

**“ഭരണഭാഷ മാതൃഭാഷ”**

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**സർക്കുലർ**

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2021-22 അക്കാദമിക് വർഷത്തിൽ പ്ലസ് ടു പ്രായോഗിക പരീക്ഷയ്ക്ക് തയ്യാറെടുക്കുന്നതിനായി ഓരോ വിഷയത്തിലും ചെയ്യേണ്ട പ്രവർത്തനങ്ങളുടെ വിശദാംശവും മാർഗ്ഗനിർദ്ദേശവും എസ്.സി.ഇ.ആർ.ടി ഡയറക്ടർ സൂചന(2) പ്രകാരം തീരുമാനിച്ചു നൽകിയിട്ടുണ്ട്. ഹയർസെക്കന്ററി പ്രിൻസിപ്പൽമാരുടെയും അധ്യാപകരുടെയും വിദ്യാർത്ഥികളുടെയും അറിവിലേക്കായി ആയത് പ്രസിദ്ധീകരിക്കുന്നു.

**ഒപ്പ്.**

**ജോയിന്റ് ഡയറക്ടർ  
(അക്കാദമിക്)**

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## GUIDELINE FOR HIGHER SECONDARY PRACTICAL EVALUATION 2022 CLASS XII

കോവിഡ് എന്ന മഹാമാരിയിൽ നിന്നും 2021-2022 അക്കാദമിക വർഷവും പൂർണ്ണമായും മുക്തമായിട്ടില്ല. 2021 നവംബർ മാസം മുതലാണ് വിദ്യാർത്ഥികൾക്ക് നേരിട്ടുള്ള ക്ലാസുകൾ കിട്ടിത്തുടങ്ങിയിട്ടുള്ളത്. അതും ഒരാഴ്ചയിൽ പകുതി അധ്യയന ദിവസവും ഓരോ ദിവസവും പകുതി അധ്യയന സമയവും മാത്രമേ കുട്ടികൾക്ക് ലഭ്യമാകുന്നുള്ളൂ. ഇക്കാരണത്താൽ പ്രായോഗിക പരീക്ഷയ്ക്ക് ആവശ്യമായ എല്ലാ പ്രവർത്തനങ്ങളും ചെയ്തുതീർക്കാൻ കഴിയാത്ത സാഹചര്യമാണ് ഇപ്പോൾ നിലവിലുള്ളത്. 2021 -2022 അക്കാദമിക വർഷത്തിൽ പ്രായോഗിക പരീക്ഷയ്ക്ക് തയ്യാറെടുക്കുന്നതിനായി പ്രോട്ടോക്കോൾ പാലിച്ചുകൊണ്ട് ഓരോ വിഷയത്തിലും ചെയ്യേണ്ട പ്രവർത്തനങ്ങളുടെ വിശദാംശവും മാർഗനിർദ്ദേശവും ഇതോടൊപ്പം ചേർക്കുന്നു.



## **PHYSICS PRACTICALS: 2022 GUIDELINES**

**Physics is a basic science and experimental physics is highly significant in the higher secondary level. Under the circumstances of Covid 19 pandemic, the following instructions are issued regarding Physics practicals.**

### **Instructions:**

- 1. A minimum of six (6) experiments should be performed by each student with at least three (3) experiments from Class XI experiments and at least three (3) experiments from Class XII experiments.**
- 2. Students should maintain a practical logbook. Writing the Procedure of the experiment may be avoided as per the teacher's discretion.**
- 3. Performing experiment using the same apparatus/ principle and recording them as different experiments should be avoided .**

### **LIST OF EXPERIMENTS**

#### **Class XI experiments (Section A)**

1. Vernier Calipers
2. Screw Gauge
3. Sperometer
4. Common Balance
5. Parallelogram law apparataus.
6. Inclined plane.
7. Coefficient of friction
8. Moment Bar
9. Young's Modulus
10. Helical Spring
11. Viscosity
12. Sruface Tension
13. Newton's law of cooling
14. Specific heat capacity.
15. Simple Pendulum
16. Sonometer
17. Resonance Column

#### **Class XII experiments (Section B)**

1. Ohm's law
2. Metre Bridge I
3. Metre Bridge II
4. Potentiometer I
5. Potentiometer II
6. Frequency of AC
7. Concave Mirror
8. Convex Lens
9. Logic Gates

10. Convex mirror.
11. Concave Lens
12. Refraction through a prism
13. Glass Slab- Refractive Index
14. Spectrometer

V

### **Practical Examination: General Instructions**

1. Two experiments should be done at the time of practical examination, one experiment from XI (section A) and the other experiment from XII (section B).
2. Scientific calculator can be used.
3. Total marks for the practical examination is forty (40).

#### **Score Distribution**

#### **Score**

1. Formula and Principle	: 5
2. Setting up of apparatus	: 2
3. Performance and recording of observation	: 6
4. Calculation and result in SI unit	: 4
5. Viva voce	: 1
Total for one experiment	: 18
Total for two experiments	: $18 \times 2 = 36$ .
6. Record book	: 4
Total	: 40

## **Guideline for Higher Secondary Practical Evaluation 2022**

### **CHEMISTRY (Class XII)**

Laboratory work plays a crucial role in the proper assimilation of concepts in science. Along with term end evaluation at the end of the academic year, practical evaluation (PE) is also to be conducted. The skill in performing qualitative and quantitative analysis is to be assessed through PE. The following are the guidelines to be followed while conducting PE during the academic year 2020-21.

- Covid 19 protocol should be followed strictly during laboratory work.
- Sufficient number of apparatus is to be provided to the students.
- The apparatus should be of good quality brands.
- Sufficient number (at least 30) of standardised and calibrated apparatus should be kept aside for conducting PE.
- A minimum of 4 salts (those soluble in water) for systematic analysis of anion & cation should be given to the students. (Anions –carbonate, acetate, chloride, Nitrate) (Cation – Group 0, 1,3, 6)
- A minimum of 4 single titrations (Acidimetry -2, Alkalimetry – 2, should be given for volumetric analysis.
- The Practical Log book should contain all the necessary recording related to the experiments done in laboratory.
- Required facilities should be arranged in the laboratory for students demanding special attention because of deformities.
- Should provide pipette individually to students.
- Pipette should be sanitized before use by a student.
- Pipetter is to be provided if available.
- Burette method can also be adopted instead of pipetting. (Procedure for the titration will also change accordingly).
- The score distribution (detailed split up appended) should be as follows:

○ Qualitative Analysis (Anion & Cation Analysis)	– 16 scores	}	40 scores
○ Quantitative Analysis (Single Titration Only)	– 15 scores		
○ For writing principle & procedure for Quantitative Analysis	– 3 scores		
○ Practical Logbook	– 4 scores		
○ Viva voce	– 2 scores		
- The viva voce should be done for ascertaining the awareness of concepts related to the practical. It should not create tension to the students. It should be a casual interaction with the students through simple questions related to practicals only to check whether he/she has conceptual clarity in the given work.

# Scheme of Work for Practical Evaluation

## Class –XII CHEMISTRY

### Detailed Split up of Scores:

#### 1. Practical Log book

a. Salt analysis (4 salts) - 2

b. Volumetric Analysis (Acidimetry -2, Alkalimetry – 2) - 2

2. Viva Voce (Ascertaining the awareness of concepts related to the practical through simple questions informally) - 2

#### 3. Qualitative Analysis

##### a. Anion

i. Identification test (One test) - 4

ii. Confirmatory test (One test) - 4

##### b. Cation

i. Identification of group (One test) - 2

ii. Identification of cation (One test) - 3

iii. Confirmatory test (One test) - 3

#### 4. Quantitative Analysis (Single Titration)

a. Tabulation and recording - 4

##### b. Calculation

i. Normality of standard solution - 1½

ii. Normality of solution to be estimated - 1½

iii. Correct equivalent masses - 2

iv. Correct calculation of the result with unit - 2

##### c. Correct reading of result

i. Error within 1% (Full score) - 4

ii. Error up to 2% - 3

iii. Error above 2% - 2

#### 6. For writing the principle and procedure for quantitative analysis

a. For writing the balanced chemical equation - 1

b. Procedure - 2

Solution in pipette	½
Solution in burette	½
Indicator used	½
Colour change	½

#### Note:

- The procedure for qualitative analysis should be obtained in detail.
- The student need not weigh the substance. The standard solution for estimation should be provided by the examiner.
- The student has to make up the solution for estimation.
- Systematic analysis should be followed in inorganic analysis.
- Normality may be used as the concentration for volumetric analysis.

# Sample Question Paper for Practical Evaluation

## HIGHER SECONDARY PRACTICAL EXAMINATION 2022

Subject: **CHEMISTRY**

**Maximum Score: 40 Time: 3  
Hours**

1. Estimate the mass of NaOH in the whole of the given solution. You are provided with a standard solution of HCl containing 3.64 g/L.  
(Score: 15)
  2. Briefly write the principle and procedure for the above estimation within first 5 minutes.  
(Score: 3)
  3. Analyse the given salt and identify and confirm systematically the anion and cation present in it.  
(Score: 16)
  4. Viva voce  
(Informal simple Questions to know awareness on practical).  
(Score: 2)
  5. Practical Record  
(Score: 4)
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# **GUIDELINE FOR LAB WORK AND PRACTICAL EVALUATION OF MATHEMATICS 2022**

## **I. INTRODUCTION:**

Numerical skills and other Maths related skills are inherent in a child. These skills can be nourished by activity based learning and learning by doing. This system is practiced in schools of Kerala with regard to learning of Mathematics. Learners are also getting the opportunity to learn Maths using free software like GeoGebra upto standard X. At the Higher Secondary level, where the abstract thinking is boosted, can be enhanced by extending the scope of IT enabled Mathematics learning. Considering this, SCERT has prepared guidelines for introducing the concept of 'IT Maths Lab' at Higher Secondary level. This guideline was approved by the 50th State Curriculum Steering Committee. Accordingly as per G. O (Rt) No. 522/2019/Gen. Edn. Dept, Trivandrum, dt. 08/02/2019 Govt of Kerala has decided to implement IT Maths Lab from the academic year 2019-20 onwards. The existing IT labs in Schools are to be utilised for the functioning of IT Maths Lab. Separate IT Maths Lab is not essential.

### **Details of IT Maths Lab:**

- For the proper functioning of the IT Maths Lab detailed Maths Lab Manuals have been prepared.
- The Lab activities are prepared based on Textual content areas of Higher Secondary Maths – Class 11 & Class 12.
- For the first year, there are 16 Lab tasks based on Class 11 Syllabus.
- For the second year, there are 25 Lab tasks based on Class 12 Syllabus.
- Each Lab consists of 2 or 3 activities and some additional activities.

### **Evaluation of Performance of students in IT Maths Lab:**

The performance of the learner in IT Maths Lab can be evaluated as a part of Practical Evaluation of the learner.

*The details are discussed below:*

## **II. SYLLABUS FOR PRACTICAL:**

Learning outcomes associated with many topics in Higher Secondary Maths syllabus are better transacted if it is discussed in Lab. So IT Maths Lab is conceived as a transaction method. There are 16 Lab in class 11 and 25 Lab in class 12. Lab - 0 is a mandatory lab which deals with basics ideas of GeoGebra software platform. But there will be no questions based on this Lab in Practical exam. The additional activities in each Lab are meant for exceptional students and are not compulsory in regular Lab classes.

Under the special circumstances of COVID-19, 7 labs (including Lab-0) from class 11 and 6 labs from class 12 are suggested. Lab-0 is mandatory. From the remaining 12 labs each school can select 5 labs ( 3 labs from class 11 and 2 from class 12 or vice versa )

**List of Suggested Labs**

**Class – 11**

1. Lab 0: Basic concept
2. Lab 1: Value of functions
3. Lab 2: Shifting of Graphs
4. Lab 4: Trigonometric Functions
5. Lab 8: Straight lines
6. Lab 9: Conic Sections
7. Lab 13: Limits

**Class – 12**

1. Lab 18 : Functions
2. Lab 19 : Invertible functions
3. Lab 20 : Inverse trigonometric functions
4. Lab 31 : Application of Integrals
5. Lab 34 : Vectors
6. Lab 37 : The Plane

**III. LAB WORK – EXECUTION:**

**Keep COVID Protocol** while conducting Maths IT lab activities in School Computer Lab. GeoGebra software and the applets specified in each lab as per manual should be installed in the systems. Each Lab work require atmost two periods. So the time table should be arranged by clubbing two periods. The execution of Lab consists of threefold process – Preparatory work, Performing of activities, Reporting.

**Preparatory work:** Students can watch the lab classes in KITE VICTERS / YouTube channel and make a preparatory work before doing the lab activities. They should be aware of the aim and procedure of the lab. They can use either a printed copy or a soft copy of the concerned Lab manual. The previous knowledge for the particular Lab should be discussed in the classes prior to the Lab. All students should have their Practical Observation Book (POB) while doing the Lab.

**Performing the activities:** Students should perform the activities in each Lab as per the manual. Teacher should give necessary help while students perform each activity.

**Reporting:** Students should write the procedure of the Lab in POB in their own way. There will not be any prescribed format for writing the procedure. The findings and output mentioned in Lab manual should be written in the POB. After the completion of each Lab the concerned teacher should sign the POB. There is only one POB for both the years and should be produced at the time of Practical Exam. The applets created by the students as a part of the lab activities should be kept in separate folders and should be produced during the practical examination.

**IV. EVALUATION PATTERN**

After the implementation of IT Maths Lab, the evaluation pattern is as follows:

YEAR	TE	CE	PE	TOTAL
First Year	60	20	–	80
Second Year	60	20	40	120

*The Details of Practical Evaluation is explained below.*

## V. PRACTICAL EVALUATION (PE)

In Practical Evaluation, only the Mathematical knowledge of students based on the syllabus are evaluated. Necessary help in using the software will be provided along with the questions. The internal or external examiner can also help the students in this regard. The following are the guidelines for conducting PE.

- The questions will be strictly based on the syllabus prescribed for practical work in each year.
- The examination will be of 3 hours duration and maximum score of 40.
- Practical examination should be conducted in batches. The maximum number of students in each batch is limited to 15.
- Students should attend the PE with the Practical Observation Book. It should compulsorily include 6 Lab works (including Lab-0) as per the directions given above, duly signed by the concerned teacher. The same should be verified and counter signed by the external examiner at the time of PE.
- Each student will get a question paper consisting of 5 questions, one each from the 5 labs selected at the school (excluding Lab-0). The maximum score of each question will be 14. Students can answer any number of questions and can get a maximum score of 32.
- The following indicators should be considered while evaluating the answers.
  - Analysing the problem
  - Choosing an appropriate method
  - Content Knowledge
  - Knowledge of the procedure
  - Problem solving skill
  - Generating output
- The Practical Observation Book and the saved materials will be evaluated by the external examiner. The maximum score is 4.

Scoring indicators are given below.

Indicators	Score
Systematic recording of POB	2
Saved materials	2

- A viva - voce will be conducted for each student based on the questions answered. It should be formal in the form of an interview. It should be a casual interaction with the students during the evaluation to check whether he/she has conceptual/ process clarity in the given area. Students can get a maximum score of 4.

*Scoring indicators for Viva-voce :*

Indicators	Score
Content knowledge	1
Clarity of concept	1
Logical sequencing of idea	1
Communication skill	1

- The score sheet should be filled in by the external examiner. The format of score sheet is given below.

### Sample Score Sheet

Sl No	Reg No	Qn No.1 Score (14)	Qn No.2 Score (14)	Qn No.3 Score (14)	Qn No.4 Score (14)	Qn No.5 Score (14)	Total Score	Score Awarded Maximum (32)	POB and Saved materials Score (4)	Viva voice Score(4)	Total Score Awarded
1											
2											
3											

- Name and Designation of External Examiner: .....

.....

Signature: .....

Date of Exam:.....

- The final score sheet should be send to DHSE as per instruction given by the Directorate.

**IT Maths Lab Practical Examination**  
**Model Question Paper**

**Time : 3 Hours**

**Maximum Score : 32**

**General instructions to the candidates**

- Five questions, each carrying 14 scores are given. You can answer any question or sub question to get a maximum of 32 scores.
- Read the instructions given with each question carefully
- GeoGebra applets are required to answer some questions. Your examiner will provide it.
- If the question demands, you can use fresh GeoGebra windows for constructions.
- You are not permitted to use any software other than GeoGebra, or any other electronic devices like calculators in the examination hall.
- You can write the answers either in English or in Malayalam

## Q1: Lab 1. Value of functions

Use the applet Q1A to answer the given questions

### About the applet

- Graph of a function  $f(x) = x^2$  is given. You can change the function using the input box for  $f$ .
- A slider  $a$  is given.
- The point  $A$  is defined as  $(a, 0)$ .
- $AP$  is perpendicular to the  $x$  axis and  $PB$  is perpendicular to the  $y$  axis.

### Answer the following questions

1. The function is  $f$  and the coordinates of the point  $A$  is  $(a, 0)$ . Write the coordinates of the points  $P$  and  $B$  (2)

2. Consider only **two** questions having  $\sqrt{\quad}$  mark from the following

i)  $\sqrt{5}$       ii)  $3^{\frac{2}{3}}$       iii)  $\sin(1.2)$

iv)  $\tan(-1)$       v)  $e^{2.3}$       vi)  $\log(6)$

Answer the following questions.

- (a) Write the method of finding each of above values using this applet. (4)

- (b) Find their values (4)

3. Answer only **one** question having  $\sqrt{\quad}$  mark from the following (4)

- (a) Using the input box, set the function as  $f(x) = x^3$ . Write the method of finding an approximate value of  $\sqrt[3]{2.197}$  and find its value.

- (b) Using the input box, set the function as  $f(x) = \sin(x)$ . Write the method of finding an approximate value of  $\sin^{-1}(0.891)$  and find its value.

- (c) Using the input box, set the function as  $f(x) = e^x$ . Write the method of finding an approximate value of  $\log(6.05)$  and find its value.

## Q2: Lab 2. Shifting of Graphs

1. Follow the directions given below and construct a GeoGebra applet. (4)

- Draw the graph of the function  $f(x) = x^2$
- Create two sliders **a** and **b** with Min = -5, Max = 5 and increment 0.01
- Draw the graph of the function  $g(x)$  using the input command  
 $g(x)=f(x+b)+a$

2. Answer the following questions

- (a) Fix the values of **a** and **b** at '0' so that the graph of  $g(x)$  coincides with the graph of  $f(x)$ .  
Increase the value of **a** from 0 to 2. What happens to the graph of  $g(x)$  ? (2)
- (b) Fix the values of **a** and **b** at '0'. Increase the value of **b** from 0 to 2. What happens to the graph of  $g(x)$  ? (2)

3. Answer only **two** questions having  $\sqrt{\quad}$  mark from the following. In each question you have to find and write the values of **a** and **b** so that the function  $g(x)$  satisfies the given conditions. (6)

- (a) Range of the function  $g$  is  $[-3, \infty)$ . Write the function  $g(x)$ .
- (b) Graph of  $g(x)$  coincides with the graph of the function  $x^2 + 4x + 1$
- (c)  $x = 2$  and  $x = -2$  are the solutions of the equation  $g(x) = 0$ . Write the function  $g(x)$ .
- (d)  $g$  is decreasing in  $(-\infty, 4]$  and increasing in  $[4, \infty)$ . Write the function  $g(x)$ .

### Q3: Lab 9. Conic Sections

Use the applet Q3.1 to answer the given questions

#### About the applet

- A slider **c** is given
- The points  $A$  and  $B$  are defined as  $(-c, 0)$  and  $(c, 0)$  respectively.
- **a** is a slider and radius of the circle centered at  $A$  is defined as **a**.
- You can animate the slider **a** using the **ANIMATION** button and stop animation using the **STOP** button.
- Using the input bar given, you can change the radius of the circle centered at  $B$  (at present it is given as **2a**).
- $P$  and  $Q$  are points of intersection of the circles.
- *Animate the slider **a** and observe the path traced by the points  $P$  and  $Q$ .*

#### Answer the following questions

1. Edit the radius of the circle, centered at  $B$ , to  $10 - a$ . Set the value of  $c$  as 3. Animate the slider **a**. Observe the path traced by the points  $P$  and  $Q$ .
  - (a) Write the name of the conic obtained. (1)
  - (b) Write the reason for which the path traced by the points  $P$  and  $Q$  is this particular conic. (2)
  - (c) Write the coordinates of the foci and vertices of the conic obtained. (2)
  - (d) Write the equation of the conic (2)
  - (e) Edit the value of the slider **c** to get the curve  $\frac{x^2}{25} + \frac{y^2}{9} = 1$  and trace the curve. (3)

*At this position save the applet as **ANS3.1e***

2. Use the applet Q3.2 , which is same as the applet Q3.1 used above with a slight change. In this applet, by animating the slider **a** we get a hyperbola.

Edit the value of the slider **c** and the radius of the circle to get the hyperbola  $\frac{x^2}{16} - \frac{y^2}{9} = 1$  and trace the curve. (4)

*At this position save the applet as **ANS3.2***



#### Q4: Lab 31-Applications of integrals

1. (a) Using the instructions given below construct a GeoGebra applet (2)

- Draw the graph of the function  $f(x) = x^2$  and create an Inputbox.
- Create two number sliders **a** and **b**.
- Use the input command **Integral[f,a,b]** to find the area bounded by the curve  $y = f(x)$ ,  $x$  axis and the lines  $x = a$  and  $x = b$ .

- (b) Use the above applet to answer the following questions. Answer only **two** questions having  $\sqrt{\quad}$  mark.

Find the area of the region bounded by the given curves (2)

- $y = x^2 + 2$ ,  $x$  axis,  $x = -2$ ,  $x = 2$
- $y = x^3 + 2$ ,  $x$  axis,  $x = -1$ ,  $x = 2$
- $y = (x - 2)^2$ ,  $x$  axis  $x = 1$ ,  $x = 4$
- $y = 2 \sin x$ ,  $x$  axis,  $x = 0$  and  $\frac{\pi}{4}$
- $y = \tan x$ ,  $x$  axis,  $x = 0$  and  $x = 1$

- (c) Use above applet to answer only **one** question, having  $\sqrt{\quad}$  mark, from the following.

Find the area bounded by the given curve and the  $x$  axis (3)

- $y = x^2 - 2$
- $y = 9 - x^2$
- $y = x^2 - 4x + 2$

- (d) Use above applet to answer only **one** question, having  $\sqrt{\quad}$  mark, from the following.

Find the area of the region bounded by the given curves. (3)

- $y = 3 \cos x$ ,  $x$  axis,  $x = 0$ ,  $x = \pi$
- $y = x^3$ ,  $x$  axis,  $x = -2$ ,  $x = 3$
- $y = x^2 - 3$ ,  $x$  axis  $x = -1$ ,  $x = 2$

- (e) Use above applet to answer only **one** question, having  $\sqrt{\quad}$  mark, from the following.

Find the area of the region specified. (4)

- Region in the first quadrant bounded by  $x$  axis, the line  $y = 2x$  and the circle  $x^2 + y^2 = 4$
- Region enclosed between the two circles  $x^2 + y^2 = 4$   
and  $(x + 2)^2 - y^2 = 4$
- Region enclosed between the parabolas  $2y = x^2$  and  $3x = y^2$

## Q5: Lab 37-The Plane

Use the applet Q1A to answer the given questions

### About the applet

- You can find cross product of two vectors using the input boxes given in the Graphics View. Enter the components of the vectors in the input boxes. For example, if the vectors are  $2\hat{i} + 3\hat{j} - 4\hat{k}$  and  $4\hat{j} + 2\hat{k}$  enter  $(2, 3, -4)$  in one of the boxes and  $(0, 4, 2)$  in the other box.
- Using the input boxes given in Graphics 2 you can create a plane passing through a given point and perpendicular to a given vector. Equation of the plane is also shown.

1. Answer only **one** question, having  $\sqrt{\quad}$  mark, from the following.

Construct the plane passing through the given point and parallel to the given plane. Write the normal vector and the equation of the plane. (2)

- (a) Point  $(3, 2, 1)$ , plane  $2x - 3y + 4z = 10$
- (b) Point  $(0, 2, 3)$ , plane  $\vec{r} \cdot (3\hat{i} - 2\hat{j} + \hat{k}) = 5$
- (c) Position vector of the point is  $2\hat{i} - 3\hat{k}$ . Plane  $3x + 2y - z = 0$

2. Answer only **one** question, having  $\sqrt{\quad}$  mark, from the following.

Construct the plane passing through the given point and perpendicular to the given line. Write the normal vector and the equation of the plane. (2)

- (a) Point  $(4, -3, 1)$ . Line  $\vec{r} = 4\hat{i} + 3\hat{j} + \lambda(2\hat{i} + 2\hat{k})$
- (b) Point  $(-2, 4, 4)$ , line  $\frac{x-1}{2} = \frac{y}{-3} = \frac{z+1}{3}$
- (c) Passing through the origin and perpendicular to the line  $\frac{x}{3} = \frac{y}{1} = \frac{z-1}{2}$

3. Answer only **two** question, having  $\sqrt{\quad}$  mark, from the following.

Construct the planes satisfying the given conditions. Write the equation of the plane. Write the procedure. (10)

- (a) Passing through the point  $(3, 2, 1)$  and parallel to the lines

$$\frac{x+2}{2} = \frac{y-1}{3} = \frac{z+1}{-2} \text{ and } \frac{x}{-3} = \frac{y}{2} = \frac{z+1}{4}$$

- (b) Passing through the points  $(2, 1, 3)$ ,  $(0, 2, -3)$  and  $(-2, 2, 4)$
- (c) Passing through the points  $(5, -2, 1)$ ,  $(2, 3, -2)$  and parallel to the vector  $2\hat{i} + 4\hat{j} - 3\hat{k}$
- (d) Contains the lines  $\vec{r} = 2\hat{i} - 3\hat{j} + \lambda(4\hat{i} - 2\hat{j} + \hat{k})$  and  $\vec{r} = 2\hat{i} - 3\hat{j} + \lambda(5\hat{i} + 2\hat{k})$

## HIGHER SECONDARY PRACTICAL EXAMINATION, 2022

### BIOLOGY

(Special scheme and question paper due to Covid pandemic)

### BOTANY

**1. A. Dicot stem, Monocot stem, Monocot root**

Preparations-2, Diagram-1, Labelling-  $\frac{1}{2}$  (at least two main parts), Identification- $\frac{1}{2}$ , Reason-1 (two features for stem/root and other two for dicot/monocot)

*(Note: practice taking sections of any two specimens (a root and a stem) from Dicot stem/Monocot stem and Monocot root.*

**2. B. Vegetative propagules**

Bulb, Offset, Rhizome, Runner, Sucker, Tuber Name of propagule - 1, which part modified-1, Labelling – 1 (atleast two parts). *(Note: any 4 propagules should be provided)*

**3. C. Photograph of Bioreactor, Bt cotton, Cloning vector (identification- $\frac{1}{2}$ , any one reason for its identification- $\frac{1}{2}$ ).**

*(Note: i. Microscopic slides and macroscopic specimens are omitted*

*ii. Mitosis – identification of stage is omitted)*

**4. D. Physiological experiments (as per syllabus)**

Aim of experiment - $\frac{1}{2}$ , diagram- $\frac{1}{2}$ , labeling- $\frac{1}{2}$ .

*(Note: at least 4 experiments should be provided)*

**5. E. Single flower and L.S of flower** (should be mounted on a dissection microscope) belonging to Fabaceae and Solanaceae and should be provided for each batch to construct the floral formula-1 $\frac{1}{2}$ .

*(Note: family Liliaceae is omitted)*

**6. F. Lichen, Cuscuta/Loranthus, Epiphyte (identification of interaction-1 description-1).**

*(Note: Any two interactions shall be provided)*

**7. G. Identify the microscopic slide of C.S. of anther**

Diagram-1 (diagrammatic sketch of four lobed anther C.S/cellular diagram of a single lobe) labelling-1 mark (any two parts).

*(Note: Taking section of C.S. of anther is omitted)*

**8. Ask informally simple questions related to the physiological experiments done-1.**

**9. Practical diary-3.**

\* Issue individual materials for Q.no.1A

\* Give separate answer sheet for answering spot at sight, the material C, D and collect the answer sheet immediately after answering.

## HIGHER SECONDARY PRACTICAL EXAMINATION, 2022 –BOTANY

### (Question Paper)

HSE-II

Time: 1½ Hrs

Total score: 20

1. Prepare a T.S of the given specimen **A** and identify giving reasons. Draw the ground plan and label the parts. Leave the preparation for valuation. Score 5  
Preparation - 2  
Labelled diagram - 1½  
Identification - ½  
Reason - 1
2. Observe the given specimen **B**. Score 3  
(a) Name the vegetative propagule - 1  
(b) Which plant part is modified - 1  
(c) Draw a neat labelled diagram - 1
3. Identify the material **C** at sight by giving reasons. Score 1  
Identification - ½  
Reason - ½
4. Write the aim of the experiment **D**. Draw and label the parts. Score 1½  
Aim - ½  
Labelled diagram - 1
5. Construct the floral formula of the given flower **E** Score 1½
6. Write down the ecological interaction of the specimen **F** Score 2
7. Identify the microscopic slide, **G**. Draw diagram and label any two parts. Score 2  
Diagram - 1  
Labelling - 1
8. Ascertaining the awareness of concepts related to the experiment (Viva-Voce) Score 1
9. Practical diary Score 3

## HIGHER SECONDARY PRACTICAL EXAMINATION, 2022- ZOOLOGY

(Special Scheme and question paper due to Covid pandemic)

HSE-II

Time: 1½ Hrs

Total score: 20

1. Identify the given **invertebrate animal**. **Score 1**  
Write one identifying character/one economic importance/ one adaptation.  
**Specify any 5 (Hydra, Liverfluke, Ascaris, Leech, Earthworm, Silkworm, Honeybee, Pila, Starfish)**  
Identification - ½ score  
One Value Point -½ score  
Time - 4 min
2. Identify the given **vertebrate animal**. **Score 1**  
Write one identifying character/ one economic importance/ one adaptation  
**Specify any 3 (Shark, Frog, Calotes, Pigeon, Rabbit)**  
Identification - ½ score  
One Value Point -½score  
Time - 4 min
3. Identify the given model or Name the marked part. Write one physiological function. **Score 1**  
**(Heart, Brain, Kidney, Ear, Eye)**  
Identification - ½ score  
Function - ½ score  
Time - 4 min
4. Identify the type of joint. Write one peculiarity. **Score 1**  
**(Pivot Joint, Ball & Socket joint,Hinge Joint)**  
Identification - ½ score  
Peculiarity - ½ score  
Time - 4 min
5. Draw the digestive system of cockroach. Label three parts. **Score 4**  

OR

Draw the mouth parts of cockroach. Label three parts  
Diagram - 1 score  
Label three parts -  $1 \times 3 = 3$  score  
Time - 15 min

6. Two samples A & B are given. Identify the samples with glucose. **Score 2**  
 OR  
 Two urine samples A & B are given. Identify the urine of diabetic patient from the samples  
 Experiment -1 score  
 Procedure - $\frac{1}{2}$  score  
 Result - $\frac{1}{2}$  score  
 Time -15 min
7. Two samples A & B are given. Identify the samples with protein/starch. **Score 2**  
 Experiment -1 score  
 Procedure - $\frac{1}{2}$  score  
 Result - $\frac{1}{2}$  score  
 Time -15 min
8. Identify the pathogen, name the disease caused by it and write one symptom. **Score 2**  
**(Plasmodium, Entamoeba, Ascaris)**  
 Identification - $\frac{1}{2}$  score  
 Disease - $\frac{1}{2}$  score  
 Symptom -1 score  
 Time -4 min
9. Identify the picture related to embryology. Sketch and label one part. **Score 2**  
**(T.S. of Testis/Ovary/Blastula of human)**  
 Identification - $\frac{1}{2}$  score  
 Sketch and labelling - $1+\frac{1}{2} = 1\frac{1}{2}$  score  
 Time -7 min
10. Viva-voce (Ask informally simple questions related to Physiological experiments) **Score 1**  
 Time-1 min
11. Practical diary **Score 3**

**Note: The following items are omitted**

- Identification of 1 analogous and 1 homologous organ
- Experiments related to bile salt/ Urea
- Action of salivary Amylase on starch
- Slide preparation of Cheek Epithelium
- Preparation of blood smear on slide
- Identification of slide of given tissue

## HIGHER SECONDARY PRACTICAL EXAMINATION, 2022- ZOOLOGY

### (Question Paper)

HSE-II

Time: 1½ Hrs

Total score: 20

#### Instruction

- All the items are compulsory
- The materials needed will be provided in the Centre.
- Preparation time- 10 min

1. Identify the given invertebrate animal. Score 1

Write one identifying character/one economic importance/ one adaptation.

Identification - ½ score

One Value Point -½ score

Time - 4 min

2. Identify the given vertebrate animal.

Write one identifying character/ one economic importance/ one adaptation Score 1

Identification - ½ score

One Value Point -½ score

Time - 4 min

3. Identify the given model or Name the marked part. Write one physiological function.

Score 1

Identification - ½ score

Function - ½ score

Time - 4 min



4. Identify the type of joint. Write one peculiarity. Score 1

Identification -  $\frac{1}{2}$  score

Peculiarity -  $\frac{1}{2}$  score

Time - 4 min

5. Draw the digestive system of cockroach. Label three parts Score 4

OR

Draw the mouth parts of cockroach. Label three parts

Diagram - 1 score

Label three parts -  $1 \times 3 = 3$  score

Time - 15 min

6. Two samples A & B are given. Identify the samples with glucose. Score 2

OR

Two urine samples A & B are given. Identify the urine of diabetic patient from the samples

Experiment -1 score

Procedure - $\frac{1}{2}$  score

Result - $\frac{1}{2}$  score

Time -15 min

7. Two samples A & B are given. Identify the samples with protein/starch. Score 2

Experiment -1 score

Procedure - $\frac{1}{2}$  score

Result - $\frac{1}{2}$  score

Time -15 min

8. Identify the pathogen, name the disease caused by it and write one symptom Score 2

Identification - $\frac{1}{2}$  score

Disease - $\frac{1}{2}$  score

Symptom -1 score

Time -4 min

9. Identify the picture related to embryology. Sketch and label one part. Score 2
- Identification -½ score
- Sketch and labelling -1+½ = 1½ score
- Time -7 min
10. Viva-voce (Ask informally simple questions related to Physiological experiments)
- Time -1 min Score 1
11. Practical diary Score 3

## **Details of the Geography Practical Examination for Class XII**

1. The question paper contains **five questions** based on the content given below. Each questions consists of three sub questions. Each sub question carries **10 scores**. Students can attempt **any question out of the five**.

**(10+10+10=30 Scores)**

2. Students must submit an **Atlas** containing maps of India. Students can prepare **Atlas** as a home assignment and the same has to be submitted at the time practical examination. The maps in the **Atlas** has to be prepared based on the themes **Minerals and Energy Resources of India**.

**(5 Scores)**

3. **Record of works** submitted at the time of practical examination will be based on the actual experiments done at the lab by the students based on the content given. These experiments has to be recorded and the same is considered as the record of work.

**(5 Scores)**

### **The content selected for the practical examination**

1. Identification and drawing of conventional signs and symbols used in the topographical maps.
2. Preparation of a layout by using the following indicators.
  - a. Scale
  - b. Direction
  - c. Conventional signs and symbols
3. Drawing of cross sections of relief features (Conical Hill, Plateau, V-Shaped Valley, U-Shaped Valley and Gentle Slope)
4. Identification of the instruments used for measuring weather elements and listing their uses and units of measurement.
5. Representation of the geographical data by using line graphs, bar diagrams and pie diagrams.



# **Guidelines for Higher Secondary Practical Evaluation, March 2022**

## **COMPUTER SCIENCE / COMPUTER APPLICATIONS**

Lab work as a learning activity crowns an inevitable status for the effective transaction of certain concepts of Computer Science / Computer Applications as well as for enhancing problem solving and coding skills of the learners. To align with outcome focused curriculum, Practical Evaluation (PE) has become an integral part of evaluation process. In addition to the prevailing guidelines of lab work, the pandemic situation of Covid-19 demands some additional but mandatory guidelines to be followed during the conduct of lab work and practical evaluation for the year 2021– 22.

- Covid-19 protocol (Soap-Mask-Social Distancing) should be followed strictly during lab work.
- Only one student is to be allowed to use a computer at a time.
- Both teachers and students should use hand gloves inside the lab.
- Avoid using air conditioners, if any, while performing lab work.
- The exercises to be included in the lab work for the year 2021 – 22 are given below.

### **Computer Science**

**The Practical Log Book of Computer Science should contain the restructured exercises of lab work which are detailed below.**

#### **C++ Programs (4 Nos.)**

1. To find the largest of three numbers.
2. To find the day name of a week using switch statement.
3. To find the sum of the squares of the first N natural numbers.
4. To check whether a number is palindrome or not.

#### **HTML Codes (4 Nos.)**

5. To design a simple and attractive webpage for Kerala Tourism. It should contain features like background colour/image, headings, text formatting and font tags, images, etc.
6. To design a simple webpage about your school. Create another webpage named *address.htm* containing the school address. Give links from school page to *address.htm*.

7. To design a webpage as shown below using appropriate list tags.

### **Wild life Sanctuaries in Kerala**

- Iravikukam
- Muthanga
- Kadalundi

8. To design a web page containing a table as shown below.

### **Speed limits in Kerala**

<b>Vehicle</b>	<b>Within Corporation/ Municipality (in Km/Hr)</b>	<b>In other roads (in Km/Hr)</b>
Motor Cycle	40	50
Light Motor Vehicle	40	70
Heavy Motor Vehicle	35	60

## **Computer Applications (Commerce)**

The Practical Log Book of Computer Applications (Commerce) should contain the restructured exercises of lab work which are detailed below.

### **C++ Programs (4 Nos.)**

1. To find the largest of three numbers.
2. To find the day name of a week using switch statement.
3. To display the first 100 natural numbers.
4. To find the sum of the digits of a number.

### **HTML Codes (4 Nos.)**

5. To design a simple and attractive webpage for Kerala Tourism. It should contain features like background colour/image, headings, text formatting and font tags, images, etc.
6. To design a simple webpage about your school. Create another webpage named *address.htm* containing the school address. Give links from school page to *address.htm*.

7. To design a webpage as shown below using appropriate list tags.

### **Hill Stations in Kerala**

1. Munnar
2. Wayanad
3. Gavi

8. To design a web page containing a table as shown below.

### **Terrestrial Planets**

<b>Planet</b>	<b>Day Length (in Earth hours)</b>	<b>Year length (in Earth days)</b>
Mercury	1408	88
Venus	5832	224.7
Mars	25	687

**Accountancy with Computerised Accounting**  
**പ്രായോഗിക പരീക്ഷ (Practical Examination) മാർഗ്ഗനിർദ്ദേശങ്ങൾ - March 2022**

ഹയർ സെക്കന്ററി രണ്ടാം വർഷം അക്കൗണ്ടൻസി വിത്ത് കമ്പ്യൂട്ടറൈസ്ഡ് അക്കൗണ്ടിംഗ് വിഷയത്തിന്റെ 2021 മാർച്ച് പൊതുപരീക്ഷയുടെ ഭാഗമായി നടക്കുന്ന പ്രായോഗിക പരീക്ഷയ്ക്കുള്ള പൊതു മാർഗ്ഗനിർദ്ദേശങ്ങൾ ചുവടെ നൽകിയിരിക്കുന്നു.

1. പ്രായോഗിക പരീക്ഷയുടെ പരമാവധി സ്കോർ 40 ആണ്.
2. പ്രായോഗിക പരീക്ഷക്ക് പരമാവധി 6 ചോദ്യങ്ങൾ നൽകുകയും അതിൽ നിന്നും വിദ്യാർത്ഥികൾ അവർക്കിഷ്ടമുള്ള 2 ചോദ്യങ്ങൾ തിരഞ്ഞെടുത്ത് നിർദ്ധാരണം ചെയ്യേണ്ടതുമാണ്.
3. എല്ലാ ചോദ്യങ്ങൾക്കും തുല്യ സ്കോർ നൽകേണ്ടതാണ്. പ്രായോഗിക പരീക്ഷ മൂല്യനിർണ്ണയം നടക്കുമ്പോൾ ഓരോ ചോദ്യത്തിന്റെ ഉത്തരത്തിനും നൽകിയിരിക്കുന്ന 16 സ്കോറിൽ 10 സ്കോർ വിദ്യാർത്ഥി എഴുതിയ പ്രക്രിയ വിശദീകരണത്തിനും (Procedure), 6 സ്കോർ ലാബ് പ്രവർത്തനത്തിനുമായി (Output) നൽകേണ്ടതാണ്. വാചിക പരീക്ഷയ്ക്ക് പരമാവധി 4 സ്കോറും ലാബ് പ്രവർത്തനങ്ങളുടെ രേഖപ്പെടുത്തലിന് പരമാവധി 4 സ്കോറും നൽകാവുന്നതാണ്.
4. പ്രാക്ടിക്കൽ രേഖപ്പെടുത്തൽ ബുക്കിൽ പ്രായോഗിക പരീക്ഷയ്ക്കുള്ള പാഠഭാഗങ്ങളായി ചുവടെ നൽകിയിരിക്കുന്നവ ഉൾപ്പെടുത്തേണ്ടതാണ്.

5. പ്രായോഗിക പരീക്ഷയ്ക്കുള്ള പാഠഭാഗങ്ങൾ

Unit 2 - Spread Sheet

- (1) Statistical Functions - (COUNT, COUNTA, COUNTBLANK, COUNTIF)
- (2) Mathematical Functions - (SUM, SUMIF, ROUND, ROUNDUP)

Unit 3 - Use of spread sheet in business application

- (3) Payroll Accounting

Unit 4 - Graphs and charts for business data

- (4) Bar chart

Unit 5 - Accounting software package

- (5) GNUKhata – Preparation of Profit and Loss account (from transactions)

Unit 6 - Data Base Management System

- (6) Creation of Table in Design view



# **HIGHER SECONDARY EXAMINATION MARCH 2022**

## **COMMUNICATIVE ENGLISH**

### **VIVA VOCE**

#### **General Instructions**

- Maximum Marks for Viva Voce is 40
- 10 Minutes can be set apart to assess each candidate.
- Language Fluency, Originality of ideas and correctness of expressions are to be evaluated.
- Portfolio of each candidate should be evaluated.
- In the group discussion session, each group may have 6 to 7 candidates.
- Considering the Lock down period and the Covid 19 Pandemic, external examiners should take utmost care not to stress the students too much. Under this special circumstance, Viva voce should be made as simple as possible.
- If the external examiner is not able to accept the duty, the same shall be intimated to the concerned authority without fail.

#### **Section I :-**

##### **Self Introduction and related Information (Maximum Score: 5)**

- The examiner may ask the candidate to introduce himself and brief about his family, friends, hobbies, ambition, native place, school, etc...
- The examiner may also ask one or two questions to establish a rapport between the student and the Evaluator.

#### **Section II :- Portfolio Evaluation (Maximum Score :10)**

- The portfolio of each candidate should be evaluated.
- Creativity, originality, neatness, relevance of the content and collections are the criteria for evaluation.
- The examiner may ask a few questions based on the portfolio.

#### **Section III :- Creative Expression –Performance based activity**

**(Maximum Score: 5)**

The candidate is to present something from the following activities:

- Speech :- Welcome speech, Vote of thanks, Felicitation
- Speech on general topics:- Net Addiction  
Role of social media in the Pandemic time  
Dangers of Plastic, etc...
- Narration :- Short stories, Reciting a poem  
Lock Down Activities  
Unforgettable Incident in life  
Reciting a poem

**Section IV :- Reading & Listening Skill (Maximum Score: 5+5 =10)**

- The examiner may ask the candidate to read aloud a passage or a poem that suites the level of Plus Two students.
- The examiner may ask a few questions based on it to evaluate the comprehension of the candidate.
- Ability to read with proper stress, pronunciation, pause, etc can be evaluated through this activity.
- For Listening task, the examiner can also read out a passage, or make the students to listen to an audio clip and may ask a few simple questions based on it.

**Section V :- Group Discussion or Debate (Maximum Score: 10)**

A group of 6 to 7 students participate in a group discussion or debate on a topic of current relevance.

Examples of Topic:

- Climate changes
- Waste Management
- Do Soft drinks cause a serious threat to our life?

**HIGHER SECONDARY  
ELECTRONICS  
PRACTICAL CLASSES: 2022 GUIDELINES**

Electronics being a technical subject all practical classes are highly important and unavoidable. However under the circumstances of Covid 19 pandemic, the following instructions may be followed regarding Electronics practical classes.

Instructions:

1. A minimum of five (5) experiments should be performed by each student selecting atleast three (3) experiments from the list of experiments for Class XI and at least two(2) from the list of experiments for Class XII experiments.
2. Students should maintain a practical logbook. Writing the Procedure of the experiment may be avoided.

**LIST OF PRACTICAL EXPERIMENTS**

**First year**

1. The study of the characteristics of a PN junction- forward and reverse.(use silicon and germanium)
2. The study of forward and reverse characteristics of Zener diode (repeat the experiment for two or three diodes of different break downvoltages.)
3. The input and output VI characteristics of CE configuration.
4. Study of transistor switch- switch a LED on and OFF using transistor switch.
5. Study of the characteristics of LDR-resistance variation with intensity of light.
6. Study of VI characteristic of LED
7. Light detection using photodiode and photo transistors.
8. Study of half wave, rectifier-measurement of ripple factor.
9. Study of centre tap full wave rectifier-measurement of ripple factor.
10. Study of bridge type full wave rectifier- measurement of ripple factor.
11. Reduction of ripple at the output of a rectifier using simple capacitor filter- repeat experiment for different values of capacitors.
12. Voltage gain measurement of a CE amplifier.
13. Study of frequency response of CE amplifier.

## Second year

15. Generation of sine wave, using an RC phase shift oscillator.
16. Generation of square wave using a stable multivibrator.
17. Setting up of OR, AND and NOT gates and verification of truth table.
18. Familiarization of logic gate ICs.
19. Setting up of an Ex-OR gate using basic gates and verification of truth table.
20. Implementation of half adder and full adder using logic gates.
21. Design and setup of an op-amp inverting and non-inverting amplifier.
22. Study of clipping circuits- simple clipper and biased clipper- positive and negative
23. Study of clamper circuits- simple clamper and biased clamper- positive and negative.
24. Study of integrator and differentiator circuits.
25. Study of zener diode voltage regulation.
26. Familiarization of voltage regulator ICs.
27. Setting up of LPF and HPF using circuits and study of their frequency response.

### PRACTICAL EXAMINATION GENERAL INSTRUCTIONS

Final practical examination will be of three hours and the maximum score will be 40.

Any one question selected at random may be given to each student.

Only 15 students will be permitted to attend the practical examination at a time.

Students must attend the practical examination with a practical logbook.

Neatness in connecting equipment as per the circuit diagram, ability in observing the output, accuracy in measurement and ability in recording the data should be assessed.

Calculation of data, sketching graph and recording final results should be assessed.

The score distribution will be as follows.

1.
    1. Theory and principle: 9
    2. Circuit diagram: 7
    3. Setting up of circuit: 7
    4. Performing experiment :5
    5. Measurement and recording :6
    - Result :2
    6. Ascertaining the awareness relating to the particular experiment :4
- Total : 40**

HIGHER SECONDARY PRACTICAL EXAMINATION **2022**

HOME SCIENCE

Time : 3 Hrs

Score : 40

PART A

Answer any one questions.

(1 x 12 = 12)

1. Prepare a prang colour wheel using primary colours.
2. Identify the given weave and prepare a sample of it using coloured papers ( only plain weave) .
3. Estimate vitamin C in lime juice/lactose in milk.
4. Prepare a poster on a given theme.

PART B

Answer any one questions.

(1 x 10 = 10)

1. Prepare a sample of vegetable block printing.
2. Prepare a value scale.
3. Illustrate monochromatic/complementary/triad colour harmonies.

PART C

Answer any one questions.

(1 x 8 = 8)

1. Identify the given fibre ( only natural fibres).
2. Detect the adulterant present in the given sample ( milk or dal)
3. Identify the nutrient present in the given sample.

Practical Record

( 10)

1. The question paper contains three questions based on the content area namely **mineralogy**, **economic geology** and **petrology** as given below.

First question consists of one sub question- identification of any one mineral specimen ( two specimens shall be provided).

Second question consists of two sub questions-identification of any two economic mineral specimens ( four specimens shall be provided).

Third question consists of three sub questions- identification of any three rock specimens ( six specimens shall be provided).

Each sub question carries 6 scores.

Students have options to attempt any six sub questions falling in the three main questions. (6 x6 =36 Scores)

2. Record of works to be submitted at the time of practical examination will be based on the actual observations done at the lab by the students based on the content given. These observations have to be recorded as a single entry logbook and the same is considered as the record of work. (4 Scores)

### **Content areas for Practical evaluation**

#### **Unit 1: Mineralogy**

Two rock forming minerals are provided.

Identification of any one rock forming mineral is expected.

#### **Unit: 2 (Economic Geology)**

Two ore minerals and two industrial minerals are provided.

Any two economic minerals have to be identified.

#### **Unit: 3 (Petrology)**

A. Igneous rocks

B. Sedimentary rocks

C. Metamorphic rocks

A total of six rock specimens are provided- two each from igneous, sedimentary and metamorphic types.

Any three rock specimens are to be identified.

**HIGHER SECONDARY EXAMINATION  
PRACTICAL EVALUATION**

HSE-II

**Geology**

Max.scores:40

March 2022

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1. Identify any one mineral specimen giving their salient physical properties. (1x6 scores= 6 scores)
2. Identify any two economic mineral specimens giving their salient physical properties. (2x6 scores= 12scores)
3. Identify any three rock specimens comparing their texture and mineralogy. (3x6 scores= 18scores)  
**(Students have option to identify any six specimens irrespective of mineral, economic mineral or rocks)**
4. Practical record/log book (1x4 scores= 4scores)

**Scoring key**

**Identification of mineral/ economic mineral specimens**

- i). Diagnosis of any five physical properties- 5 score each
- iii). Identification and nomenclature of the given specimen-1 score each

**Identification of rock specimens**

- i) Identification of any two textures a rock specimen- 2 score each.
- ii) Identification of essential minerals- 2 score each
- iii) Identification of accessory minerals & description of mineralogy- 1 score each
- iv) Identification and nomenclature- 1 score each

# **Guidelines for Higher Secondary Practical Evaluation 2022**

## **Psychology ( Class XII)**

Psychology is a vibrant science, with tremendous scope for application in every field of human endeavour. Almost all the units, there scope to include practical's to supplement the understanding of theory and concepts. A psychological test is essentially an objective and standardised measure of a sample of behaviour.

Experiments plays a crucial role in the proper assimilation of concepts in Psychology. Along with the term end evaluation at the end of the academic year, practical evaluation (PE) is also to be conducted. The skill in performing experiments is to be assessed through PE. The following guidelines are to be followed while conducting PE during the academic year 2020-21.

- Covid-19 protocol should be followed strictly during laboratory work.
- Sufficient number of schedules, inventories or tests in printed form must be provided to students individually to conduct practical work.
- Practical log book should contain all the necessary recordings related to the experiment done.
- Social distancing should be there between the subject and the experimenter.
- Any one from the following experiments will be asked to conduct under the part-I ( First year) experiments
  1. Memory Span
  2. Distraction of attention
- Any one from the following experiments will be asked to conduct under the part-II ( Second year) experiments
  1. Adjustment Inventory
  2. Personality Test
  3. Anxiety Scale
- The detailed score distribution should be as follows

Maximum score for PE	– 40
Part-I experiment	- 10 scores
Part-II experiment	- 30 scores
Writing of Introduction, Procedure, Result, Discussion, etc.	-12 scores
Administration of test	- 8 scores
Practical log book	- 4 scores
Viva voce	- 6 scores
- The viva voce should be done for ascertaining the awareness of concepts related to practical. It should not create tension to the students. It should be a casual interaction with the students through simple questions related to practicals only to check whether he/she has clarity in the given work.



**ഹയർ സെക്കണ്ടറി രണ്ടാം വർഷ സോഷ്യൽ വർക്ക്**  
**പ്രായോഗിക പരീക്ഷ 2022**  
**(കോവിഡ് പശ്ചാത്തലത്തിലെ പ്രത്യേക സ്കീം)**  
**മാർഗനിർദ്ദേശങ്ങൾ**

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**ആമുഖം**

സോഷ്യൽ വർക്കിന്റെ രീതികൾ, വിവിധ മേഖലകൾ, സ്ഥാപനങ്ങൾ തുടങ്ങിയവയെ കുറിച്ച് അറിവുനേടുന്നതോടൊപ്പം പ്രായോഗികമായ അനുഭവങ്ങളും സോഷ്യൽ വർക്ക് വിദ്യാർത്ഥികൾക്ക് ലഭിക്കേണ്ടതുണ്ട്. കോവിഡ് പശ്ചാത്തലത്തിൽ കുട്ടികളുടെ ആരോഗ്യസുരക്ഷ ഉറപ്പാക്കിക്കൊണ്ട് സോഷ്യൽവർക്ക് പ്രായോഗിക പരീക്ഷയ്ക്ക് സജ്ജമാക്കേണ്ടത് അനിവാര്യമാണ്. പ്രൊഫഷണൽ ഏജൻസികളിലും സാമൂഹ്യക്ഷേമ സ്ഥാപനങ്ങളിലും വിദ്യാർത്ഥികൾ നേരിട്ട് സന്ദർശനം നടത്തി റിപ്പോർട്ട് തയ്യാറാക്കുന്നതിന് നിലവിലെ സാഹചര്യത്തിൽ പരിമിതികളുണ്ട്. ഈ സാഹചര്യത്തിൽ സോഷ്യൽവർക്കിന്റെ പ്രായോഗിക പരീക്ഷയുമായി ബന്ധപ്പെട്ട ഫീൽഡ് സന്ദർശനവും ആക്ഷൻ പ്രോഗ്രാമും ലഘു ഗവേഷണവും സംഘടിപ്പിക്കുന്നതിനുള്ള പ്രത്യേക മാർഗനിർദ്ദേശങ്ങൾ താഴെ കൊടുക്കുന്നു.

**പൊതു നിർദ്ദേശങ്ങൾ**

- വെർച്വൽ വിസിറ്റ്, ഓൺലൈൻ വിവരശേഖരണം തുടങ്ങിയ പ്ലാറ്റ്ഫോമുകൾ പരമാവധി ഉപയോഗപ്പെടുത്തുക.
- വിദ്യാലയത്തിനടുത്തോ, കുട്ടിയുടെ വീടിനടുത്തോ ഉള്ള ഏജൻസികൾ/ സ്ഥാപനങ്ങൾ രക്ഷിതാവിന്റെ സമ്മതത്തോടുകൂടി സന്ദർശിക്കാവുന്നതാണ്. വിദ്യാർത്ഥി പൂർണ്ണമായും കോവിഡ് മാനദണ്ഡങ്ങൾ പാലിക്കുന്നുണ്ടെന്ന് ഉറപ്പാക്കേണ്ടതാണ്.
- ഈ വർഷത്തെ പ്രായോഗിക പരീക്ഷയുമായി ബന്ധപ്പെട്ട് 4 മേഖലകളിലായി 8 പ്രവർത്തനങ്ങൾ നൽകിയിട്ടുണ്ട്.
- ഈ എട്ട് പ്രവർത്തനങ്ങളിൽ ചുരുങ്ങിയത് മൂന്ന് പ്രവർത്തനങ്ങൾ എങ്കിലും പ്രായോഗിക പരീക്ഷയുടെ ഭാഗമായി കുട്ടികൾ പൂർത്തീകരിച്ച് റിപ്പോർട്ട് തയ്യാറാക്കേണ്ടതാണ്.

**A. Extension programme**

1. കോവിഡ് മാനദണ്ഡങ്ങൾ പാലിച്ച് സ്കൂൾ പരിസരത്തോ, വിദ്യാർത്ഥിയുടെ വീടിനടുത്തോ ഉള്ള കുടുംബശ്രീ അയൽക്കൂട്ടം/ SHG യൂണിറ്റ് സന്ദർശിച്ചോ/ഓൺലൈൻ വഴി അയൽക്കൂട്ടം / SHG ഭാരവാഹികളുമായി സംവദിച്ച് യൂണിറ്റിന്റെ ഉദ്ദേശ്യലക്ഷ്യങ്ങൾ, ഘടന, പ്രവർത്തന രീതി, പരിപാലിക്കുന്ന വിവിധ രജിസ്റ്ററുകൾ, അയൽക്കൂട്ടം / SHG പ്രവർത്തനങ്ങളിലൂടെ അംഗങ്ങൾക്കുണ്ടായ സാമൂഹ്യ-സാമ്പത്തിക പുരോഗതി തുടങ്ങിയവ ഉൾപ്പെടുത്തി റിപ്പോർട്ട് തയ്യാറാക്കി സമർപ്പിക്കുവാൻ നിർദ്ദേശം നൽകാവുന്നതാണ്.
2. ഓൺലൈൻവഴിയോ കോവിഡ് മാനദണ്ഡങ്ങൾ പാലിച്ച് നേരിട്ടോ, സ്കൂൾ പരിസരത്തോ, വിദ്യാർത്ഥിയുടെ വീടിനടുത്തോ ഉള്ള PHC/CHC യുടെ ഉദ്ദേശ്യങ്ങൾ ഘടന, ധർമ്മങ്ങളും പ്രവർത്തന രീതിയും തുടങ്ങിയവയെക്കുറിച്ച് പഠിച്ച് റിപ്പോർട്ട് തയ്യാറാക്കി സമർപ്പിക്കുവാൻ നിർദ്ദേശം നൽകാവുന്നതാണ്.

**B. Exposure Visit**

3. പ്രൊഫഷണൽ സോഷ്യൽവർക്ക് പ്രാക്ടീസ് ചെയ്യുന്ന ഒരു ഏജൻസിയുടെ പ്രൊഫഷണൽ സോഷ്യൽവർക്കർ/പ്രധാന ഓഫീസറെ കോവിഡ് മാനദണ്ഡങ്ങൾ പാലിച്ച് സ്കൂളിൽ വെച്ചോ/വെർച്വൽ പ്ലാറ്റ് ഫോമിലോ വിദ്യാർത്ഥികൾക്ക് അവരുമായി സംവദിക്കുവാൻ അവ

സരം നൽകാവുന്നതാണ്. പ്രൊഫഷണൽ സോഷ്യൽവർക്കർ/ഓഫീസറുമായി കൂട്ടികൾ സംവദിച്ച് ഏജൻസിയുടെ ചരിത്രം, ഉദ്ദേശ്യലക്ഷ്യങ്ങൾ, ധർമ്മങ്ങളും പ്രവർത്തനരീതിയും, ഓർഗനോഗ്രാം, പ്രൊഫഷണൽ സോഷ്യൽവർക്കിന്റെ പങ്ക്/ഉത്തരവാദിത്തങ്ങൾ, നിരീക്ഷണവും വിലയിരുത്തലും തുടങ്ങിയവ ഉൾപ്പെടുത്തി റിപ്പോർട്ട് സമർപ്പിക്കുവാനും നിർദ്ദേശം നൽകാവുന്നതാണ്.

#### 4. Virtual Field Visit

പ്രൊഫഷണൽ സോഷ്യൽവർക്ക് പ്രാക്ടീസ് ചെയ്യുന്ന ഒരു ഏജൻസി/സ്ഥാപനം സോഷ്യൽവർക്ക് ടീച്ചർ (ചുമതലപ്പെടുത്തുന്ന വ്യക്തിയോ) സന്ദർശിച്ച് ആ ഏജൻസി/സ്ഥാപനത്തിന്റെ പ്രവർത്തനങ്ങളും മറ്റും തത്സമയമോ വീഡിയോ റെക്കോർഡ് ചെയ്തോ സോഷ്യൽമാധ്യമങ്ങൾ വഴി വിദ്യാർത്ഥികളിലെത്തിക്കാവുന്നതാണ്. ഇതിന്റെ റിപ്പോർട്ട് വിദ്യാർത്ഥികൾ തയ്യാറാക്കട്ടെ.

#### C. Action Programme/Minor Research

5. ഓരോ വിദ്യാർത്ഥികളുടെയും പ്രാദേശിക ചുറ്റുപാടിൽ കോവിഡ് പ്രതിരോധ പ്രവർത്തനങ്ങൾക്ക് നേതൃത്വം നൽകിയ വ്യക്തികൾ (ആരോഗ്യ ഉദ്യോഗസ്ഥർ/ആരോഗ്യ പ്രവർത്തകർ/സോഷ്യൽവർക്കർ/അധ്യാപകർ) അല്ലെങ്കിൽ സ്ഥാപനങ്ങളുമായി സംവദിച്ച് റിപ്പോർട്ട് തയ്യാറാക്കാൻ നിർദ്ദേശം നൽകാവുന്നതാണ്.
6. വിദ്യാർത്ഥിയുടെ സ്വന്തം പഞ്ചായത്ത്/നഗരസഭ/കോർപ്പറേഷനിലെ കോവിഡ് രോഗവ്യാപനം തടയാനുള്ള നടപടികളുടെ ഫലപ്രാപ്തിയെ കുറിച്ച് ഓൺലൈൻവഴി ഒരു ലഘു ഗവേഷണം നടത്തി റിപ്പോർട്ട് സമർപ്പിക്കുവാൻ നിർദ്ദേശം നൽകാവുന്നതാണ്. (നാളിതുവരെയുള്ള കോവിഡ് സ്ഥിതിവിവര കണക്ക്, മരണനിരക്ക്, വ്യാപനതോത്, ചികിത്സാകേന്ദ്രങ്ങൾ, ടെസ്റ്റ് പോസിറ്റിവിറ്റി നിരക്ക്, പ്രതിരോധ പ്രവർത്തനങ്ങൾ, വിലയിരുത്തൽ etc).

#### D. Documentation

7. സമകാലിക സാമൂഹ്യപ്രശ്നങ്ങളുമായി ബന്ധപ്പെട്ട ഫോട്ടോ/ചിത്രം/പത്ര റിപ്പോർട്ട് ഉൾക്കൊള്ളിച്ച് സോഷ്യൽവർക്ക് ആൽബം തയ്യാറാക്കാൻ നിർദ്ദേശം നൽകാവുന്നതാണ്. വ്യത്യസ്ത പ്രശ്നങ്ങൾ ഉൾക്കൊള്ളുന്ന 20 ചിത്രങ്ങൾ/ഫോട്ടോകൾ/പത്രറിപ്പോർട്ട് ആൽബത്തിലുണ്ടാവണം.
8. കോവിഡ് കാലത്തെ പ്രധാന വാർത്തകൾ, ചിത്രങ്ങൾ, ഫോട്ടോ തുടങ്ങിയവ ഉൾപ്പെടുത്തി ഒരു പിക്ചർ ആൽബം തയ്യാറാക്കുക. (ചുരുങ്ങിയത് 20 ചിത്രങ്ങൾ ഉണ്ടാവണം)

**PRACTICAL EXAMINATION (SOCIAL WORK) - WEIGHTAGE**

<b>Item</b>	<b>Topics</b>	<b>Score</b>
	<div style="display: flex; align-items: center;"><div style="flex: 1;"><p>A. Exposure visit</p><p>B. Extention programme</p><p>C. Action Programme/ Minor Research</p><p>D. Documentation</p><p>(*Any 3 activity from those given above)</p></div><div style="font-size: 3em; margin: 0 10px;">}</div><div style="flex: 1; text-align: center;"><p>(3* ×10 score)</p></div></div>	30
2.	Viva voce	05
3.	Rapid Appraisal Test	05
<b>Total</b>		<b>40</b>

സ്റ്റാറ്റിസ്റ്റിക്സ് (പ്ലസ് ടു ) പ്രായോഗിക പരീക്ഷയ്ക്കുള്ള നിർദ്ദേശങ്ങൾ :

1. പരമാവധി സ്കോർ സ്കോർ 40 ആണ്
2. പ്രായോഗിക പരീക്ഷയ്ക്ക് A, B, എന്നീ വിഭാഗങ്ങളിൽ നിന്നും ഏതെങ്കിലും രണ്ട് ചോദ്യങ്ങൾക്ക് ഉത്തരം നൽകിയാൽ മതിയാകും
3. നിലവിലെ A, B, C, D എന്നീ നാല് വിഭാഗങ്ങൾ താഴെ കൊടുത്തിരിക്കുന്ന രീതിയിൽ പുനഃക്രമീകരിച്ചു A, B എന്നീ വിഭാഗങ്ങൾ ആക്കി പരിമിതപ്പെടുത്തുന്നു. (Separate sheet attached )
4. ചോദ്യപേപ്പറിൽ A, B എന്നീ രണ്ടുവിഭാഗങ്ങൾ ഉണ്ടായിരിക്കും . ഓരോന്നിലും നാല് ചോദ്യങ്ങൾ വിധം . ഇവയിൽ ഓരോ വിഭാഗത്തിൽ നിന്നും ( A യിൽ നിന്നും Bയിൽ നിന്നും) ഒരു ചോദ്യത്തിന് ഉത്തരം എഴുതണം.

## Practical Examination- Statistics

Maximum Score : 40

Maximum time allowed: 3 hrs.

### Topics for PE

A	Diagrams, graphs and descriptive statistics	Simple Bar diagram, Multiple bar diagram, Sub divided bar diagram, Percentage bar diagram, pie diagram, Scatter diagram, Mean, median, mode, quartiles.
B	Correlation and Regression	Karl Pearson's coefficient of correlation, Regression equation Yon X, Regression equation X on Y, Estimation of trend values using moving averages (odd case only).

### Evaluation Process

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The question paper contains two sections related to the topics given above which will be supplied by DHSE to the external examiner. Each section carries 4 questions. Answer any one question from each section.

Each question carries 15 scores.       $15 \times 2 = 30$  scores

Record work.      = 5 scores

Content awareness/Viva voce      =5 scores

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Total =40 scores

**Score distribution for each question:**

1. Identifying the questions	..... 2
2. Data entry	.....3
3. Selecting appropriate statistical tool	.....3
4. Processing the data	..... 5
5. Interpretation of the result/conclusion	.....2

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<b>Total Scores</b>	..... 15
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\*\*\* All the problems should be done using computer

**For practical examination**

\* Computerized procedure

\*Output of the problem

\* Inference

**Contents of Record**

\*One problem from each topic cited in the table.

**No change in the structure of record.**

# **Higher Secondary Practical**

## **Gandhian studies**

### **Guilelines for 2022 March Examination**

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According to the present pandemic situation, this year the practical scheme needs some changes as per the directions. The field visit and report writing is exempted this year from the scheme. The exam is conducting only on the basic of crafts which taken from the allowed six categories.

This year as part of practical exam the teachers have only one option which is;

#### **Any 5 crafts from the listed 6 categories**

The crafts can be selected only from the listed items. No other crafts are allowed. From the given 6 categories any of five crafts will be selected for exam.

#### **The 6 categories are:**

##### **Category. 1.**

1. Screen printing
2. Textile printing
3. Vegetable printing
4. Glass painting
5. Fabric painting

##### **Category. 2.**

1. Food processing (On the spot cooking)
2. Bio- pesticide
3. Mushroom
4. Fresh flower arrangement
5. Flower Bouquet

##### **Category. 3.**

1. Products using natural fibers ( bag, mat etc.)
2. Coir products
3. Bamboo products

4. Badminton /valley ball net making
5. Coconut shell products

**Category. 4.**

1. Metal engraving/wood carving
2. Pot designing
3. Embroidery
4. Plaster of parries products
5. Products using waste materials

**Category. 5.**

1. Agarbathy making
2. Soap making (toilet or washing)
3. Chalk making
4. Candle making
5. Umbrella making

**Category. 6.**

1. Book binding (Calico binding)
2. Folding file+ Office file+ Plain cover/ office file + writing board
3. Paper bag (Two type)
4. Beads work or Ornaments (Set of ornaments)
5. Interior decoration items (Wall hangers, Bunch of flowers, flower vases etc.)

**Format of record book**

Page 1 – Certificate

(School name, student name, register number, name and signature of teacher and school seal will must)

Page 2 - Index

Page 3 – Recording of craft (one by one)

Craft 1

Date

Name of the craft with category number



Aims and objectives

Materials required

Procedure

Time required

Cost of production

Skills achieved

Utility of the product

Marketing strategy

Signature of teacher

The above pattern continue to Craft 2, 3,4 and Craft 5

All the works should be recorded systematically in record book. Submit the duly signed record book for external evaluation.

**(The changes in the scheme and guidelines only applicable for 2020-2021 academic year)**

## **GUIDELINES FOR HIGHER SECONDARY PRACTICAL EVALUATION JOURNALISM**

Journalism is a field which witnesses fascinating growth hand-in-hand with the rapid technological changes. It is a subject which demands the learners to be multi-faceted. Hence the area of study includes print and broadcast journalism, photography, video production, advertising, public relations, technical writing etc. These areas demand a wide range of skills which can be acquired only through practical training.

Practical training at higher secondary level will help the students to identify and concentrate on core areas related to Mass Communication and Journalism.

So, along with the term end evaluation, practical evaluation (PE) is also conducted. The skills in carrying out the practical aspects of the subject should be assessed through the PE.

The following guidelines are to be followed while conducting the PE during the academic year 2020-21.

- Covid-19 protocol should be strictly followed during the practical evaluation.
- Social distancing should be maintained during the viva voce and practical works. Students can be divided into groups ranging between 15 to 20 for practical works. Sufficient seating arrangement should also be ensured.
- Viva voce should be conducted for ascertaining the awareness of concepts related to the works included in the portfolio and the production. The viva voce should not create excessive tension in the mind of the candidates. It should be a casual interaction with the students through simple questions related to the practical work and the areas of study. The originality of the work should be appreciated.
- The PE is conducted for 40 marks and each question carries 10 scores.
- The question paper has three sections. Section A (viva voce) comprises of only one question which is compulsory.
- Students need to answer only one question from the given three questions in Section B. These questions require individual attention and hence can be conducted along with the viva voce.
- Section C has four questions from which the candidate has to attend two.
- The external examiner can provide necessary guidance to the students to help them attempt the questions with confidence.
- Ensure not to put excess pressure on the students while conducting the viva-voce.

## **SECTION A**

1. Evaluate the learners' aptitude and skills in Journalism and media studies by conducting an oral examination (Viva) based on it. Practical works and portfolio (campus magazine, campus newspaper, photo feature, audio/video) done by the students should also be assessed. (Score: 10)

## **SECTION B**

- Qns. 2- 4. Answer any one of the following. (Score: 10)**

2. Instruct the learner to demonstrate camera shots using a digital camera set on a tripod. Evaluate the same in terms of composition and technical perfection
3. Assign a programme for the learner for anchoring for example, a radio phone-in programme and evaluate his performance in terms of a good anchor.
4. Assign the learner to present a live or piece-to -camera report on a news event.

## **SECTION C**

- Qns. 5-8. Answer any two of the following. (Score: 10 x 2 =20)**

5. Design a dummy for the first page of an English or Malayalam newspaper.
6. Prepare a display advertisement of any of the following products in English or Malayalam.
  - a. Toothpaste
  - b. Mobile phone
  - c. Soap
  - d. Umbrella
7. Prepare a storyboard for any one of the following scenes.
  - a. Two friends meet after a long time during a train journey.
  - b. A farmer finds a treasure while tilling his land.
  - c. A police officer stops a motor bike rider and charges him for over speeding.

d. A man walks into a cafe and orders tea and snacks.

8. Prepare a press release on a book exhibition which is to be held in your school on Reader's Day. (It should include venue, time, name and designation of chief guest, inaugurator and other speakers and list of films).

**SECOND YEAR HIGHER SECONDARY MUSIC PRACTICAL**  
**SAMPLE QUESTION PAPER 2022**

**Maximum Score: 80**

**General Instructions to candidates:**

- *In Section A, ten questions are given, each carrying 10 marks*
- *The student can answer any six questions out of them*
- *Maximum total score for Section A will be 60*
- *Viva voce carries 10 marks*
- *Record work carries 10 marks*
- *The grand total score will be 80*

**Section A**

**Answer any 6 of the following; each question carries 10 marks**

1. SapthaSvaras&SaraliVarisas in four degrees of speed
2. MadhyasthayiVarisas in four degrees of speed
3. TarasthayiVarisas in four degrees of speed
4. Any two Alankaras in two degrees of speed
5. Gitam-1 in two degrees of speed
6. Gitam-2 in two degrees of speed
7. Jathisvaram
8. Svarajathi

**Section B**

Viva voce.....10 marks

**Section C**

Record Work .....10 marks

**SECOND YEAR HIGHER SECONDARY MUSIC PRACTICAL**  
**CHAPTERWISE WEIGHTAGE**

<b>Serial No.</b>	<b>Unit</b>	<b>Focus Area</b>	<b>Score %</b>
1	Preliminary Lessons 1	1.2 Sapthasvaras in various degrees of speed 1.3 Swaravali 1.4 MadhyasthayiVarisas 1.5 TarasthaiVarisas	30
2	Preliminary Lessons 2	Jhampa TalaAlankara 2.3 RoopakaTalaAlankara 2.7 EkaTalaAlankara	20
3	Musical Forms	3.1 Vighneswara Gita 3.2 Saraswati Gita 3.3 Vishnu Gita	20
4	Musical Forms 1	8.1 Jathiswaram 1 8.2 Jathiswaram 2 8.3 Swarajathi	20
5	Musical Forms 2	9.1 Varnam1- Ninnukori	5
6	Musical Forms 3	10.3 Malayalam Kriti	5

## LAB WORK AND PRACTICAL EVALUATION OF ELECTRONIC SYSTEMS

### LAB WORK

1. Rectifiers – Half Wave and Centre Tapped Full Wave
2. Filters – Shunt Capacitor
3. RC Integrating Circuit
4. RC Differentiating Circuit
5. Universal Gates – AND using NAND, OR using NOR
6. Half Adder
7. De-Morgan's Theorems

### EVALUATION INDICATORS

- |                      |     |
|----------------------|-----|
| 1. Circuit Diagram   | -10 |
| 2. Procedure         | -5  |
| 3. Record            | -5  |
| 4. Viva              | -5  |
| 5. Experiment Set up | -10 |
| 6. Result            | -5  |

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TOTAL	40
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## **Lab Work and Practical Evaluation of Computer Science and Information Technology**

### **C++( 4 Programs)**

1. Program using for/while loop.
2. **Three** Programs using Class and Object concepts **(1+3=4 programs)**

### **PYTHON (2 Programs)**

1. Program using if else statement
2. Program using for/while loop statement.

### **HTML( 2 webpages)**

1. Design a webpage with features like background colour/image, Heading tags and paragraphs
2. Design a webpage that contains features like heading tags, Text formatting tags and image

**(Total 8 Lab Exercises)**

### **Evaluation Indicators**

Procedure for C++/HTML/Python	: 25
Output	: 5
Lab Record	: 5
Viva voce	: 5

**Total marks :40**



## **Lab Work and Practical Evaluation of Computer Information Technology**

1. Program to print first 20 fibonacci nos.
2. Program to print prime nos from 1 to 100.
3. Program to print sum of the digits of a given no.
4. Program to sort an array elements .
5. Define a class student with data members regno and marks of 3 subjects and member functions
  - a) To input values
  - b) to calculate totalmark & grade
  - c) to print details
6. Define a class to perform string operations : To find no of words, no of vowels and no of characters.
7. Define a class bank with data members ac no, name and balance. Use constructor to initialize the members. Write a menu driven program to withdraw, deposit and to display the details.
8. Program to demonstrate single Inheritance.
9. Write a program to create and to display the contents of a file
10. Program to copy a file to another file.

### **Evaluation Indicators**

Procedure for C++	: 25
Output	: 5
Lab Record	: 5
Viva voce	: 5
<b><u>Total marks :40</u></b>	