

Sai mahavidyalya Bhilai

Half year examination

Class – BCA 3rd (old course)

Subject- calculus

total marks - 50

Note – Attempt any two question from each unit of section (A) each unit carry 15 marks

Attempt all question from section(B) each unit of section (B) each question carry 1 marks

(Section-A)

Unit -1

- State & prove fundamental theorem of integral calculus for Riemann integral function
- Let $f(x)=x^2$ an $[0,a]$, $a > 0$ show that $f \in R[0,a]$ & $\int_0^a x^2 dx = a^3 / 3$
- Let $f:[a,b] \rightarrow \mathbb{R}$ be a bounded function & P is any partition of $[a,b]$,then prove that $L(p,f) \leq U(p,f)$

Unit-2

- Discuss the maximum & minimum value of the function $u = xy + a^3/x + a^3/y$
- Find the minimum value of $u = x^2 + y^2 + z^2$ when $ax + by + cz = p$
- Find maximum & minima of the function $u = \sin x + \sin y + \sin(x+y)$

Unit-3

- Test the convergence of integral $\int_{-\infty}^0 e^{-x} dx$ & hence test $\int_{-\infty}^{\infty} e^{-x} dx$
- Test the convergent of the integral $\int_a^{\infty} \sin x / x^n dx$, $n > 0$
- Prove that integral $\int_a^b \frac{dx}{(x-a)\sqrt{b-x}}$ is divergent

(section- B)

Defination

- Monotonic function
- Bounded function
- continuous
- Convergent & divergent
- Riemann integral function

Sai Mahavidyalaya Bhilai
Half Yearly Exam 2022
Class-BCA-3

Subject-Differential equation and Fourier Series

Note-Attempt any two question for each unit.

MM-50

Unit – 1

Q.1) a. Solve $\frac{dy}{dx} = \frac{1+y^2}{1+x}$

b. Solve $(2x+y-3)dy = (x+2y-3)dx$

c. Solve $y(2x^2y + e^x)dx - (e^x + y^3)dy = 0$

Unit – 2

Q.2) a. Find the Orthogonal Trajectories of the family of cardioids

$(1-\cos\theta)$, where a is parameter.

b. Solve : $(D^3 - 2D^2 + 3)y = \cos x$

c. Solve : $x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} + y = 2 \log x$.

Unit – 3

Q.3) a. Find the Complete Integral :

$pq = xy$

b. Solve the Charpits Method

$(p^2+q^2) = qz$

c. Solve : $(D^2+5D+4)y = 3 - 2x$

Sai Mahavidyalaya, Bhilai
Half Yearly Jan 2021-22
Subject- Programming in Java
Class: BCA 3rd year

Time: 3 Hour

MM: 100

Notes: Attempt any four from Unit 1 & 2 and from unit 3 attempt only two.

Unit-1

1. Write features of java in brief. [10]
2. Explain method and classes in Java? [10]
3. What is wrapper class? Explain with a program using wrapper class. [10]
4. What method overriding? Explain with suitable example. [10]
5. Explain method and class in Java. [10]

Unit-2

1. Explain the package. Write the importance of package explain with program. [10]
2. What is interface in java? Explain with suitable program. [10]
3. Explain different type of inheritance with example. [10]
4. What are abstract classes and final class in Java explain with example. [10]
5. Write a program to find transpose of the given matrix. [10]

Unit-3

1. Explain the use of try, throw, catch and finally block with example. [10]
2. What is thread? Explain various states of a thread with a suitable diagram. [10]
3. Write short notes on Thread priorities and Synchronization. [10]

SAI MAHAVIDYALAYA

BCA-III (Old)

Half Yearly Exam 2021-22

[Software Engineering]

Time : 3 hrs.

MM : 80

SOLVE ANY THREE QUESTIONS FROM UNIT 1&2 AND TWO QUESTIONS FROM UNIT 3

[UNIT – 1]

- 1) What is iterative and incremental model ? 10
- 2) Define software engineering and explain it's principles. 10
- 3) What do you mean by software engineering problems? What are important qualities of software products ? 10
- 4) What is software engineering? Explain all phases of SDLC in brief. 10

[UNIT – 2]

- 1) Explain Phase management process in detail. 10
- 2) What is software metrics ? Explain function oriented metrics. 10
- 3) What is LOC ? How is it used for project estimation ? 10
- 4) What are the various time estimation measures in project management ? Explain. 10

[UNIT-3]

- 1) What is SRS ? What are the needs of SRS ? 10
- 2) What is DFD ? Explain with example. 10
- 3) Write short note on context diagram and data dictionary with suitable example. 10

SAI COLLEGE, SECTOR-6, BHILAI

B.C.A (PART III) HALF YEARLY EXAMINATION 2021-22

OPERATING SYSTEM (Old Course)

[TIME : THREE HOURS]

[MAXIMUM MARKS: 80]

NOTE : Attempt any three part from each unit. In unit 3 attempt any 2 part. All questions carry equal marks.

UNIT-I

1. Describe the types of Operating System.
2. Describe in detail the function and goals of Operating System.
3. Describe history and evolution of Operating System.
4. Describe the basic concept of OS.

UNIT-II

1. Briefly explain PCB (process Control block) .
2. Find average waiting time , response time for pre-emptive shortest job first algorithm for the following ;

Process	CPU Burst	Arrival
P1	5	0
P2	3	1
P3	4	2

3. What is scheduler? Explain first come first serve scheduling algorithm with example.
4. Explain different type of scheduler with example.

UNIT-III

1. What is fragmentation? Explain types of fragmentation with example.
2. Explain preliminaries of memory management.
3. Write short notes on
 - a) *Compaction*
 - b) Virtual memory

SAI MAHAVIDYALAYA

BCA-III (Old)

Half Yearly Exam 2021-22

[Multimedia and Tools]

Time : 3 hrs.

MM : 80

SOLVE ANY THREE QUESTIONS FROM UNIT 1&2 AND TWO QUESTIONS FROM UNIT 3

[UNIT – 1]

- 1) What are the various text format conversions ? 10
- 2) What is plain and formatted text ? Explain HTML and RTF text. 10
- 3) Explain the image file formats : PNG, EPS, TIF, BMP. 10
- 4) Define multimedia. Explain it's need and elements of multimedia 10

[UNIT – 2]

- 1) What is analog and digital sound ? Explain digital sampling. 10
- 2) Explain the various effect of sound in multimedia. 10
- 3) What is 2D and 3D animation ? Explain 3D animation techniques. 10
- 4) Write a short note on WAV, MP3, MP4. 10

[UNIT-3]

- 1) Write a brief note on NTSC and SECAM. 10
- 2) What is digital video compression ? Explain AVI, MPEG file formats. 10
- 3) What is graphics accelerator cards ? Explain it's characteristics and benefits. 10

Sai Mahavidhyalaya

Half Yearly Examination (2021-22)

Subject -Financial Management and accountancy

BCA - III (old course)

Note: Attempt any 05 question. Each question carry equal marks.

Unit 01

- Q1. What do you mean by financial accounting explain meaning and nature of accounting ?
- Q2. Explain the Accounting principle and underlying the preparation of financial statement.?
- Q3. What is cost accounting .What are its scope and its limitations.?

Unit 02

- Q4. What is ratio analysis .Explain its measures under profitability liquidity and solvency ?
- Q5. What do you mean by cost accounting explain its types and elements.?

Unit03

- Q6. Explain in brief Break even Analysis.?

(old)
B.C.A (Part III) EXAMINATION, 2022

Half Yearly

ENGLISH LANGUAGE

Time : Three Hours

Maximum Marks : 80

Note : Attempt all questions.

UNIT – 1

MM:30

1. Answer any two of the following questions in about 200 words each:

- (a) Why could the Shepherd boy sit on the judgement seat of Viskramaditya and not the king ?
- (b) Write a summary of the essay "Information Technology" in your own words.
- (c) Write a story of the poem "Mouse and the Snake" in your own words.
- (d) What are the basic needs of Human Beings ?

UNIT – 2

MM:30

2. Write an essay on any one of the following in about 300 words:

- (a) Democratic Decentralization
- (b) Computer is Today's Life
- (c) Environmental Pollution
- (d) India in the 21st Century

UNIT – 3

MM:20

3. Make a precis of the following and suggest suitable title:

The great advantages of early rising is the good start; it gives us in our day's work. The early riser manages to do a large amount of good works before other people have got out of bed. In the early morning the mind is fresh and there a few sound and other distractions. By taking exercise in the morning air, the early risers gets a fund of energy which lasts till the evening. All the work gets finished in good times. He is able to go to bed much before midnight and gets enough time to rest and feel fresh when he gets up again.

Sai College, Bhilai
Half Yearly Exam 2021-22
Class-BCA-3
Subject-Computer System Architecture

Max. -80

Note : Attempt any 3 questions from unit 1 & 2.
Attempt any 2 questions from unit 3.
Each question carries equal marks.

Unit-1

- Q1) Explain Gray Code and BCD Code? [10]
Q2) Explain some error detection codes? [10]
Q3) Explain some error correction codes? [10]
Q4) Explain 1`s and 2`s complement method? [10]
Q5) Solve following? [10]
a) $(156)_{10} = (?)_2$ b) $(10F) = (?)_2$

Unit-2

- Q1) Explain Basic Logic Gates with logical Diagram? [10]
Q2) What is De morgan`s Law? Explain? [10]
Q3) What is Flip Flip explain SR Flip Flop? [10]
Q4) Explain Full Adder with Diagram? [10]
Q5) Explain Half Adder with Diagram? [10]

Unit-3

- Q1) What Common System BUS? Explain with diagram? [10]
Q2) What is Register Explain Program Counter? [10]
Q3) Explain SMPS? [10]