50	53	54	56	57

Find the Karl Pearson's coefficient of correlation.

Or

- (ஆ) 10 மாணவர்களின் இயற்பியல் மற்றும் வேதியியல் மதிப்பெண்கள் கீழே கொடுக்கப்பட்டுள்ளது. அதிலிருந்து தர ஒட்டுறவு கெழுவை கணக்கிடு.

இயற்பியல் (P)	35	56	50	65	44	38	44	50	15	26
வேதியியல் (Q)	50	35	70	25	35	58	75	60	55	35

From the following data of marks obtained by 10 students in physics and chemistry calculate the rank correlation coefficient.

Physics (P)	35	56	50	65	44	38	44	50	15	26
Chemistry (Q)	50	35	70	25	35	58	75	60	55	35





15. (அ)  $x + 2y - 5 = 0$  மற்றும்  $2x + 3y - 8 = 0$  என கொடுக்கப்பட்டுள்ள இரு உடன் தொடர்பு கோடுகளில் எந்த உடன்தொடர்பு கோடு  $y$ -ன் மீதான  $x$  ஆக அமைந்துள்ளது என காட்டு.

Out of the two lines of regression given by  $x + 2y - 5 = 0$  and  $2x + 3y - 8 = 0$  which one is the regression line of  $x$  on  $y$ ?

Or

- (ஆ)  $\theta$  என்பது இரு உடன் தொடர்பு கோடுகளுக்கு இடைப்பட்ட கூர்மையான கோணம் எனில்,  $\theta \leq 1 - r^2$  என காட்டுக.

If  $\theta$  is the acute angle between the two regression lines show that  $\theta \leq 1 - r^2$ .

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 600 words.

16. (அ) வகைபடுத்துதலின் வகைகளை விவாதி. Discuss the types of classification.

Or

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- (ஆ) 1996-97 முதல் 2002-03 வரையிலான காலத்தின் மின் உற்பத்திக்கான வளர்ச்சி விகிதம் கொடுக்கப்பட்டுள்ளது.

வருடம்	கடல்சார்	உள்நாட்	மொத்தம்
1996-97	5.34	2.18	7.52
1997-98	5.80	2.80	11.60
1998-99	10.86	6.70	17.56
1999-00	15.55	8.87	24.42
2000-01	16.98	11.03	28.01
2001-02	17.16	11.60	28.76
2002-03	12.47	8.42	20.89

கோல் வரைபடம் மூலம் இதனை குறி.

The growth of production of fish for the period 1996-97 to 2002-03 is given below :

Year	Marine	Inland	Total
1996-97	5.34	2.18	7.52
1997-98	5.80	2.80	11.60
1998-99	10.86	6.70	17.56
1999-00	15.55	8.87	24.42
2000-01	16.98	11.03	28.01
2001-02	17.16	11.60	28.76
2002-03	12.47	8.42	20.89

Represent the data by a bar diagram.

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17. (அ) கீழ்க்காணும் அலையெண் பரவலுக்கான சராசரி மற்றும் இடையிலை காண்க.

பிரிவு	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
அலையெண்	18	15	39	47	52	41	28	16	4

Find the mean and median for the following frequency distribution.

Class	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
Frequency	18	15	39	47	52	41	28	16	4

Or

- (ஆ) கீழ்க்காணும் அலையெண் பரவலுக்கான சராசரி, இடையிலை மற்றும் மாதிரி மதிப்பு காண்க.

பிரிவு	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
அலையெண்	3	5	10	20	12	6	3	1

Find the mean, median and mode of the following frequency distribution.

Class	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Frequency	3	5	10	20	12	6	3	1

18. (அ) கீழ்க்காணும் அட்டவணையில் ஒரு தொழிற்சாலை ஒன்றில் பணிபுரியும் மாதாந்திர கூலி தொழிலாளர்களின் விவரங்கள் கொடுக்கப்பட்டுள்ளது எனில், (i) திட்ட விலக்கம், (ii) குவார்டைல் விலக்கம் மற்றும் (iii) மாறுபாட்டு கெழுவினை கணக்கிடு.

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மாதாந்திர கூலி	125-175	175-225	225-275	275-325	325-375
தொழிலாளர்களின் எண்ணிக்கை	2	22	19	14	3
மாதாந்திர கூலி	375-425	425-475	475-525	525-572	
தொழிலாளர்களின் எண்ணிக்கை	4	6	1	1	

The following table gives the monthly wages of workers in a factory. Compute (i) standard deviation, (ii) quartile deviation and (iii) coefficient of variation.

Monthly wages	125-175	175-225	225-275	275-325	325-375
No. of workers	2	22	19	14	3
Monthly wages	375-425	425-475	475-525	525-572	
No. of workers	4	6	1	1	

Or

- (ஆ)  $a, a + d, a + 2d, \dots, a + 2nd$  என்ற கூட்டுத் தொடருக்கான (i) சராசரி, (ii) திட்ட விலக்கம் மற்றும் (iii) மாறுபாட்டினை காண்க.

Find (i) mean (ii) standard deviation and (iii) variance from the arithmetic progression  $a, a + d, a + 2d, \dots, a + 2nd$ .

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19. (அ) கல்லூரி அகமதிப்பீட்டு தேர்வு ( $x$ ) மற்றும் இறுதி பல்கலைக்கழக தேர்வு ( $y$ ) -ல் 10 மாணவர்கள் பெற்ற மதிப்பெண் சதவீதங்கள் கொடுக்கப்பட்டுள்ளது எனில் இரு தேர்வு மதிப்பெண்களுக்கு இடையேயான ஒட்டுறவுக் கெழுவை காண்க.

$x$	51	63	63	49	50	60	65	63	46	50
$y$	49	72	75	50	48	60	70	48	60	56

Ten students obtained the following percentage of marks in the college internal test ( $x$ ) and in the final university examination ( $y$ ). Find the correlation coefficient between the marks of the two tests.

$x$	51	63	63	49	50	60	65	63	46	50
$y$	49	72	75	50	48	60	70	48	60	56

Or

- (ஆ) அழகு போட்டியில் பங்கேற்ற 8 நபர்களுக்கு மூன்று நடுவர்கள் தரம் ஒதுக்கி உள்ளனர்.

நடுவர் Mr. X	1	2	4	3	7	6	5	8
நடுவர் Mr. Y	3	2	1	5	4	7	6	8
நடுவர் Mr. Z	1	2	3	4	5	7	8	6

எனில் எந்த இரு நடுவர்கள், அழகிற்கு ஒரே மாதிரியான அணுகுமுறையை கொண்டுள்ளனர் என கண்டறிக.

Three judges assign the ranks to 8 entries in a beauty contest.

Judge Mr. X	1	2	4	3	7	6	5	8
Judge Mr. Y	3	2	1	5	4	7	6	8
Judge Mr. Z	1	2	3	4	5	7	8	6

Which pair of judges has the nearest approach to common taste in beauty?

20. (அ) அதிகபட்சம் 50 மதிப்பெண்களுக்கான 10 மாணவர்களின் அகமதிப்பீட்டு தேர்வு மற்றும் பல்கலைக்கழக தேர்வு மதிப்பெண்கள் கொடுக்கப்பட்டுள்ளது.

அகமதிப்பீட்டு	25	28	30	32	35	36	38	39	42	45
மதிப்பெண்	20	26	29	30	25	18	26	35	35	46

எனில் இரு உடன்தொடர்பு கோடுகளை தருவி.

The following data relate to the marks of 10 students in the internal test and the university examination for the maximum of 50 in each.

Internal marks	25	28	30	32	35	36	38	39	42	45
University marks	20	26	29	30	25	18	26	35	35	46

Obtain the two regression equations.

Or





20. (அ) கீழே கொடுக்கப்பட்டவைக்கு ஒரு நேர்கோட்டை பொருத்துக. மேலும்  $x = 6$ க்கு தொடர்புடைய  $y$ -ன் மதிப்பை காண்.

$x$	0	5	10	15	20	25
$y$	12	15	17	22	24	30

Fit a straight line to the following data and estimate the value of  $y$  corresponding to  $x = 6$ .

$x$	0	5	10	15	20	25
$y$	12	15	17	22	24	30

Or

- (ஆ) ஒரு நேர்கோட்டை பொருத்துவதை விவரிக்க.

Explain how to fit a straight line.

\_\_\_\_\_

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JNMC 4 B

U.G. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Fourth Semester

Mathematics/Maths With CA

Non-Major Elective — FUNDAMENTALS OF  
STATISTICS — II

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. இரண்டு பண்புகளைப் பற்றி படிக்கும் போது மொத்த அலைவெண்கள்

(அ) 4 (ஆ) 6

(இ) 9 (ஈ) 3

When we study two attributes, the total frequencies are

(a) 4 (b) 6

(c) 9 (d) 3





2.  $N = 500$ ,  $(\beta) = 300$  எனில்  $(B) =$  \_\_\_\_\_.

(அ) 800 (ஆ) 200

(இ) 100 (ஈ) 50

If  $N = 500$ ,  $(\beta) = 300$ , then  $(B) =$  \_\_\_\_\_.

(a) 800 (b) 200

(c) 100 (d) 50

3. பாஷி மற்றும் லாஸ்பியர் குறியீட்டு எண்களின் பெருக்குச் சராசரி

(அ) பெளலி குறியீட்டு எண்

(ஆ) பிஷர் குறியீட்டு எண்

(இ) மார்ஷல் எட்ஜ்வொர்த் குறியீட்டு எண்

(ஈ) கெல்லி குறியீட்டு எண்

Geometric mean of Paasche and Laspeyre index number is

(a) Bowley index number

(b) Fisher index number

(c) Marshall Edgeworth index number

(d) Kelly index number

4. வழக்கமான குறியீடுகளின் படி பாஷியின் குறியீட்டெண்

(அ)  $\frac{\sum p_1 q_0}{\sum p_0 q_1} \times 100$  (ஆ)  $\frac{\sum p_1 q_0}{\sum p_1 q_1} \times 100$

(இ)  $\frac{\sum p_1 q_1}{\sum p_0 q_1} \times 100$  (ஈ)  $\frac{\sum p_1 q_1}{\sum p_0 q_0} \times 100$

With usual notations Paasche's index number is

(a)  $\frac{\sum p_1 q_0}{\sum p_0 q_1} \times 100$  (b)  $\frac{\sum p_1 q_0}{\sum p_1 q_1} \times 100$

(c)  $\frac{\sum p_1 q_1}{\sum p_0 q_1} \times 100$  (d)  $\frac{\sum p_1 q_1}{\sum p_0 q_0} \times 100$

5. பெளலி குறியீட்டு எண்

(அ)  $\frac{L + P}{2}$  (ஆ)  $\sqrt{L \times P}$

(இ)  $\frac{q_0 + q_1}{2}$  (ஈ)  $\sqrt{q_0 \times q_1}$

Bowley index number is

(a)  $\frac{L + P}{2}$  (b)  $\sqrt{L \times P}$

(c)  $\frac{q_0 + q_1}{2}$  (d)  $\sqrt{q_0 \times q_1}$





6. வழக்கமான குறியீடுகளின் படி மார்ஷல் குறியீட்டெண்

$$(அ) \frac{\sum p_1q_0 + \sum p_1q_1}{2} \times 100$$

$$(ஆ) \frac{\sum p_1q_0 + \sum p_1q_1}{\sum p_0q_0 + \sum p_0q_1} \times 100$$

$$(இ) \sqrt{\frac{\sum p_1q_0 + \sum p_1q_1}{\sum p_0q_0 + \sum p_0q_1}} \times 100$$

$$(ஈ) \sqrt{\frac{\sum p_1q_0 + \sum p_1q_1}{\sum p_0q_0 + \sum p_0q_1}} \times 100$$

With the usual notation, Marshall index number is

$$(a) \frac{\sum p_1q_0 + \sum p_1q_1}{2} \times 100$$

$$(b) \frac{\sum p_1q_0 + \sum p_1q_1}{\sum p_0q_0 + \sum p_0q_1} \times 100$$

$$(c) \sqrt{\frac{\sum p_1q_0 + \sum p_1q_1}{\sum p_0q_0 + \sum p_0q_1}} \times 100$$

$$(d) \sqrt{\frac{\sum p_1q_0 + \sum p_1q_1}{\sum p_0q_0 + \sum p_0q_1}} \times 100$$

7. எது செவ்வியக் குறியீட்டெண்?

(அ) பெளலி (ஆ) பாஷி

(இ) லாஸ்பியர் (ஈ) பிஷர்

Which is the ideal index number?

(a) Bowley (b) Paasche

(c) Laspeyre (d) Fisher

8. \_\_\_\_\_ குறியீட்டெண் காலத்திருப்பச் சோதனையை நிறைவேற்றும்.

(அ) பெளலி (ஆ) மார்ஷல்

(இ) பிஷர் (ஈ) இவை எதுவுமில்லை

\_\_\_\_\_ index number satisfies Time Reversal test.

(a) Bowley (b) Marshall

(c) Fisher (d) None of thee

9.  $y = ax + b$  என்ற நேர்கோட்டை பொருத்துவதற்கான ஒழுங்குச் சமன்பாடுகள்?

$$(அ) a \sum x_i^2 + b \sum x_i = \sum x_i y_i \text{ மற்றும் } a \sum x_i + nb = \sum y_i$$

$$(ஆ) b \sum x_i^2 + a \sum x_i = \sum x_i y_i \text{ மற்றும் } b \sum x_i + na = \sum y_i$$

$$(இ) a \sum x_i^2 + b \sum x_i = \sum x_i y_i \text{ மற்றும் } b \sum x_i + na = \sum x_i$$

$$(ஈ) b \sum x_i^2 + a \sum x_i = \sum x_i y_i \text{ மற்றும் } a \sum x_i + nb = \sum y_i$$





For fitting a straight line  $y = ax + b$ , the normal equations are

(a)  $a \sum x_i^2 + b \sum x_i = \sum x_i y_i$  and  
 $a \sum x_i + nb = \sum y_i$

(b)  $b \sum x_i^2 + a \sum x_i = \sum x_i y_i$  and  
 $b \sum x_i + na = \sum x_i$

(c)  $a \sum x_i^2 + b \sum x_i = \sum x_i y_i$  and  
 $b \sum x_i + na = \sum x_i$

(d)  $b \sum x_i^2 + a \sum x_i = \sum x_i y_i$  and  
 $a \sum x_i + nb = \sum y_i$

10.  $d_i = y_i - f(x_i)$  எனில் சிறும இருமடி கொள்கை என்பது

(அ)  $\sum d_i$  சிறுமம் (ஆ)  $\sum d_i$  பெருமம்

(இ)  $\sum d_i^2$  சிறுமம் (ஈ)  $\sum d_i^2$  பெருமம்

If  $d_i = y_i - f(x_i)$ , then the principle of least squares is

(a)  $\sum d_i$  minimum (b)  $\sum d_i$  maximum

(c)  $\sum d_i^2$  minimum (d)  $\sum d_i^2$  maximum

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (அ)  $(A) = 80$ ,  $(B) = 100$ ,  $(AB) = 70$ ,  $N = 250$

எனில் இறுதி நிலை இன நிகழ்வெண்களைக் காண்க.

Given  $(A) = 80$ ,  $(B) = 100$ ,  $(AB) = 70$ ,  
 $N = 250$ , find the ultimate class frequencies.

Or

(ஆ)  $(AB) = 100$ ;  $(\alpha B) = 80$ ;  $(A\beta) = 50$ ;

$(\alpha\beta) = 40$  எனில் நேர்மறை, எதிர்மறை நிகழ்வெண்களையும், மொத்த கூர் நோக்கையும் கண்டுபிடி.

Given  $(AB) = 100$ ;  $(\alpha B) = 80$ ;  $(A\beta) = 50$ ;  
 $(\alpha\beta) = 40$ , find positive and negative classes and the total number of observations.

12. (அ) குறியீட்டெண்களின் பண்பியல்புகளை விவரி.

Explain the characteristics of index numbers.

Or





(ஆ) லாஸ்பியரின் குறியீட்டெண்ணை கண்டுபிடி.  
பொருட்கள் அடிமான வருடம் தற்போதைய வருடம்

	அளவு	நிலை	அளவு	நிலை
A	10	3	8	3.25
B	20	15	15	20
C	2	25	3	23

Find Laspeyre's index number

Items	Base Year		Current Year	
	Quantity	Price	Quantity	Price
A	10	3	8	3.25
B	20	15	15	20
C	2	25	3	23

13. (அ) பெளலியரின் குறியீட்டெண்ணை காண்க.

பொருட்கள்	அடிமான வருடம்		தற்போதைய வருடம்	
	அளவு	விலை	அளவு	விலை
A	15	1	15	2
B	15	2	30	3

Find Bowley's index number

Items	Base Year		Current Year	
	Quantity	Price	Quantity	Price
A	15	1	15	2
B	15	2	30	3

Or

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(ஆ) மார்ஷல் குறியீட்டு எண்ணை காண்க.

பொருட்கள்	p <sub>0</sub>	q <sub>0</sub>	p <sub>1</sub>	q <sub>1</sub>
A	1	10	2	5
B	1	5	4	2

Find Marshall index number

Items	p <sub>0</sub>	q <sub>0</sub>	p <sub>1</sub>	q <sub>1</sub>
A	1	10	2	5
B	1	5	4	2

14. (அ) 1992-ம் வருடத்திற்கான பிஷரின் குறியீட்டெண்ணை காண்க.

வருடம்	அரிசி	கோதுமை	மாவு	
			விலை அளவு	விலை அளவு
1988	9.3	100	6.4	11
1992	4.5	90	3.7	10

Calculate Fisher's index number for the year 1992

Year	Rice		Wheat		Flour	
	Price	Quantity	Price	Quantity	Price	Quantity
1988	9.3	100	6.4	11	5.1	5
1992	4.5	90	3.7	10	2.7	3

Or

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(ஆ)  $p_{01} \times p_{10} = 1$  என பிஷரின் குறியீட்டெண்ணில் நிரூபி.

Prove that  $p_{01} \times p_{10} = 1$  for Fisher's index number.

15. (அ) கீழே கொடுக்கப்பட்டவைக்கு ஒரு நேர் கோடை பொருத்துக.

$x$	0	1	2
$y$	2.1	3.5	5.4

Fit a straight line to the following data

$x$	0	1	2
$y$	2.1	3.5	5.4

Or

(ஆ)  $y = a + bx$  என்ற நேர்கோட்டை பொருத்துவதற்கான ஒழுங்குச் சமன்பாடுகளை காண்க.

Find the normal equations for fitting a straight line  $y = a + bx$ .

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (அ)  $(A) = (\alpha) = (B) = (\beta) = \frac{N}{2}$  எனில்  $(AB) = (\alpha\beta)$  எனவும்  $(A\beta) = (\alpha B)$  எனவும் காட்டுக.

Given that  $(A) = (\alpha) = (B) = (\beta) = \frac{N}{2}$ , show that  $(AB) = (\alpha\beta)$  and  $(A\beta) = (\alpha B)$ .

Or

(ஆ) ஒரு இடத்தில் உள்ள 500 ஆண்களில் 172 பேர் காலராவால் தாக்கப்பட்டவர்கள். மேலும் தடுப்பூசி எடுத்துக் கொண்ட 178 நபர்களில் 128 பேர் தாக்கப்பட்டார்கள் எனில் எத்தனை நபர்கள் (i) தடுப்பூசி எடுக்காமல் தாக்கப்படாதவர்கள் (ii) தடுப்பூசி எடுத்து தாக்கப்படாதவர்கள் (iii) தடுப்பூசி எடுக்காமல் தாக்கப்பட்டவர்கள்.

Of 500 men in a locality exposed to cholera 172 in all were attacked; 178 were inoculated and of these 128 were attacked. Find the number of persons (i) not inoculated not attacked (ii) inoculated not attacked (iii) not inoculated attacked.





17. (அ) கீழே கொடுக்கப்பட்டவற்றிற்கு லாஸ்பியர் மற்றும் பாஷியின் குறியீட்டெண்களை கண்டுபிடி.

பொருட்கள்	அடிமான வருடம்		தற்போதைய வருடம்	
	விலை	அளவு	விலை	அளவு
A	2	10	3	12
B	5	16	6.5	11
C	3.5	18	4	16
D	7	21	9	25
E	3	11	3.5	20

Find Laspeyer's and Paasche's index numbers for the following data.

Commodities	Base year		Current year	
	Price	Quantity	Price	Quantity
A	2	10	3	12
B	5	16	6.5	11
C	3.5	18	4	16
D	7	21	9	25
E	3	11	3.5	20

Or

- (ஆ) கீழ்க்காணும் விவரங்களிலிருந்து லாஸ்பெயர் மற்றும் பாஷி குறியீட்டெண்கள் 25:24 என்ற விகிதத்தில் இருந்தால் விடுபட்ட விலையைக் காண்க.

பொருட்கள்	அடிமான வருடம்		நடப்பாண்டு	
	விலை	அளவு	விலை	அளவு
A	1	15	2	15
B	2	15	—	30

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- Find the missing price in the below data if the ratio between Laspeyer's and Paasche's index number is 25:24.

Commodities	Base year		Current year	
	Price	Quantity	Price	Quantity
A	1	15	2	15
B	2	15	—	30

18. (அ) கீழே கொடுக்கப்பட்ட விவரங்களுக்கு பெளலியின் குறியீட்டெண்ணை காண்க.

பொருட்கள்	அடிமான வருடம்		தற்போதைய வருடம்	
	விலை	அளவு	விலை	அளவு
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

Find Bowley's index number for the following data.

Commodities	Base year		Current year	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

Or

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(ஆ) கீழே கொடுக்கப்பட்ட விவரங்களுக்கு மார்ஷலின் குறியீட்டெண்ணை காண்க.

பொருட்கள்	2016		2017	
	விலை	அளவு	விலை	அளவு
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

Find Marshall's index number for the following data

Commodities	2016		2017	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

19. (அ) பின்வரும் விவரங்களுக்கு பிஷரின் குறியீட்டெண்ணைக் கண்டறிந்து அவை காலமாற்று சோதனையை நிறைவு செய்கிறது என நிறுவுக.

பொருள்	A	B	C	D
அடிமான வருட அளவு	12	15	24	5
அடிமான வருட விலை	10	7	5	16
தற்போதைய வருட அளவு	15	20	20	5
தற்போதைய வருட விலை	12	5	9	14

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Find Fisher's index number for the following data and show that it satisfies time reversal test

Commodities	A	B	C	D
Base year quantity	12	15	24	5
Base year price	10	7	5	16
Current year quantity	15	20	20	5
Current year price	12	5	9	14

Or

(ஆ) பின்வரும் விவரங்கள் காலமாற்று சோதனையை நிறைவு செய்கிறது என நிரூபி.

பொருள்	A	B	C	D
அடிமான வருட அளவு	50	40	120	30
அடிமான வருட விலை	5	6	4	3
தற்போதைய வருட அளவு	60	50	110	35
தற்போதைய வருட விலை	7	8	5	4

Show that the given data satisfies time reversal test

Commodity	A	B	C	D
Base year quantity	50	40	120	30
Base year price	5	6	4	3
Current year quantity	60	50	110	35
Current year price	7	8	5	4

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Code No. : 12955

Sub. Code : JVBE 21/  
SVBE 21

U.G. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Second Semester

Part IV — VALUE BASED EDUCATION

(For those who joined in July 2016 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer:

1. வர்ணா அமைப்பு \_\_\_\_\_ பிரிவுகளைக் கொண்டது.

(அ) 4

(ஆ) 3

(இ) 5

(ஈ) 2

Varna system has \_\_\_\_\_ divisions.

(a) 4

(b) 3

(c) 5

(d) 2

2. \_\_\_\_\_ ஒரு சமூக சீர்திருத்தவாதி.

(அ) Dr. ராதாகிருஷ்ணன்

(ஆ) இராஜா இராம் மோகன்ராய்

(இ) எம்.என். சீனிவாஸ்

(ஈ) கார்ல் மார்க்ஸ்

\_\_\_\_\_ is a social reformer.

(a) Dr. Radha Krishnan

(b) Raja Ram Mohan Raj

(c) M.N. Srinivas

(d) Karl Marx

3. இந்திய அரசியல் அமைப்பின் \_\_\_\_\_ பிரிவு அடிப்படை உரிமைகள் மீறுவதை விவரிக்கிறது.

(அ) 20

(ஆ) 19

(இ) 13

(ஈ) 15

Article \_\_\_\_\_ of the Constitution of India deals with the violation of fundamental rights.

(a) 20

(b) 19

(c) 13

(d) 15

4. இந்திய அரசியல் அமைப்பின் \_\_\_\_\_ பிரிவு கல்வி உரிமைகள் பற்றி விவரிக்கிறது.

(அ) 27

(ஆ) 26

(இ) 29

(ஈ) 25

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Article \_\_\_\_\_ of the Constitution of India deals with the educational rights.

- (a) 27 (b) 26  
(c) 29 (d) 25

5. மதம் உருவாவதற்க்கான அடிப்படைக் காரணி \_\_\_\_\_.

- (அ) இறைவன் (ஆ) நம்பிக்கை  
(இ) மக்கள் (ஈ) பயம்

The basic for the emergence of religion was \_\_\_\_\_.

- (a) God (b) Faith  
(c) People (d) Fear

6. சமுதாயம் ஒரு \_\_\_\_\_ குழு.

- (அ) பல்வேறு இயல்புகள் கொண்ட  
(ஆ) ஒரே வகையான இயல்புகள் கொண்ட  
(இ) ஒன்றான  
(ஈ) பல வகையான

Community is a \_\_\_\_\_ group.

- (a) Hetrogeneous (b) Homogeneous  
(c) Monogamous (d) Polygamous

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7. ஒலி பரப்பு \_\_\_\_\_ ல் செய்யப்படுகிறது.

- (அ) திரைப்படம் (ஆ) தொலைக்காட்சி  
(இ) வலைதளம் (ஈ) வானொலி

Broadcast is done in \_\_\_\_\_.

- (a) Film (b) Television  
(c) Website (d) Radio

8. ஒளிபரப்பு \_\_\_\_\_ ல் செய்யப்படுகிறது.

- (அ) திரைப்படம் (ஆ) தொலைக்காட்சி  
(இ) வலைதளம் (ஈ) வானொலி

Telecast is done in \_\_\_\_\_.

- (a) Film (b) Television  
(c) Website (d) Radio

9. கீழே கொடுக்கப்பட்டுள்ளவற்றில் ஒன்று ஒழுக்கக் கோட்பாடு

- (அ) நேர்மை (ஆ) பயம்  
(இ) கோபம் (ஈ) இன்பம்

One of the following is a value.

- (a) Honesty (b) Fear  
(c) Anger (d) Joy

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[P.T.O.]





10. கலாச்சாரமும் நாகரீகமும் —————.
- (அ) ஒன்றானது (ஆ) எதிர்மறையானது  
(இ) சேர்ந்தது (ஈ) வேறுபட்டது
- Culture and civilization are —————.
- (a) Similar (b) Opposite  
(c) Mixed (d) Different

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 250 words.

11. (அ) சமூக நீதி பற்றி ஒரு குறிப்பு எழுதுக.  
Write a note on social justice.  
Or  
(ஆ) சமூக நீதியின் தேவையை விளக்குக.  
Explain the need for social justice.
12. (அ) மனித உரிமைகளை விவரி.  
Describe human rights.  
Or  
(ஆ) இந்திய அரசியல் அமைப்பில் மனித உரிமைகள் பற்றி விவரிக்கும் பிரிவுகள் யாவை? விளக்குக.  
What are the articles of Indian Constitution that deals with human rights and explain?

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13. (அ) போதை பொருளுக்கு அடிமை என்றால் என்ன?  
What is drug addiction?

Or

- (ஆ) போதை பொருள்களுக்கு அடிமையாவதற்கான காரணங்களை விளக்குக.

Explain the reasons for drug addiction.

14. (அ) பல்வேறு வெகுஜன ஊடகங்களை விவரி.  
Explain the various mass media.

Or

- (ஆ) வெகுஜன ஊடகங்களின் செயல்பாடுகளை விளக்குக.

What are the functions of mass media?

15. (அ) பல்வேறு தனிமனித ஒழுக்கங்களை விளக்குக.  
Explain the various personal values.

Or

- (ஆ) பல்வேறு குடும்ப ஒழுக்கங்களை விளக்குக.

Explain the various family values.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 600 words.

16. (அ) சமூகநீதியில் பல்வேறு அளவீடுகள் யாவை?  
What are the various parameters of social justice?

Or

- (ஆ) சமூக நீதிக்கான பல்வேறு காரணிகளை ஆராய்க.  
Examine the various factors responsible for social justice.

17. (அ) மனித உரிமைகளின் பல்வேறு நெறிகளை ஆராய்க.  
Analyze the various principles of human rights.

Or

- (ஆ) பெண்கள் மற்றும் குழந்தைகள் உரிமையை குறித்து விவரி.  
Explain the rights of women and children.

18. (அ) மது அருந்துவதற்கான காரணங்களை ஆய்க.  
Examine the causes of alcoholism.

Or

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- (ஆ) மது அருந்துவோர்களின் மறுவாழ்விற்கான பல்வேறு நடவடிக்கைகளை ஆராய்க.

Examine the various measures to rehabilitate alcoholics.

19. (அ) வெகுஜன ஊடகங்களினால் இளைஞர்களுக்கு ஏற்படும் தாக்கங்களை ஆராய்க.

Examine the effects of mass media on youth.

Or

- (ஆ) வெகுஜன ஊடகங்களின் குழந்தைகள் மீது ஏற்படும் தாக்கங்களை ஆராய்க.

Critically analyze the impact of mass media on children.

20. (அ) பொதுவான பல்வேறு தொழில் ஒழுக்கங்களை விளக்குக.

Explain the various professional values in general.

Or

- (ஆ) இன்றைய சமுதாயத்தில் சமுதாய ஒழுக்கம் கோட்பாட்டில் ஏற்பட்டுள்ள மாற்றங்களை விளக்குக.

Explain the changing trends in social values in the contemporary society.

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(6 pages)

Reg. No. : .....

Code No. : 21249

Sub. Code : JACA 11  
SACA 11

B.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2016

First Semester

Computer Applications — Allied

DIGITAL DESIGN

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks




PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is 2's complement of 1000011?  
(a) 1000011  
(b) 1111111  
(c) 0111101  
(d) 0111100

Which of the following is the symbol of AND gates?

- (a)  (b)   
(c)  (d) None of these

Which of the following gives maxterm combination?

- (a) AND  
(b) OR  
(c) Neither (a) nor (b)  
(d) None of these

Which of the following represent exclusive NOR gates?

- (a)  $x \oplus y$  (b)  $(x \oplus y)'$   
(c)  $(x \odot y)'$  (d) None of these

A full-adder circuit consists of \_\_\_\_\_ inputs and \_\_\_\_\_ outputs.

- (a) 2, 2  
(b) 2, 3  
(c) 3, 2  
(d) 3, 3



6. Which of the following is said to be a universal gate?

- (a) NOR (b) AND  
(c) NAND (d) XOR

7. If an encoder has  $2^n$  input lines then it has \_\_\_\_\_ output lines.

- (a)  $n+1$  (b)  $n+2$   
(c)  $n$  (d)  $n+3$

8. The state of a flip-flop is switched by change in the control of \_\_\_\_\_.

- (a) Output (b) Input  
(c) Trigger (d) None of these

9. ROM can perform only the \_\_\_\_\_ operation.

- (a) Write (b) Read  
(c) Both (a) and (b) (d) All the above

10. A shift register shifting binary information in \_\_\_\_\_ direction(s).

- (a) One  
(b) Both  
(c) (a) or (b)  
(d) (a) and (b)

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b) in about 250 words each.

(a) Find the complement of  $F_1 = x(\bar{y}\bar{z} + yz)$ .

Or

(b) Convert the following decimal number \* 0 into octal number (i) 153 (ii) 0.513.

(a) Show that the dual of the exclusive - OR is equal to its complement.

Or

(b) Explain in detail about Don't care conditions.

(a) Draw a NAND logic diagram that implements the complement of the following function :

$$F(A, B, C, D) = \Sigma(0, 1, 2, 3, 4, 8, 9, 12).$$

Or

(b) Design and explain binary subtractor.

(a) Define decoder. Explain with neat diagram.

Or

(b) Explain transition table of flip-flop.

15. (a) Short notes on (i) ROM (ii) RAM.

Or

- (b) Explain BCD counter with diagram.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b),  
about 600 words each.

16. (a) Explain the following :

- (i) Hexa decimal number.  
(ii) Boolean algebra.

Or

- (b) Convert the following into decimal number

- (i)  $10101010_2$             (ii)  $101010_8$   
(iii)  $101010_{16}$             (iv)  $ABCD_{16}$ .

17. (a) Simplify the following function  $F$ , together with don't care conditions  $d$ ,

(i)  $F(x, y, z) = \sum(0, 1, 2, 4, 5)$   
 $d(x, y, z) = \sum(3, 6, 7)$

(ii)  $F(x, y, z, t) = \sum(1, 3, 5, 7, 9, 15)$   
 $d(x, y, z, t) = \sum(4, 6, 12, 13)$

Or

- (b) Simplify the Boolean function by using K-map

$$F = \sum(0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14).$$



(a) Simplify the following Boolean functions, using three-variable maps :

(i)  $F(x, y, z) = \Sigma (0, 1, 5, 7)$

(ii)  $F(x, y, z) = \Sigma (1, 2, 3, 6, 7)$ .

Or

(b) Explain in detail about binary adder.

(a) Explain full adder circuit with neat diagram.

Or

(b) Explain any one flip-flop circuit with neat diagram.

(a) Explain in detail about types of ROM and its operations.

Or

(b) What is the use of hamming code? Explain with example.

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(6 pages)

Reg. No. : .....

Code No. : R 21251

Sub. Code : JACA

B.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2017

Third Semester

Computer Applications — Allied

DATA STRUCTURES

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 70 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. To solve a collision \_\_\_\_\_ method is used

- (a) Clustering
- (b) Bucket hashing
- (c) Collision
- (d) Collision resolution

The address produced by the hashing algorithm is known as \_\_\_\_\_.

- (a) Collision
- (b) Synonyms
- (c) Home address
- (d) None

The most powerful variations of linked list is \_\_\_\_\_.

- (a) Multilinked list
- (b) Circularly linked list
- (c) Doubly linked list
- (d) Singly linked list

A linear list is in which each element has \_\_\_\_\_.

- (a) A general
- (b) A unique successor
- (c) A restricted
- (d) A linked list

A queue is a \_\_\_\_\_ structure.

- (a) Enqueue
- (b) Dequeue
- (c) LIFO
- (d) FILO



6. Pop removes the items at the \_\_\_\_\_ of the stack.
- (a) Empty (b) Top  
(c) Full (d) Bottom
7. Which of the following need not be a binary tree?
- (a) Search tree (b) Heap  
(c) AVL tree (d) B-tree
8. A leaf is a node with an \_\_\_\_\_.
- (a) Out degree of zero  
(b) Indegree of one  
(c) Out degree branch  
(d) Indegree branch
9. Sort efficiency is a measure of the \_\_\_\_\_ of the sort.
- (a) Relative efficiency  
(b) Ascending  
(c) Descending  
(d) Selection sort

Sorting is useful for \_\_\_\_\_.

- (a) Report generation  
(b) Responding queries easily  
(c) Making searches easily  
(d) All of these

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) Write about open addressing types of methods.

Or

- (b) Write about ADT Give an example.

- (a) Explain doubly linked list.

Or

- (b) Explain the concept of linked list.

- (a) Evaluate Postfix expressions using stack.

Or

- (b) Write about queue structure.

14. (a) Write about heap data structure.

Or

(b) Write about expression trees with an example.

15. (a) Explain the graph Storage Structure.

Or

(b) Explain the quick sort.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Write about binary search with algorithm.

Or

(b) Describe about hashed list search with examples.

17. (a) Write about multilinked list.

Or

(b) Describe in details linked list algorithm.

18. (a) Explain queue algorithm.

Or

(b) Describe about queue linked list implementation.



(a) Explain the binary search tree and operations.

Or

(b) Explain about the basic heap algorithm.

(a) Explain the shortest path algorithm.

Or

(b) Explain the operations on graph.

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Reg. No. : .....

Code No. : 21252      Sub. Code : JACA 41

B.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Fourth Semester

Computer Application — Allied

RESOURCE MANAGEMENT TECHNIQUES

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. While solving a LP model graphically, the area bounded by the constraints is called
- (a) feasible region
  - (b) infeasible region
  - (c) unbounded solution
  - (d) none of the above

20. (a) Solve the following game graphically.

Player B

		B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>
Player A	A <sub>1</sub>	-4	3	-1
	A <sub>2</sub>	6	-4	-1

Or

- (b) Anil company buys its annual requirement of 36,000 units in six installments. Each unit cost Rs. 1 and ordering cost is Rs. 25. The Inventory carrying cost is estimated at 20% of unit value. Find the total annual cost of the existing inventory policy. How much money can be saved by using EOQ?





2. Dual of the dual is \_\_\_\_\_
- (a) primal (b) dual  
(c) alternative (d) none of the above
3. \_\_\_\_\_ is one of the fundamental combinatorial optimization problems.
- (a) Assignment problem  
(b) Transportation problem  
(c) Optimization problem  
(d) None
4. According to transportation problem number of basic cells will be exactly
- (a)  $m+n-0$  (b)  $n+m-1$   
(c)  $m+n-1$  (d) none of the above
5. A set of arcs joining two distinct nodes passing through other nodes in the network is called
- (a) path (b) tree  
(c) node (d) cycle
6. A set of arcs whose removal from the network disrupts flow between the source and sink node is called
- (a) node (b) cut  
(c) cycle (d) none

7. The critical path
- (a) is any path that goes from the starting node to the completion node  
(b) is the combination of all paths  
(c) is the shortest path  
(d) is the longest path
8. The \_\_\_\_\_ time is the shortest possible time in which the activity can be finished
- (a) optimistic (b) most likely  
(c) pessimistic (d) none of these
9. Two person zero-sum games are also called \_\_\_\_\_ games.
- (a) square (b) cubical  
(c) rectangular (d) zero
10. What can be defined as a useful idle resource which has economic value eg. Raw materials, spare parts, finished items, etc. ?
- (a) Inventory control  
(b) Inventory  
(c) Inventory planning  
(d) None





PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

11. (a) A dealer wishes to purchase a number of fans and sewing machines. He has only Rs. 5,760 to invest and has at most for 20 items. A fan costs him Rs 360 and a sewing Rs 240. His expectation is that he can sell a fan at a profit of Rs 22 and a sewing machine at a profit of Rs. 18. Assuming that he can sell all the items that he can buy, how should he invest this money in order to maximize his profit? Formulate this problem as a Linear Programming problem and then use graphical method to solve it.

Or

- (b) Explain the procedure for simplex method.
12. (a) Solve the following transportation problem by Least cost entry method.

	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Availability
A	5	4	3	6
B	4	7	6	8
C	2	5	8	12
D	8	6	7	4
Demand	8	10	12	30

Or

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- (b) Find the optimal solution for the assignment problem with the following cost matrix.

		Area			
		W	X	Y	Z
Salesman	A	11	17	8	16
	B	9	7	12	6
	C	13	16	15	12
	D	14	10	12	11

13. (a) Explain the Rules for constructing a network.

Or

- (b) Write a Procedure for determining on Sequencing of 'n' jobs on 'm' machines.
14. (a) A project has fourteen activities A through M. The relationships which obtain among these activities are given below. Construct the network and number them.

A is the first operation.

B and C can be performed in parallel and are immediate successor to A.

D, E, F follow B.

G follow E.

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H follows D, but it cannot start until E is completed.

I and J succeed G.

F and J precede K.

M succeeds L and K.

The last operation N succeeds M and C.

Or

- (b) The following table gives the activities in a construction project and other relevant information.

Activity	1-2	1-3	2-3	2-4	3-4	4-5
Duration (days)	20	25	10	12	6	10

- (i) Draw the network for the project.  
(ii) Find the critical path and the project duration.  
(iii) Find the total float for each activity.
15. (a) Solve the following using graphical method.

$$\begin{array}{c} B_1 \quad B_2 \quad B_3 \quad B_4 \quad B_5 \\ A_1 \left( \begin{array}{ccccc} 2 & -2 & 3 & 7 & 6 \\ A_2 \left( \begin{array}{ccccc} 6 & 5 & 1 & 4 & 0 \end{array} \right) \end{array} \right)$$

Or

- (b) Discuss the various costs of inventory models?

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

16. (a) Solve the following LPP using Simplex method.

$$\text{Maximize } z = 45x_1 + 80x_2$$

Subject to

$$5x_1 + 20x_2 \leq 400$$

$$10x_1 + 15x_2 \leq 450$$

$$x_1, x_2 \geq 0.$$

Or

- (b) Write down the dual of

$$\text{Maximize } z = 7x_1 + 10x_2$$

Subject to

$$10x_1 + 13x_2 \geq 50$$

$$7x_1 + 9x_2 \leq 40$$

$$3x_1 + 5x_2 = 20$$

$$x_1, x_2 \geq 0.$$





17. (a) Solve the following transportation problem.

	A	B	C	$a_i$
	10	9	8	8
	10	7	10	7
	11	9	7	9
	12	14	10	4
$b_j$	10	10	8	

Or

(b) Give a mathematical formulation of assignment problem.

18. (a) Solve the traveling salesman problem given by the following data

$$C_{12} = 20, C_{13} = 4, C_{14} = 10, C_{23} = 5, C_{34} = 6,$$

$$C_{25} = 10, C_{45} = 20, \text{ where } C_{ij} = C_{ji} \text{ and there}$$

is no route between cities  $i$  and  $j$  if a value for  $C_{ij}$  is not shown above.

Or

(b) Discuss the types of networks.

19. (a) Consider the table having 14 activities.

Activity	A	B	C	D	E	F	G
Immediate predecessors(s)	-	-	-	B	A	A	B
Duration	2	6	4	3	6	8	3
Activity	H	I	J	K	L	M	N
Immediate predecessors(s)	C, D	C, D	E	F, G, H	F, G, H	I	J, K
Duration	7	2	5	4	3	13	7

- (i) Draw the network
- (ii) Find the critical path
- (iii) Find the total float, free float.

Or

(b) A network is given

Activity	A	B	C	D	E	F	G
Preceding	-	-	A	A	A	C	C
Duration	9	3	8	2	3	2	6
Activity	H	J	K	L	M	N	
Preceding	C	B, D	F, J	E, H, G, K	E, H	L, M	
Duration	1	4	1	2	3	4	

- (i) Draw the network.
- (ii) Find the critical path.
- (iii) Find the total float of critical path.
- (iv) Find the total float of non-critical path.





(6 pages)

Reg. No. : .....

Code No. : 21246

Sub. Code : JMCA 4 A

B.C.A. (CBCS) DEGREE EXAMINATION,  
APRIL 2018.

Fourth Semester

Computer Applications – Main

Major Elective — MICRO PROCESSOR

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The microprocessor communicates and operates in the binary numbers 0 and 1 called
  - (a) Bits
  - (b) Byte
  - (c) GB
  - (d) TB

2. The memory \_\_\_\_\_
  - (a) Stores binary information called instruction and data
  - (b) Provide the instruction and data to the microprocessor on request
  - (c) Store results and data for the microprocessor
  - (d) All of the above
3. The 8085 microprocessor signals can be classified into \_\_\_\_\_ groups.
  - (a) Two
  - (b) Three
  - (c) Five
  - (d) Six
4. The 8085 has two \_\_\_\_\_ register
  - (a) 16 bit
  - (b) 8 bit
  - (c) 32 bit
  - (d) 64 bit
5. Choose the arithmetic instruction from the following :
  - (a) ADD R
  - (b) MUI R
  - (c) ANA R
  - (d) XRA R





6. Logic operation rotates has now many instructions?

- (a) Four (b) Two  
(c) Three (d) Six

7. Counters and time delays can be designed using

- (a) Hardware (b) Software  
(c) Microprocessor (d) All the above

8. A \_\_\_\_\_ is a group of instructions that performs a subtask of repeated occurrence.

- (a) Subroutine (b) Stack  
(c) Queue (d) None of these

9. Write binary equivalent for 7210

- (a) 0111 0010 (b) 0111 0111  
(c) 0101 0010 (d) 1010 1001

10. \_\_\_\_\_ Place the stack pointer content in HL

- (a) SBB (b) DAI  
(c) DAD (d) LXI

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short notes on :

- (i) Flags in 8085 programming mode  
(ii) Program counter and stack pointer.

Or

(b) Explain about data format in 8085 microprocessor.

12. (a) Write short notes on :

- (i) I/O's with 8 bit addresses (Peripheral mapped I/O)  
(ii) Memory mapped I/O.

Or

(b) Explain about interfacing circuit.

13. (a) Write short notes on addressing modes.

Or

(b) Write short notes on 16 bit data transfer to Register pairs (LXI).





14. (a) Write short notes on Time Delay using register.

Or

(b) Write short notes on Restart, Conditional call and Return instructions.

15. (a) Write short notes on Multiplication technology used in BCD to Binary conversion.

Or

(b) Write about BCD-to-Seven segment LED code conversion.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss about operating systems with its structure.

Or

(b) Explain about 8085 programming model with its structure.

17. (a) Explain about address decoding and memory address diagram.

Or

(b) Explain about microprocessor-initiated operations and 8085 bus organization with diagram.

18. (a) Explain about Logical operations in 8085.

Or

(b) Write about conditional loop and counter.

19. (a) Explain about counter design with time delay.

Or

(b) Discuss about stack and its instruction in 8085.

20. (a) Explain about Binary to ASCII and ASCII to Binary code conversion.

Or

(b) Write about BCD addition with example.

