SAMPLE QUESTION PAPERS

COMPUTER SCIENCE

Class - XII

Government of Kerala
Department of Education

Prepared by
State Council of Educational Research and Training (SCERT), Kerala

2015

Guidelines for the Preparation of Question Paper for
HIGHER SECONDARY EDUCATION 2015-16

Introduction

Term evaluation is an important aspect of Continuous and Comprehensive Evaluation. It covers the **assessment of learning** aspect of the CCE. The Kerala School Curriculum 2013 postulated that the examination system should be recast so as to ensure a method of assessment that is a valid, reliable and objective measure of student development and a powerful instrument for improving the learning process. The outcome-focused written tests are being used as tools for terminal assessment. Practical assessment is also considered for some subjects. The syllabus, scheme of work, textual materials, teacher texts and learning experiences may be considered while developing tools for term evaluation.

In order to make the examination system effective and objective, quality of the question paper needs to be ensured. Questions of different types considering various learning outcomes, thinking skills and of varying difficulty levels are to be included in the question paper. This makes question paper setting a significant task that has to be undertaken with the support of proper guidelines.

The guidelines for the preparation of the question paper have been divided into four heads for its effective implementation and monitoring. The areas are i) preparatory stage, ii) nature of questions, iii) question paper setting and iv) structure of the question paper.

I. Preparatory stage

Before starting the process of question paper setting, the question setter should ensure that she/he has:

- got familiar with the syllabus and textbook of the concerned subject
- secured the list of Learning Outcomes (LOs) relating to the subject
- acquired the list of thinking skills applicable to the subject (See appendix)
- prepared a pool of questions from each unit
- verified the scheme of work and weight of score for each unit/chapter
- gone through subject guidelines for the preparation of question paper

II Nature of questions

Question selected from the pool to be included in the question paper should reflect the following features:

- The question should focus on the learning outcomes.
- The learning level of the learner should be considered.
- A wide range of thinking skills and learning outcomes from each unit/chapter should be considered.
- While preparing questions for subjects other than languages, importance should be given to content, concepts and skills.
- There should be varied forms of questions such as objective type with specific focus to multiple choice test items and descriptive types (short answer and essay types).
- Multiple choice questions should be provided with four competitive distracters.
- The possibilities of higher thinking skills should be considered even while setting MCQs.

- Questions can be prepared based on a single or a cluster of learning outcomes which is scattered over one particular unit or many units.
- Cluster of learning outcomes from different units can be considered only for graded questions (questions with sub-divisions)
- For graded questions, it is better to give a stem and it should be relevant to the questions posed.
- The possibilities of graded questions reflecting different thinking skills can be explored.
- Question text should not be too lengthy and complicated.
- Question should be very specific and free from ambiguity.
- Error correction questions for program code segments can be given in the category of descriptive type questions.
- Utmost care should be given to avoid syntax errors in the program codes for which output prediction is demanded. In such questions, the learners should be asked to write some execution steps of the code.
- One of the essay questions should be program coding for solving a given problem. Hints, clues or sample input and output may be given depending upon the complexity of the problem.
- The three types of questions mentioned above (error correction, output prediction and program coding) require conceptual generation skills and hence these questions should be included within the 40% scores allotted for this category.
- Time allotted for each question should be justified according to the thinking skills involved.
- The scope and length of the answer should be clearly indicated.
- There should be a balance between the time allotted and the level of question.
- Questions should cater to the needs of the differently abled learners and CWSEN
- Directions regarding the minimum word limit for essay type questions should be given. Sufficient hints can be provided for essay type questions, if necessary.
- Supporting items like pictures, graphs, tables and collage may be used to the maximum while preparing questions.
- Contents of Info Boxes in the textbook should not be considered for developing questions.
- Questions which hurt the feelings of caste, religion, gender, etc. must be completely avoided.

III Question paper setting

During the process of question paper setting the question setter should:

- prepare a design of the question paper with due weight to content, learning outcomes, different forms of questions and thinking skills
- prepare a blue print based on the design
- prepare scoring key indicating value points and question based analysis along with the question paper
- while preparing scoring key, thinking skills should also be integrated
- 60% weight should be given to thinking skills for conceptual attainment and 40% to thinking skills for conceptual generation
- 15 to 20% weight of total scores must be given to objective type questions and up to 20% weight of total score must be given to essay type questions

- the highest score that can be given to a question in the question paper is limited to 10% of the total score
- while fixing the time for answering a question, time for reading, comprehending and writing the answer must be considered
- two hours for 60 scores and 2½ hours for 80 scores question papers with an extra cool-off time of 15 minutes must be given

IV Structure of the question paper

The question paper should reflect the following features in general:

- general instructions about the question paper should be given in the beginning
- instructions for specific questions can be given before the question text
- monotony of set patterns (objective or descriptive) should be avoided
- questions should be prepared in bilingual form
- there should not be any mismatch between the bilingual versions of the questions
- choice can be given for questions up to 20% of the total score
- while giving choice, alternative questions should be from the same unit with the same level of thinking skills

THINKING SKILLS

Category/ processes	Alternative terms
1. Remember	**Retrieve relevant knowledge from long-term memory**
1.1. *Recognising*	identifying- (e.g. Recognize the dates of important events in Indian history)
1.2. *Recalling*	retrieving - (e.g. Recall the major exports of India)
2. Understand	**Construct meaning from instructional messages, including oral, written and graphic information**
2.1. *Interpreting*	clarifying, paraphrasing, representing, translating (e.g. Write an equation [using B for the number of boys and G for the number of girls] that corresponds to the statement 'There are twice as many boys as girls in this class')
2.2. *Exemplifying*	illustrating, instantiating (e.g. Locate an inorganic compound and tell why it is inorganic)
2.3. *Classifying*	categorizing, subsuming (e.g. Classify the given transactions to be recorded in Purchase returns book and Sales returns book)
2.4. Summarising	abstracting, generalizing (e.g. Students are asked to read an untitled passage and then write an appropriate title.)
*2.*5. *Inferring*	concluding, extrapolating, interpolating, predicting (e.g. a student may be given three physics problems, two involving one principle and another involving a different principle and ask to state the underlying principle or concept the student is using to arrive at the correct answer.)

2.6. *Comparing*	contrasting, mapping, matching (e.g. Compare historical events to contemporary situations)
2.7. *Explaining*	constructing models (e.g. the students who have studied Ohm's law are asked to explain what happens to the rate of the current when a second battery is added to a circuit.)
3. Apply	**Carry out or use a procedure in a given situation**
3.1. *Executing*	Carrying out (e.g. Prepare Trading and Profit and loss Account from the Trial Balance given and find out the net profit.)
3.2. *Implementing*	using (e.g. Select the appropriate given situation where Newton's Second Law can be used)
4. Analyse	**Break material into its constituent parts and determines how the parts relate to one another and to an overall structure or purpose**
4.1. *Differentiating*	discriminating, distinguishing, focusing, selecting (e.g. distinguish between relevant and irrelevant numbers in a mathematical word problem)
4.2. *Organising*	finding coherence, integrating, outlining, parsing, structuring (e.g. the students are asked to write graphic hierarchies best corresponds to the organisation of a presented passage.)
4.3. *Attributing*	deconstructing (e.g. determine the point of view of the author of an essay in terms of his or her ethical perspective)
5. Evaluate	**Make judgements based on criteria and standards**
5.1. *Checking*	coordinating, detecting, monitoring, testing (e.g. after reading a report of a chemistry experiment, determine whether or not the conclusion follows from the results of the experiment.)
5.2. *Critiquing*	judging (e.g. Judge which of the two methods is the best way to solve a given problem)
6. Create	**Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure**
6.1. *Generating*	hypothesizing (e.g. suggest as many ways as you can to assure that everyone has adequate medical insurance)
6.2. *Planning*	designing (e.g. design social intervention programmes for overcoming excessive consumerism)
6.3. *Producing*	constructing (e.g. the students are asked to write a short story based on some specifications)

Considering the intellectual level of learners**,** while setting the question paper;

1. **60% weight may be given to thinking skills used for factual and conceptual attainment and**
2. **40% weight may be given to thinking skills for conceptual generation** (higher thinking skills has to be ensured in this category). Thinking skills for conceptual generation means thinking skills needed for elaborating the concepts.

   Refer the range of thinking skills given above. We can include the thinking skills no.1.1 to 3.2 (11 processes) under first category and 4.1 to 6.3 (8 processes) under second category.

COMPUTER SCIENCE

HIGHER SECONDARY COURSE SECOND YEAR

Learning Outcomes

Chapter 1: Structure and Pointers

1.1 Identifies the need of user defined data types and use structure to represent grouped data.
1.2 Creates structure data types and accesses elements to refer to the data items
1.3 Uses nested structure to represent data consisting of elementary data items and grouped data items
1.4 Develops C++ programs using structure data types to solve real life problems.
1.5 Explains the concept of pointers and uses pointer with the operator & and *.
1.6 Compares the two types of memory allocation and uses dynamic operators new and delete.
1.7 Illustrates the operations on pointers and predict the outputs.
1.8 Establishes the relationship between pointers and array
1.9 Uses pointers to handle strings
1.10 Explains the concept of self referential structure.

Chapter 2: Concepts of Object Oriented Programming

2.1 Compares various programming paradigms.
2.2 Lists the features of procedure oriented paradigm.
2.3 Lists the advantages of object oriented paradigm.
2.4 Explains the concepts of data abstraction and encapsulation, citing examples.
2.5 Explains inheritance and polymorphism with the help of real life examples.

Chapter 3: Data Structures and Operations

3.1 Explains the concept of data structure by citing examples.
3.2 Classifies data structures based on different criteria.
3.3 Lists different operations on data structures and explains them.
3.4 Explains the organisation of stack data structure with the help of examples.
3.5 Develops algorithms for push and pop operations in a stack.
3.6 Explains the organisation of queue data structure with the help of examples
3.7 Develops algorithms for insertion and deletion operations in a linear queue
3.8 Identifies the advantage of circular queue over linear queue.
3.9 Explains the concept of linked list data structure and its advantages over arrays and other static data structures.
3.10 Develops procedures to create a linked list and to perform traversal operation.

Chapter 4: Web Technology

4.1 Explains the need of secure communications
4.2 Describes web server and web hosting
4.3 Differentiates static and dynamic web pages.

4.4 Identifies the difference between programming languages and scripts
4.5 Explains different types of scripting languages.
4.6 Compares different types of scripting languages.
4.7 Identifies the basic HTML tags.
4.8 Lists fundamental HTML tags and attributes
4.9 Classifies HTML tags
4.10 Identifies the formatting tags and attributes.
4.11 Identifies the similarities and differences among formatting tags.
4.12 Uses the tags <PRE> and <DIV>
4.13 Provides scrolling to the objects and contents in a web page.
4.14 Uses <FONT> Tag to make text attractive.
4.15 Uses comments in HTML
4.16 Inserts images into html documents.

Chapter 5: Web Designing using HTML

5.1 Distinguishes various types of lists available in HTML
5.2 Links various web pages and sections within a webpage
5.3 Embeds various audio, video files in a webpage
5.4 Embeds inline audio video
5.5 Lists various tags and attributes in creating a table
5.6 Compares tags such as TD TH and their attributes and uses
5.7 Illustrates the creation of Table
5.8 Illustrates the use of frames and framesets.
5.9 Creates frames
5.10 Explains the use of forms in HTML.
5.11 Lists the use of forms in html and its components.
5.12 Creates a webpage with all the features discussed so far

Chapter 6: Client Side Scripting Using Javascript

6.1 Distinguishes the use of client side and sever side scripting language.
6.2 Explains the need of client side scripting language
6.3 Identifies the importance of JavaScript as the client side scripting language.
6.4 Uses JavaScript functions in a web page.
6.5 Explains different data types in JavaScript
6.6 Uses correct variables in JavaScript
6.7 Uses appropriate control structures in program codes.
6.8 Uses appropriate built-in functions in JavaScript.
6.9 Explains the method to access document elements using JavaScript
6.10 Creates JavaScript functions that handle values in text boxes and combo boxes.

Chapter 7: Web Hosting

7.1 Describes the use of a web server and the concept of web hosting.
7.2 Classifies different types of hosting.
7.3 Explains the ways to buy hosting space.

7.4 Registers a domain and hosts a website using FTP client software.
7.5 Explains the features of free hosting.
7.6 Identifies the use of Content Management Systems.
7.7 Describe the need for responsive web design.

Chapter 8: Database Management System

8.1 Recognizes the need for files.
8.2 Identifies the major limitations of the conventional file management system.
8.3 Lists and explains the different advantages of the database management system.
8.4 Lists the various components of the DBMS and explains their purpose.
8.5 Recognizes the types of users and their roles in the DBMS environment.
8.6 Explains the levels of data abstraction and data independence in DBMS.
8.7 Explains the relational model by citing examples.
8.8 Uses the different terminologies in RDBMS appropriately.
8.9 Applies and evaluates the various operations in relational algebra.

Chapter 9: Structured Query Language

9.1 Recognises the importance and features of Structured Query Language.
9.2 Explains the components of SQL.Distinguishes the features of DDL, DML and DCL commands.
9.3 Identifies the characteristics of MySQL Lists different data types and their features.
9.4 Explains the effect of different constraints.
9.5 Performs operations using DDL commands like CREATE, ALTER, DROP.
9.6 Uses DML commands like SELECT,INSERT, UPDATE, DELETE for data manipulationIdentifies various clauses associated with SQL commands and their purpose.Uses operators for setting different conditions.
9.7 Lists different aggregate functions and their usage.
9.8 Constructs nested queries for information retrieval.

Chapter 10: Server Side Scripting Using PHP

10.1 Lists the benefits of using PHP.
10.2 Explains the syntax of PHP code.
10.3 Illustrates various data types and operators used in PHP.
10.4 Constructs code from algorithm using control and looping structures in PHP.
10.5 Identifies the difference and use of different types of array.
10.6 Designs PHP functions for common tasks.
10.7 Describes the client server environment.
10.8 Selects the appropriate data submitting methods for different scenarios.
10.9 Identifies the role of database connectivity in the creation of dynamic webpages.

Chapter 11: Advances in Computing

11.1 Identifies different distributed computing paradigms.
11.2 Compares serial computing and parallel computing
11.3 Recognizes the need of grid computing.

11.4 Identifies cluster computing techniques.
11.5 Analyses the need of cloud computing methods.
11.6 Explains the role of artificial intelligence in modern computing.
11.7 Identifies different computational intelligence paradigms.
11.8 Explains applications of computational intelligence.

Chapter 12: ICT and Society

12.1 Uses various ICT services like e-Governance, e-Business and e-Learning.
12.2 Details e-Governance and its infrastructure and identifies its advantages and challenges.
12.3 Explains the concept of e-Business, its various components, advantages and challenges.
12.4 Recognises the concept and functions of e-Learning, uses e-Learning tools to overcome the limitations of traditional learning, identifies the advantages and challenges.
12.5 Lists and explains various intellectual property rights.
12.6 Explains cyber space.
12.7 Distinguishes different types of cyber crimes.
12.8 Explains cyber laws and ethics and scope of cyber forensics.
12.9 Identifies the importance of IT act.
12.10 Recognises infomania.

SCHEME OF WORK

Term	Month	Chapter
First	June	1. Structures and Pointers (25 periods)
		2. Concepts of Object Oriented Programming (10 periods)
	July	3. Data Structures and Operations (20 periods)
	August	4. Web Technology (25 periods)
Second	September	5. Web Designing using HTML (20 periods)
	October	6. Client side scripting using JavaScript (20 periods)
		7. Web Hosting (8 periods)
	November	8. Database Management System (12 periods)
	December	9. Structured Query Language (20 periods)
		10. Server side Scripting using PHP (20 periods)
Third	January	11. Advances in Computing (10 periods)
	February	12. ICT and Society (15 periods)

Sample Question Paper - I

Weight to Content and LO				
Sl. No.	**Chapter**	**LOs**	**Scores**	**% Score**
1	Structures and Pointers	1.1, 1.2, 1.5, 1.6, 1.8, 1.9	6	10.00
2	Concepts of Object Oriented Programming	2.5	3	5.00
3	Data Structures and Operations	3.1, 3.4, 3.5, 3.6	5	8.33
4	Web Technology	4.1, 4.10, 4.13, 4.16	6	10.00
5	Web designing using HTML	5.1, 5.5, 5.6, 5.8	6	10.00
6	Client side scripting using JavaScript	6.4, 6.7, 6.8, 6.9, 6.10	6	10.00
7	Web Hosting	7.1, 7.7	3	5.00
8	Database Management System	8.3, 8.9	5	8.33
9	Structured Query Language	9.4, 9.5, 9.6, 9.7	6	10.00
10	Server side Scripting using PHP	10.3, 10.4, 10.5, 10.6, 10.8	6	10.00
11	Advances in Computing	11.1, 11.5	4	6.67
12	ICT and Society	12.4, 12.5	4	6.67
Total			**60**	**100%**

Weight to Type of Questions			
Type	**No. of Qns.**	**Scores**	**% Score**
Objective Type	10	10	16.67%
Short Answer Type	16	2 x 8 = 16 3 x 8 = 24	66.66%
Essay Type	2	10	16.67%
Total	**28**	**60**	**100%**

Weight to Thinking Skills		
Thinking Skills	**Score**	**% Score**
Conceptul Attainment	36	60%
Conceptul Generation	24	40%
Total	**60**	**100%**

Blue Print

Sl. No.	Thinking Skills / Content	Conceptual Attainment			Conceptual Generation			Total
		Obj	SA	Essay	Obj	SA	Essay	
1	Structures and Pointers		(1) 3		(1) 1	(1) 2 (C)		6
2	Concepts of Object Oriented Programming		(1) 3					3
3	Data Structures and Operations	(1) 1	(1) 2			(1) 2		5
4	Web Technology	(1) 1	(1) 2			(1) 3		6
5	Web designing using HTML	(1) 1					(1) 5 (C)	6
6	Client side scripting using JavaScript	(1) 1	(1) 3			(1) 2		6
7	Web Hosting	(1) 1	(1) 2					3
8	Database Management System		(1) 3			(1) 2		5
9	Structured Query Language			(1) 5	(1) 1			6
10	Server side Scripting using PHP	(1) 1	(1) 2			(1) 3 (C)		6
11	Advances in Computing	(1) 1	(1) 3					4
12	ICT and Society	(1) 1				(1) 3		4
Total		(8) 8	(9) 23	(1) 5	(2) 2	(7) 17	(1) 5	(28) 60
		(18) 36			(10) 24			

Figure within the brackets indicates the number of questions

The entry (C) indicates the choice questions

Total scores allotted for choice questions is 10

Reg. No: .....

Name : .....

HSE II
March 2016

Higher Secondary Education

Part - III
COMPUTER SCIENCE
Sample Question Paper - I

Maximum : 60 Scores
Time: 2 Hrs.
Cool off time : 15 Minutes

General Instructions to candidates:

- There is a 'Cool off time' of 15 minutes in addition to the writing time of 2 hrs.
- You are allowed neither to write your answers nor to discuss anything with others during the 'cool off time'.
- Use the 'cool off time' to get familiar with questions and to plan your answers.
- Read the questions carefully before answering.
- All questions are compulsory and only internal choice is allowed.
- When you select a question, all the sub-questions must be answered from the same question itself.
- Calculations, figures and graphs should be shown in the answer sheet itself.
- Malayalam version of the questions is also provided.
- Give equations wherever necessary.
- Only nonprogrammable calculators are allowed in the Examination Hall.

പൊതുനിർദ്ദേശങ്ങൾ

- നിർദ്ദിഷ്ട സമയത്തിന് പുറമെ 15 മിനിട്ട് 'കൂൾ ഓഫ് ടൈം' ഉണ്ടായിരിക്കും. ഈ സമയത്ത് ചോദ്യങ്ങൾക്ക് ഉത്തരം എഴുതാനോ, മറ്റുള്ളവരുമായി ആശയവിനിമയം ചെയ്യുവാനോ പാടില്ല.
- ഉത്തരങ്ങൾ എഴുതുന്നതിന് മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- എല്ലാ ചോദ്യങ്ങൾക്കും ഉത്തരം എഴുതണം.
- ഒരു ചോദ്യനമ്പർ ഉത്തരമെഴുതാൻ തെരെഞ്ഞെടുത്ത് കഴിഞ്ഞാൽ ഉപചോദ്യങ്ങളും അതേ ചോദ്യനമ്പരിൽ നിന്ന് തന്നെ തെരെഞ്ഞെടുക്കേണ്ടതാണ്.
- കണക്ക് കൂട്ടലുകൾ, ചിത്രങ്ങൾ, ഗ്രാഫുകൾ, എന്നിവ ഉത്തരപേപ്പറിൽത്തന്നെ ഉണ്ടായിരിക്കണം.
- ആവശ്യമുള്ള സ്ഥലത്ത് സമവാക്യങ്ങൾ കൊടുക്കണം.
- ചോദ്യങ്ങൾ മലയാളത്തിലും നൽകിയിട്ടുണ്ട്.
- പ്രോഗ്രാമുകൾ ചെയ്യാനാകാത്ത കാൽക്കുലേറ്ററുകൾ മാത്രമേ പരീക്ഷാഹാളിൽ ഉപയോഗിക്കാൻ പാടുള്ളൂ.

1. Write the output of the following C++ code from the given options.

```
char *ptr;
char Str[] = "computer";
ptr = Str;
ptr += 5;
cout << ptr;
```

a) uter b) ter
c) compu d) u *Score 1*

2. In a situation when data have to be stored and then retrieved in reverse order _____ is very useful .
a) Stack b) Queue
c) List d) Linked list *Score 1*

1. താഴെ കൊടുത്തിരിക്കുന്ന C++ code ന്റെ ഔട്ട്പുട്ട് തന്നിരിക്കുന്നവയിൽ നിന്നും കണ്ടെത്തുക.

```
char *ptr;
char Str[] = "computer";
ptr = Str;
ptr += 5;
cout << ptr;
```

a) uter b) ter
c) compu d) u *Score 1*

2. ഡാറ്റ സ്റ്റോർ ചെയ്യുന്നതിനും പിന്നീട് അതിനെ റിവേഴ്സ് ഓർഡറിൽ എടുക്കാനും ഉപയോഗിക്കുന്നത് _____ ആണ്.
a) സ്റ്റാക്ക് b) ക്യൂ
c) ലിസ്റ്റ് d) ലിങ്ക്ഡ് ലിസ്റ്റ് *Score 1*

3. Which tag is used to display the numbered list?

a. <OL></OL> b. <DL></DL>

c. <UL></UL> d. <LI></LI>

Score 1

4. When we complete a website, the files are to be transferred to a web server. Name any popular FTP client software required for this. *Score 1*

5. Name the constraint used to reject duplicate values and accept null values. *Score 1*

6. Choose the symbol from the following to start a variable in PHP.

a) ? b) ! c) $ d) &

Score 1

7. *Answer any one question - 7 (a) or 7 (b).*

(a) Declare a structure with suitable variable names to store the following information: *Score 2*

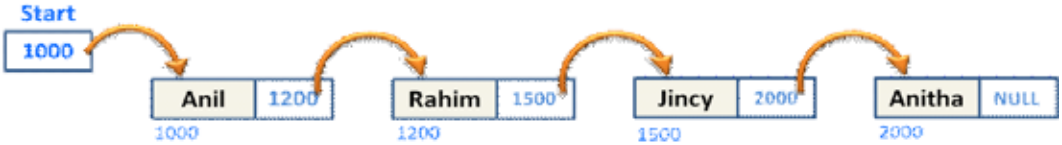
Reg No	Name	Date of Birth			Sex
		DD	MM	YY	

OR

(b) Assume that `s1` is a structure variable of type `Sales` which contains `float amt[12];` as an element. Write a C++ statement to input the amount of sales for twelve months into this element. *Score 2*

8. Explain the situations 'overflow' and 'underflow' that occur in some operations on data structures.

9. The following figure shows a linked list of names of some students. Write the procedure to remove the 2nd node.



Score 2

3. Numbered list-ായി display ചെയ്യാൻ ഉപയോഗിക്കുന്ന tag ഏത്?

a. <OL></OL> b. <DL></DL>

c. <UL></UL> d. <LI></LI>

Score 1

4. ഒരു വെബ്സൈറ്റ് പൂർത്തിയാക്കിയാൽ അതിലെ ഫയലുകളെ ഒരു വെബ് സെർവറിലേക്ക് മാറ്റണം ഇതിനായുള്ള ഒരു FTP ക്ലയന്റ് സോഫ്റ്റ്വെയറിന്റെ പേരെഴുതുക? *Score 1*

5. Duplicate values നിരാകരിക്കുവാനും എന്നാൽ null values സ്വീകരിക്കുവാനും ഉപയോഗിക്കുന്ന കൺസ്ട്രയിന്റ് ഏത്. *Score 1*

6. ചുവടെ കൊടുത്തിരിക്കുന്നവയിൽ ഏത് ചിഹ്നത്തിലാണ് PHP യിലെ വേരിയബിളുകൾ ആരംഭിക്കുന്നത്.

a) ? b) ! c) $ d) & *Score 1*

7. *7(a), 7(b) എന്നിവയിലേതെങ്കിലും ഒരു ചോദ്യത്തിന് ഉത്തരമെഴുതുക.*

(a) താഴെകൊടുത്തിരിക്കുന്ന ഇൻഫർമേഷൻ store ചെയ്യാൻ അനുയോജ്യമായ structure ഡിക്ലെയർ ചെയ്യുക. *Score 2*

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(b) `float amt[12];` എന്ന element ഉള്ള `Sales` എന്ന സ്ട്രക്ച്ചർ ഡാറ്റാ ടൈപ്പിൽപ്പെട്ട ഒരു വേരിയബിളാണ് `s1`. 12 മാസത്തെ വിറ്റുവരവ് സൂചിപ്പിക്കുന്ന തുകകൾ ഈ element ലേക്ക് ഇൻപുട്ട് ചെയ്യാനുള്ള C++ സ്റ്റേറ്റ്മെന്റ് എഴുതുക. *Score 2*

8. ഡാറ്റാ സ്ട്രക്ച്ചറുകളിലെ ചില ഓപ്പറേഷനുകളിൽ സംഭവിക്കുന്ന 'overflow', 'underflow' എന്നീ സാഹചര്യങ്ങൾ വിശദീകരിക്കുക.

9. ചില കുട്ടികളുടെ പേരുകൾ അടങ്ങുന്ന ഒരു ലിങ്ക്ഡ് ലിസ്റ്റ് ചുവടെ തന്നിരിക്കുന്നു. ഇതിൽ നിന്നും രണ്ടാമത്തെ നോഡ് നീക്കം ചെയ്യുന്നതിനുള്ള പ്രക്രിയ എഴുതുക.

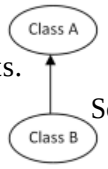
Score 2

10. Write the HTML statements to display the following:
    i) (X > Y) & (M < N)
    ii) Copyright © SCERT *Score 2*
11. Explain "Responsive Web Design". *Score 2*
12. Consider the following table named BOOKS and write relational algebraic operations for the following:
    a) To display the tuples from books where price is greater than 250.
    b) To display book no and title of all books. *Score 2*

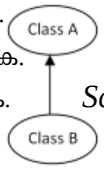
10. താഴെ കൊടുത്തിരിക്കുന്നവ ഡിസ്പ്ലേ ചെയ്യാനാവശ്യമായ HTML statements എഴുതുക.
    i) (X > Y) & (M < N)
    ii) Copyright © SCERT *Score 2*
11. "Responsive Web Design"-നെക്കുറിച്ച് വിശദീകരിക്കുക. *Score 2*
12. BOOKS എന്ന table ആസ്പദമാക്കി താഴെ കൊടുത്തിരിക്കുന്ന വിവരങ്ങൾ ലഭിക്കാനുള്ള relational algebraic operation എഴുതുക.
    a) 250 രൂപയിൽ കൂടുതൽ വിലയുള്ള പുസ്തകങ്ങളുടെ വിവരം.
    b) എല്ലാ പുസ്തകങ്ങളുടെയും book no-ഉം പേരുകളും കാണിക്കുക. *Score 2*

Book No	Title	Author	Price
A102	Alchemist	Paulo Coelho	250
B105	You Can Win	Shiv Khera	250
A101	Freedom is Not Free	Shiv Khera	250
C116	ANSI C++	Balaguruswamy	300
D512	Understanding C++	Robert Lafore	500

13. What is the difference between Form GET and Form POST? *Score 2*
14. JavaScript code can either be written in external file or within an HTML document.
    (a) What is the extension of external file? *Score 1*
    (b) Write a JavaScript code to validate a register number accepted through an HTML Form. The textbox for the register number should not be empty and the number should have exactly seven digits. (Use suitable names for the Form and the textbox). *Score 2*
15. What is pointer? Explain the use of `new` and `delete` operators. *Score 3*
16. Observe the figure and
    a) Name the OOP concept shown in figure.
    b) Identify the components.
    c) Explain this concept. Score 3



13. Form GET ഉം Form POST ഉം തമ്മിലുള്ള വ്യത്യാസം എന്ത്? *Score 2*
14. എക്സ്റ്റേണൽ ഫയലുകളിലോ HTML ഡോക്യുമെന്റിനുള്ളിലോ ജാവാസ്ക്രിപ്റ്റ് എഴുതാറുണ്ട്.
    (a) എക്സ്റ്റേണൽ ഫയലിന്റെ എക്സ്റ്റൻഷൻ എന്ത്? *Score 1*
    (b) HTML ഫോമിലൂടെ സ്വീകരിക്കുന്ന ഒരു രജിസ്റ്റർ നമ്പർ വാലിഡേറ്റ് ചെയ്യാനുള്ള ജാവാ സ്ക്രിപ്റ്റ് എഴുതുക. രജിസ്റ്റർ നമ്പറിനായുള്ള ടെക്സ്റ്റ് ബോക്സ് ശൂന്യമാകാൻ പാടില്ല. നമ്പറിന് ഏഴ് അക്കങ്ങൾ നിർബന്ധമാണ് (ഫോമിനും ടെക്സ്റ്റ് ബോക്സിനും ഉചിതമായ പേരുകൾ ഉപയോഗിക്കുക). *Score 2*
15. Pointer എന്നാലെന്ത്? `new`, `delete` എന്നീ ഓപ്പറേറ്ററുകളുടെ ഉപയോഗം വിശദമാക്കുക. *Score 3*
16. താഴെ കൊടുത്തിരിക്കുന്ന ചിത്രം പരിശോധിച്ച്
    a) ചിത്രത്തിൽ കാണിച്ചിരിക്കുന്ന OOP concept ന്റെ പേരെഴുതുക.
    b) Components തിരിച്ചറിയുക.
    c) ഈ ആശയം വിശദമാക്കുക. *Score 3*



17. Explain any three JavaScript built-in functions. *Score 3*

18. Explain any three advantages of database management system. *Score 3*

19. *Answer any one question - 19(a) or 19(b).*

(a) What is the difference between `for` and `foreach` loops in PHP? Explain with examples. *Score 3*

OR

(b) Explain the working of the PHP code given below and find the output.

```
<?php
$op2 = “World”;
function foo($op1)
{
    echo $op1;
    echo $op2;
}
foo(“Hello”);
?>
```

Score 3

20. HTML tags and attributes decide how the content is to be displayed in the browser.

(a) Choose the correct statement relating to <MARQUEE> tag.

i. Mark the list of items in a queue.
ii. Mark the text so that it is hidden in browser.
iii. Display text with scrolling effect.
iv. None of above.

Score 1

(b) Read the following HTML code and explain the effect of the tags used.

```
<I> In character, in manner, in style, in all things</I>
<BR> the supreme excellence is <U><B>simplicity</B></U>
<IMG Src = “simple.jpg” Height = “50” Width = “50”>
```

Score 3

17. ഏതെങ്കിലും മൂന്ന് JavaScript built-in functions വിശദീകരിക്കുക. *Score 3*

18. ഡാറ്റാബേസ് മാനേജ്മെന്റ് സിസ്റ്റത്തിന്റെ ഏതെങ്കിലും മൂന്ന് മേന്മകൾ വിശദീകരിക്കുക. *Score 3*

19. *19(a), 19(b) എന്നിവയിലേതെങ്കിലും ഒരു ചോദ്യത്തിന് ഉത്തരമെഴുതുക.*

(a). PHP-യിലെ `for`, `foreach` എന്നീ ലൂപ്പുകൾ തമ്മിലുള്ള വ്യത്യാസം എന്ത്? ഉദാഹരണ സഹിതം വിശദമാക്കുക. *Score 3*

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(b) താഴെ കൊടുത്തിരിക്കുന്ന PHP code-ന്റെ പ്രവർത്തനം വിശദീകരിച്ച് ഔട്ട്പുട്ട് കണ്ടുപിടിക്കുക.

```
<?php
$op2 = “World”;
function foo($op1)
{
    echo $op1;
    echo $op2;
}
foo(“Hello”);
?>
```

Score 3

20. ഒരു ബ്രൗസറിൽ ഉള്ളടക്കം എങ്ങനെ പ്രദർശിപ്പിക്കണമെന്ന് നിശ്ചയിക്കുന്നത് HTML ടാഗുകളും ആട്രിബ്യൂട്ടുകളുമാണ്.

(a) <MARQUEE> tag മായി ബന്ധപ്പെട്ട ശരിയായ പ്രസ്താവന തിരഞ്ഞെടുക്കുക.

i. Queue-ൽ ഉള്ള items നെ ലിസ്റ്റ് ചെയ്യാൻ.
ii. ബ്രൗസറിൽ ദൃശ്യമാകാത്തവിധത്തിൽ ഒരു ടെക്സ്റ്റിനെ മാർക്കു ചെയ്യുന്നതിന്
iii. ഒരു ടെക്സ്റ്റ് സ്ക്രോളിംഗ് ഇഫക്റ്റോടുകൂടി ദൃശ്യമാക്കുന്നതിന്
iv. ഇവയിൽ ഒന്നുമല്ല *Score 1*

(b) ചുവടെ കൊടുത്തിരിക്കുന്ന HTML കോഡ് വായിച്ച് അതിലെ ടാഗുകളുടെ പ്രവർത്തനം എഴുതുക.

```
<I> In character, in manner, in style, in all things</I>
<BR> the supreme excellence is <U><B>simplicity</B></U>
<IMG Src = “simple.jpg” Height = “50” Width = “50”>
```

Score 3

21. (a) The method of dividing a complex problem into many small simple problems and assigning to different computers is called _____. *Score 1*

(b) What is meant by cloud computing? List its advantages? *Score 3*

22. (a) The legal right given to the creators of original work, usually for a limited period of time is called _____. *Score 1*

(b) Explain any three e-Learning tools. *Score 3*

23. *Answer any one question - 23 (a) or 23 (b).*

(a) Write the HTML code to display three web pages in a browser window. Based on the code, draw the layout of the browser window for these pages. *Score 5*

OR

(b) Write the HTML code to create the following table. *Score 5*

21. (a) ഒരു സങ്കീർണമായ പ്രശ്നത്തെ ലളിതവും ചെറുതുമായ പ്രശ്നങ്ങളാക്കി വിഭജിച്ച് പല കമ്പ്യൂട്ടറുകൾക്കായി നൽകുന്ന രീതിയെ _____ എന്നു പറയുന്നു. *Score 1*

(b) ക്ലൗഡ് കമ്പ്യൂട്ടിംഗ് എന്നാലെന്ത്? അതിന്റെ സവിശേഷതകൾ എന്തെല്ലാം? *Score 3*

22. (a) ഒരു ഉൽപ്പന്നത്തിന്റെ യഥാർത്ഥ നിർമ്മാതാവിന് ഒരു നിർദ്ദിഷ്ട സമയപരിധിവരെ ലഭിക്കാവുന്ന നിയമപരിരക്ഷയ്ക്ക് _____ എന്നുവിളിക്കുന്നു. *Score 1*

(b) ഏതെങ്കിലും മൂന്ന് ഇ-ലേണിംഗ് ടൂളുകൾ വിശദീകരിക്കുക. *Score 3*

23. *23(a), 23(b) എന്നിവയിലേതെങ്കിലും ഒരു ചോദ്യത്തിന് ഉത്തരമെഴുതുക.*

(a) ഒരു ബ്രൗസർ വിൻഡോയിൽ മൂന്ന് വെബ്പേജുകൾ കാണുന്നതിനുള്ള HTML കോഡ് എഴുതുക. ഈ കോഡിന്റെ അടിസ്ഥാനത്തിൽ വെബ്പേജുകളുടെ സ്ഥാനം ബ്രൗസറിൽ എങ്ങനെ ആയിരിക്കും എന്ന് വരയ്ക്കുക. *Score 5*

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(b) താഴെ കൊടുത്തിരിക്കുന്ന table നിർമ്മിക്കാൻ ആവശ്യമായ HTML കോഡ് എഴുതുക. *Score 5*

Reg No	Name	Marks Scored			Total
		M1	M2	M3	
256458	Hari	50	30	60	140
251456	Balu	48	56	84	188
261454	Sheela	55	65	40	160

24. If a table named "Employee" has fields *employee name, employee id, department* and *salary* write SQL statements for the following:

a) Add a new field 'bonus' to the table.

b) Update the field 'bonus' with 40% of salary.

c) Update the field 'bonus' with 5000, if bonus is less than 5000.

d) Display the total 'bonus' paid by each department.

e) Display the details of employees in Finance department. *Score 5*

24. "Employee" എന്ന് പേരുള്ള table-ന്റെ field-കൾ *employee name, employee id, department, salary* എന്നിങ്ങനെ ആണെങ്കിൽ ചുവടെ കൊടുത്തിരിക്കുന്ന ആവശ്യങ്ങൾക്കുള്ള SQL statement എഴുതുക.

a) ഒരു പുതിയ ഫീൽഡ് ആയി 'bonus' ഉൾപ്പെടുത്തുക.

b) 'bonus' ആയി ശമ്പളത്തിന്റെ 40% കണക്കാക്കുക.

c) 'bonus' 5000-ൽ കുറവാണെങ്കിൽ അതിന്റെ തുക പരമാവധി 5000 ആക്കുക.

d) ഓരോ department തലത്തിലും കൊടുക്കുന്ന 'bonus' ന്റെ ആകെ തുക കാണിക്കുക.

e) 'Finance' ഡിപ്പാർട്ട്മെന്റിലെ എംപ്ലോയീസിന്റെ വിവരങ്ങൾ കാണിക്കുക. *Score 5*

Answer Key

Qn. No.	Sub Qns	Value points	Score	Total
1.		b) ter	1	1
2.		a) Stack	1	1
3.		a) <OL></OL>	1	1
4.		Any one from FileZilla, Cute FTP or SmartFTP	1	1
5.		UNIQUE	1	1
6.		$	1	1
7.	(a)	Correct structure	2	2
	(b)	Loop, s1.m[i]	1 + 1	2
8.		Specifiying the overflow and underflow situations	1 + 1	2
9.		Correct procedure	2	2
10.		i) Correct HTML code ii) Correct HTML code	1 1	2
11.		Correct explanation	2	2
12.		Correct expressions	2	2
13.		Any two relevant points	2	2
14.	(a)	.js	1	1
	(b)	Correctness of Script	2	2
15.		Definition of pointer Correct explanation of 'new' Correct explanation of 'delete'	1 1 1	3
16.	a b c	Inheritance Base class, derived class Explanation	1 1 1	3
17.		Name of any three Syntax and example	1 2	3
18.		Explanation of any three advatages	3 x 1	3
19.	(a)	Explanation and Example	1 + 1 + 1	3
	(b)	Explanation and output as HelloWorld	2 + 1	3
20.	(a)	Display text with scrolling effect	1	1
	(b)	Correct explanation of the tags	3	3
21.	a	Distributed Computing	3	3
	b	Correct explanation Any two advantages	1½ 1½	3
22.	(a)	Copyright	1	1
	(b)	Explanation of any three e-Learning tools	3 x 1	3
23.	(a)	Proper use of <FRAMESET> and <FRAME> tags Layout based on the code	3 2	5
	(b)	Correct HTML code for the table	5	5

Answer Key

Qn. No.	Sub Qns	Value points	Score	Total
24.	a	ALTER TABLE EMPLOYEE ADD BONUS INTEGER	1	
	b	UPDATE EMPLOYEE SET BONUS = SALARY * 40 / 100	1	
	c	UPDATE EMPLOYEE SET BONUS = 5000 WHERE BONUS < 5000	1	
	d	SELECT DEPARTMENT, SUM(BONUS) FROM EMPLOYEE GROUP BY DEPARTMENT	1	
	e	SELECT * FROM EMPLOYEE WHERE DEPARTMENT = "Finance'	1	5

Question Based Analysis

Qn. No.	Content	Learning Outcomes	Specific Thiniking Skills	Form of Question	Score	Time (in Mins)
1	Structures and Pointers	1.8, 1.9	CG (5.1)	Obj	1	2
2	Data Structures and Operations	3.4	CA (1.1)	Obj	1	2
3	Web Designing using HTML	5.1	CA (2.6)	Obj	1	2
4	Web Hosting	7.1	CA (1.2)	Obj	1	2
5	Structured Query Language	9.4	CG (4.1)	Obj	1	2
6	Server side Scripting using PHP	10.3	CA (1.2)	Obj	1	2
7 (a)	Structures and Pointers	1.1	CG (6.2)	SA	2	5
7 (b) (C)	Structures and Pointers	1.2	CG (4.2)	SA	2 (C)	5 (C)
8	Data Structures and Operations	3.5, 3.6	CA (2.7)	SA	2	3
9	Data Structures and Operations	3.1	CG (4.2)	SA	2	4
10	Web Technology	4.1	CA (3.2)	SA	2	4
11	Web Hosting	7.7	CA (2.7)	SA	2	3
12	Database Management System	8.9	CG (6.2)	SA	2	4
13	Server side Scripting using PHP	10.8	CA (2.6)	SA	2	4
14 (a)	Client side Scripting using JavaScript	6.4	CA (1.2)	Obj	1	2
14 (b)	Client side Scripting using JavaScript	6.7, 6.8, 6.9, 6.10	CG (6.2)	SA	2	5
15	Structures and Pointers	1.5, 1.6	CA (2.7)	SA	3	3
16	Concepts of Object Oriented Programming	2.5	CA (2.7)	SA	3	5
17	Client side Scripting using JavaScript	6.8	CA (1.2)	SA	3	5
18	Database Management System	8.3	CA (1.2)	SA	3	6
19 (a)	Server side Scripting using PHP	10.4, 10.5	CG (4.2)	SA	3	7
19 (b) (C)	Server side Scripting using PHP	10.6	CG (5.1)	SA	3 (C)	7 (C)

20 (a)	Web Technology	4.13	CA (2.1)	Obj	1	3
20 (b)	Web Technology	4.10, 4.16	CG (4.3)	SA	3	6
21 (a)	Advances in Computing	11.1	CA (1.2)	Obj	1	2
21 (b)	Advances in Computing	11.5	CA (2.7)	SA	3	6
22 (a)	ICT and Society	12.5	CA (1.2)	Obj	1	2
22 (b)	ICT and Society	12.4	CG (4.2)	SA	3	7
23 (a)	Web Designing using HTML	5.8	CG (6.2)	Essay	5	12
23 (b) (C)	Web Designing using HTML	5.5, 5.6	CG (6.2)	Essay	5 (C)	12 (C)
24	Structured Query Language	9.5, 9.6, 9.7	CA (3.2)	Essay	5	10
Total					**60**	**120**

The entry (C) indicates the choice questions