PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2017
(Sixth Semester) -

Branch - MATHEMATICS WITH COMPUTER APPLICATIONS

JAVA PROGRAMMING

Time : Three Hours Maximum : 75 Marks

SECTION-A (20 Marks!
Answer ALL questions
ALL questions carry EQUAL marks (10x2 = 20)

1 Define variable.
2 What is the use of arrays? Mention any two of it.
3 Write about exception.
4 What is called as multithreading?
5 Define string.
6 . What is called a package?
7 Define applet class.
8 What is the purpose of Window in AWT?
9 Write any two common features by comparing C++ and java.
10 What is called a swing in java?

SECTION - B (25 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5x5 = 25)

11 a Write short notes on the features of Java.
OR
b Write in brief about inheritance in Java,

12 a Briefly discuss on interfaces.
OR
b Describe in short about exception handling.

13 a Write about exploring java lang.
OR
b What are the important usages of java.util?

14 a Write short notes on event handling in java.
OR
b Illustrate about layout managers.

15 a Give a brief note on images in Java.
OR
b Give short notes on advancements of java over C++ language.

SECTION - C (30 Marks)
Answer any THREE Questions
ALL Questions Carry EQUAL Marks (3 x 10 = 30)

16 Describe about operators used in Java.
17 Discuss on packages of Java.
18 Give a detailed account on string handling in java.
19 Discuss in detail on applet class in java.
20 Explain about Java beans.

Z-Z-Z END

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OPERATIONS RESEARCH

Time : Three Hours Maximum : 75 Marks

SECTION-A (20 MarksV
Answer ALL questions
ALL questions carry EQUAL marks (10x2 = 20)

1 / Define slack variable.

2 Write the role of pivot element in simplex table.

3 What is the objectives of transportation problem?

4 What is an assignment problem? Give any two applications of assignment problem.

5 Define a two person zero - sum game.

6 Write down the general rules for dominance.

7 What is a critical path?

8 What is PERT? What information is revealed by PERT analysis?

9 What do you understand by (i) Balking (ii) Jockeying?

10 Define (i) Transient state (ii) Steady state.

SECTION - B (25 Marks!
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 5 = 25)

11 a Solve the following LPP by graphical method.

Maximize $Z = 3xi + 4x_2$
Subject to the constraints
$2xi + 5x_2 < 120$
$4xj + 2x_2 < 80$
and Xi, $x_2 > 0$.

OR

b Write the dual of the LPP.

Min $Z = 4xj + 6x_2 + 18x_3$
Subject to $xj + 3x_2 > 3$
$x_2 + 2x_3 > 5$
and Xi, x_2, $x_3 > 0$.

12 a Find the initial basic feasible^solution for the transportation problem by least cost method.

		TO A	B	C	D	Supply
From	P	1	2	1	.4	30
	Q	3	3	2	1	’50
	R	4	2	5	9'	20
Demand		20	-40	30	10	

OR

Cont...

Cont

12 b Find the optimal assignment by Hungarian method.

		Operators			
		I	n	III	IV
Machine	A	10	5	13	15
	B	3	9	18	3
	C	10	7	3	2
	D	5	11	9	7

13 a Solve_ the game whose pay-off matrix is given by

		PlayerB		
	'1	3	1	
Player A	0	-4	-3	
	1 5		-1	

OR

b Solve the following game and determine the value of the game

	P2
5	1
3	4

14 a Identify critical path and find the total project duration for the following project.

Activity:	0-1	1-2	1-3	2-4	2-5	3-4	3-6	4-7/ 5-7	6-7
Duration (days) :2		8	10	6	3	3	7	5	2	8

OR

b Explain the following terms use in PERT

(i) Pessimistic time (ii) Optimistic time (iii) Most likely time.

15 a Explain the single channel and multi-channel queuing models.

OR

b People arrive at a theatre ticket booth in Poisson distribution arrival rate of 25 per hour. Service time is constant at 2 minutes. Calculate (i) The utilization factor (ii) The average number of customers in the waiting line.

SECTION - C (30 Marks)

Answer any THREE Questions

^ ALL Questions Carry EQUAL Marks (3 x 1 0 = 30)

16 Use Simplex method to solve the following LPP

Maximize Z = 4xi + 10x2

Subject to the constraints

$2x_1 + x_2 < 50$

$2X_I + 5X_2 < 100$

$2X_I + 3X_2 < 90$

$X_I, x_2 > 0.$

17 Obtain an optimum basic feasible solution to the following transportation problem.

	To			Supply
From	7	3	2	
	2	1	3	
	3	4	6	
Demand	4	1 -	'5	

Cont...

18 Solve the following game graphically

	Player B	
Player. A	2 1 0 . - 2	
	1 0 3	2-

19 A project consists of the following activities and time estimates.

Activity	Estimated duration (weeks)		
	Optimistic	Most likely	Pessimistic
1-2	1	1 '	7
1-3	. . 1	.4	7
1-4	2	7.2	• 8
2 - 5	1	.1	1
3 - 5 .	2 .	5	14
4-6	. 2 .	5 •	8
5-6	• - 3 .	. 6 .	15

i) Draw the project network
ii) What is the probability that the project will be completed in 21 weeks?

20 Cars arrive at a petrol pump, having one petrol unit, in Poisson fashion with an average of 10 cars per hour. The service time is distributed exponentially with a mean of 3 minutes. Find
i) Average number , of cars in the queue
ii) Average number of cars in the system
iii) Average waiting time in the queue
iv) Probability that the number of cars in the system is 2.

Z-Z-Z END