Code No. D-3584/CBCS

FACULTY OF ENGINEERING

B.E. (AE) IV - Semester (CBCS) (Backlog) Examination, March / April 2022

Subject: Automotive Chassis Components

Time: 3 hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions **(10 x 2 = 20 Marks)**

1 What do you understand by a front forward chassis?
2 List out the various cross sections and materials used for the construction of a frame.
3 Explain king pin inclination and toe-in and toe-out with simple sketches.
4 What is the reason for vehicle wobbling?
5 What are the components of a steering system?
6 How does a differential work?
7 What is the need of a suspension system?
8 List out the various suspension systems used in automobiles.
9 Explain the parking brake briefly.
10 What is the principle behind antilock braking system?

PART – B

Note: Answer any five questions **(5 x 10 = 50 Marks)**

11 Explain the conventional type of chassis frame with the help of a neat figure.

12 Explain the Davis Steering mechanism with a neat sketch.

13 What are the different types of gear boxes used in automobiles? Explain In detail.

14 a) Explain the working of a universal joint.
b) What is the function of a Hotchkiss drive? Explain briefly.

15 a) Write briefly about the different types of axle housings used in automobiles.
b) Explain the Mac Pherson strut type of suspension system.

16 Explain the working and functions of a leaf spring type of suspension system with the help of a diagram.

17 a) Explain the working of disc brake system with a diagram.
b) What do you understand by eddy retarders?

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Code No. D-3588/CBCS

FACULTY OF ENGINEERING

B.E. (CSE) IV-Semester (CBCS) (Backlog) Examination, March / April 2022

Subject: Computer Organization

Time: 3 hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1 What is Gray Code?
2 Define virtual memory.
3 What is hit ratio? Explain.
4 What is meant by Pipelining?
5 Define Handshaking.
6 What are Flyn's classification?
7 Where is the "Translation look aside buffer" used?
8 Distinguish between direct and indirect memory reference instructions and specify the number of memory access to get an operand.
9 Design a hardware for signed 2's complement addition and subtraction.
10 What are the differences between hardwired and micro programmed control unit?

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11 Explain about fixed point representations with suitable examples.

12 (a) Design a bus system with multiplexers and other gates for communicating between register.
(b) What do you understand by arithmetic shift? Explain.

13 (a) Explain Hardwired control unit and micro programmed control unit.
(b) Mention the advantages and disadvantages of microprogrammed control and hardwired control.

14 Explain different addressing modes.

15 Write a short notes on Direct memory access and indirect memory access.

16 Distinguish between isolated I/O and memory mapped I/O with an example.

17 Compare the relative merits of the three cache memory organization.
(a) Direct mapping cache
(b) Fully associative cache
(c) Set associative cache.

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Code No. D-3594/CBCS

FACULTY OF ENGINEERING

B.E. (IT) IV – Semester (CBCS) (Backlog) Examination, March / April 2022

Subject: Scripting Languages

Time: 3 Hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1 Define a scripting language.
2 Mention the idea of scripting today.
3 Describe how to run a python script.
4 Differentiate between python 2.x and 3.x.
5 Write about the use of break in python program.
6 List the standard Input device.
7 Give the syntax to define a function.
8 List the Built in functions.
9 Define with statement.
10 How do you close a file?

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11 Explain the characteristics of scripting languages.

12 (a) Explain the installation procedure in python.
(b) Explain the expressions with examples in python.

13 Write the syntax and code segment for the following:
(i) If
(ii) For
(iii) While

14 (a) Explain how to write a python script.
(b) Discuss in detail how scripting languages differ from non-scripting languages.

15 Explain how to access, update and delete tuple elements.

16 Discuss in detail how scripting languages differ from non-scripting languages.

17 Write notes on the following:
(a) Uses of scripting language
(b) Built-in data types.

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FACULTY OF ENGINEERING

B.E. (CIVIL) IV - Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Mathematics – III

Time: 3 Hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1 Form a partial differential equation by eliminating arbitrary function f from $z = f\left(\frac{x}{y}\right)$.

2 Solve $p^2 + q^2 = 1$.

3 Classify the partial differential equation $u_{xy} = 3u_y$.

4 Find the separation of variables solution of $4\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} = 0$.

5 Find the mean of the uniform distribution.

6 Define Skewness and Kurtosis.

7 Write the normal equations for fitting a curve of the form $y = a + bx + cx^2$.

8 If $y = x + 1$ and $x = 3y - 7$ are the two lines of regression, then find $\bar{x}, \bar{y}$ and r.

9 Write the t-test statistic for difference of means in hypothesis testing for small samples.

10 Mention the applications of F-test.

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11 (a) Solve $x(y-z)p + y(z-x)q = z(x-y)$.

(b) Solve $z^2(2p^2 + 3q^2) = 8x^2 + 27y^2$ by reducing to separable form.

12 An insulated rod of length l has its ends A and B maintained at 0˚C and 100˚C respectively until steady state condition prevails. If B is suddenly reduced to 0˚C and maintained at 0˚C, find the temperature at a distance x from A at time t.

13 (a) Fit a Poisson distribution to the following data:

x:	0	1	2	3	4
y:	46	38	22	9	1

(b) Find the moment generating function of the normal distribution.

14 (a) Fit a curve of the form $y = ab^x$ to the following data:

x:	1	2	3	4
y:	4	11	35	100

(b) In two large populations, there are 30% and 25% of fair haired people respectively. Is the difference likely to be hidden in samples of 1200 and 900 respectively from the two populations?

15 (a) Find the students t test statistic for the following variable values in a sample of 8 by taking the mean of the universe to be zero.
-4, -2, -2, 0, 2, 2, 3, 3.

(b) The following table gives the classification of 150 workers according to sex and nature of work. Test whether the nature of work is independent of the sex of the workers.

	Stable	Unstable	Total
Male	60	30	90
Female	15	45	60
Total	75	75	150

16 (a) Solve $z = px + qy + pq$ by Charpit's method.

(b) The first three moments of a distribution about the value 2 of the variable are 1,16,-40. Find the mean and variance of the distribution.

17 Find the correlation coefficient, the regression lines of y on x and x on y for the following data:

x:	1	2	3	4	5
y:	2	5	3	8	7

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