

DEPARTMENT OF SCIENCE

Department : SCIENCE

Program: B.Sc

Semester : II

Name of the subject : The English Turf.

Question bank

Unit V

Unit V

Increasing efficiency of the learners in reading and understanding skills of the language through prose and poetry and also improving the effective usage of vocabulary among learners by introducing oxymoron and hyperbole and also improving the efficient use of grammar through introducing main verbs and tenses.

Part – A

S.NO	SHORT QUESTIONS
1	How was the banyan tree different from the others? Describe in your words?
2	What kind of personality does the father have? Which words and phrases in the poem reveal what the speaker feels about the father's action?
3	Explain the characteristics of the father in the poem ?
4	Explain the tone of the poem?
5	Describe the end of the banyan tree in your own words. What reaction did its cutting provoke among members of the speaker's family?
6	What was the bet that was made? Who made the wager, and what motivated them?
7	What are the conditions of the lawyer's confinement? What arrangements were made for it?
8	What were the thoughts and intentions of the banker on the eve of the end of the lawyer's confinement?
9	Why did the lawyer give up the money he had own?
10	Write your personal opinion on the banker's reaction to the lawyer's decision?

PART – B

S.NO	LONG QUESTIONS
1	Write a detailed character sketch of the banker. Is there any change in his character at any point in the story?
2	Both the banker and the lawyer make various choices during the course of the story. What are these choices, and what do these tell us about the person's making them?
3	What is the significance of the last four lines of the poem? How does it relate to the rest of the poem?
4	What is the attitude of the speaker towards the cutting down of the banyan tree? What lines and words in the poem reveal this?

5	Cloud the banyan tree be seen as a symbol? If so, what do you think it might symbolize? Justify your answer with evidence from the text?
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Unit – VI	
<p>Unit – VI Increasing efficiency of the learners in reading and understanding skills of the language through prose and poetry and also improving the effective usage of vocabulary among learners by introducing synonyms and antonyms and also improving the efficient use of grammar through introducing prepositions.</p>	
Part – A	
S.NO	SHORT QUESTIONS
1	When and where did the walk described in the poem happen? Who went on his walk?
2	Paraphrase, in your own words, the speaker’s description of the moonlit night?
3	What emotions did the walk rouse in the speaker?
4	What is the tone of the poem “A walk by Moonlight”?
5	Explain what the speaker is trying to convey in the last three stanzas of the poem?
6	What is ‘ Jugaad ’ and what does the author credit It with?
7	Give two examples each of innovations that helped maintain (a) Social Distancing (b) public hygiene
8	What comment does the author end the essay with? Do you agree with the author’s statement? Elaborate on your assessment?
9	Highlight any three examples of innovation from this essay and comment on how they change or deviate from the standard practice before the pandemic?
10	What factors enabled the triplex helix model of innovation during the pandemic?
PART - B	
S.NO	LONG QUESTIONS
1	Write the summary of the poem “A walk by moonlight”?
2	Comment on the speaker’s view of the relationship between man and nature?
3	Write a character sketch of the speaker in the poem?
4	What factors are common to most of the innovations listed in the essay? Discuss the importance of these common factors?
5	What reasons does Sahasranamam provide for the speedy development and deployment of the innovative ideas listed in his essay?

Unit VII	
<p>Unit VII Increasing efficiency of the learners in reading and understanding skills of the language and also exposing learners to the professional environment and also training learners of writing different reports.</p>	
Part – A	
S.NO	SHORT QUESTIONS
1	Who is Pan, and why does the poet suppose he might have emigrated to India?
2	What is the tone of the first stanza of the poem?
3	What do you think the poet is referring to when she talks about the ‘long scythe swooping out? Of the conqueror’s face?
4	What is the connection between Sarasvati and language? What connection do you think the poet wants you to make here?
5	Write about the style of the poem “A Different Story”?
6	What question did the young people in the story pose to the blind woman?
7	How does the author relate the blind woman’s answer to her own vocation as a writer?
8	What is Toni Morrison’s main concern in this extract from her Nobel lecture?
9	Who needs to be held responsible when a language dies? Why
10	What according to the author, is the significance of the blind woman’s answer? Answer in your own words?
PART – B	
S.NO	LONG QUESTIONS
1	What do you think is the central theme of the poem? How are the two stanzas related to this theme?
2	What do you think the title of the poem means? How does it connect t the poem?
3	How is the language ‘looted’ and ‘killed’?
4	What impact does the death of a language have on its users?
5	What are the characteristics of a dead language as outlined by Morrison?

Unit VIII	
<p>Unit VIII Increasing efficiency of the learners in reading and understanding skills of the language and also exposing learners to the professional environment and also training learners of writing different reports.</p>	
Part – A	
S.NO	SHORT QUESTIONS
1	Do you think that Macbeth believes the predictions?
2	What does Lady Macbeth 'fear' about her husband's nature?
3	What is the 'golden round' that Lady Macbeth refers to?
4	Why does Lady Macbeth want her husband to return home quickly?
5	Write about the character 'Macbeth'?
6	What lesson did Shaw learn about getting work done as part of a committee?
7	Which incident lead to Shaw being sought out as a socialist orator?
8	Write a note on the various aspects of public speaking that Shaw focused on as he was striving to become an effective orator?
9	What kind of a person is Shaw?
10	Write about the tone and style of the text "How I become Public Speake"?
PART – B	
S.NO	LONG QUESTIONS
1	What kind of relationship do you think Macbeth and Lady Macbeth share with each other? How can you tell?
2	What is your impression of Lady Macbeth based on reading this extract?
3	What does Lady Macbeth tell us about her husband's nature?
4	Based on what you have read, trace the development of Shaw as a public speaker?
5	Write the summary of the text "How I become a public speaker"?

Semester-II

UNIT-I

1. शक्तुप्रश्नस्य महत्वम्

1. वेदव्यासस्य अपरं नाम किम्? तस्य पितरौ कौ?
2. वेदव्यासः कस्य अवतारः?
3. वेदव्यासः इति नाम्ना कथं आगतवान्?
4. महाभारते कति अध्यायाः सन्ति? महाभारते कस्मिन् अध्याये भगवद्गीता अस्ति?
5. "शक्तुप्रश्नस्य महत्वम्" इति पाठ्यभागः महाभारते कस्मिन् पर्वे स्वीकृतः?
6. न शक्तुसूयोर्बहुभिः विपुलदक्षिणैः।
न चारवमेघोर्बहुभिः फलं समिदं तव। इति श्लोकस्य पदविभागं कुरुत?
7. कुडवं कुडवं सर्वे अजन्त तपस्विनः। इति वाक्यस्य संसर्गं लिखत।
8. शक्तुप्रश्नेन वीनायं यज्ञस्तुत्यो नराधियाः। वाक्यस्य संसर्गं लिखत।
9. था त्वं धर्मव्रतोपेता गुरुवृत्तिमवेक्षसे। इति वाक्यस्य संसर्गं लिखत?
10. पाण्डवानां माता का? कौशाणां पितरौ कौ?

Long Answers

1. शक्तुप्रश्नस्य महत्वमिति पाठानुसारं दानमहिमानं वर्णयत।
2. अश्वमेध - शक्तुप्रश्नयागयोः कः महान्? विवेचयत।
3. अकुलवृत्तान्तं लिखत।
4. शक्तुप्रश्नस्य कथां लिखत।
5. कुरुक्षेत्रनिवासी ब्राह्मणपरिवारकथां लिखत।

८. बुद्धस्य वैशद्योदयः

अश्वघोषः

1. बुद्धचरितं केन विरचितम्?
2. अश्वघोषस्य रचना: के ?
3. "बुद्धस्य वैशद्योदयः" इति पाठः कस्मात् प्रथमात् स्वीकृतः।
4. गौतमस्य प्रशस्तिगानाः के ?
5. बुद्धचरिते कति सर्गाः सन्ति ? कस्मात् सर्गात् प्रस्तुतपाठांशः स्वीकृतः ?
6. मघा जहा नाम यवेषु जनः । ससब्दार्थः आख्यातः।
7. रुणातुरो दुर्धमुपैति लोकः । ससब्दार्थं लिखति ।
8. सर्वस्य दुर्धमुपैति लोकं विनाशः । ससब्दार्थं लिखत ।
9. जानन्विनाशं कथमार्तिकाले सकेनः स्यादित्थं हि प्रमत्तः । इति वाक्यस्य संदर्भं लिखतु।
10. स्यूतोदरः श्वासकनच्चरीरः स्त्रस्तांसनादुः कृशपाण्डुगात्रः ।
अम्बेति वाचं करुणं बुवाणः परं समन्वित्य नरः क मघः ॥ श्लोकस्य अर्थं भावं
लिखत।

Long Answers

1. बुद्धचरितं रचयितुः परिचयं प्रस्तुतत।
2. बुद्धस्य वैशद्योदयः इति पाठांशस्य सारं लिखत।
3. पाठांशानुसारं बुद्धस्य वैशद्योदयस्य कारणानि विवृणुत।
4. रुणवृद्धमृतानां विषये सार्थं सिद्धार्थयोः संतापम् उल्लिखत।

UNIT-II

३. वैज्ञानिक संहिता

1. श्रीरामचन्द्र महाजगत्स्य जीवित विशेषांशानि लिखतु।
2. श्रीरामचन्द्रस्य सर्वेषां पुरस्कारैः लिखतु।
3. श्रीरामचन्द्रः विरचित ग्रन्थ नामानि कानि?
4. प्रग्रहणमतः पश्चाद्बेदोः आनेस्य पूर्वघातं। सत्त्वर्गं व्याख्यात।
5. प्रतिदेश मतश्चित्रं दृष्टिवशात् आस्त्वग्रहणम्। सत्त्वर्गं व्याख्यात।
6. वैज्ञानिक षट्प्रमुखानां अद्विश्य सन्नेपेण लिखतु।
7. बृहत् संहितायां कति सर्गाः सन्ति।
8. सूर्यचन्द्रादि ग्रहण कारणानि विवक्ष्यतु।
9. बृहत् संहिते के के विषयाः प्रतिपादिताः।
10. आर्घमिदुः आश्वलायार्यः विरचिते ग्रन्थः नामानि कानि।

निबन्धप्रश्नाः

1. बृहत्संहितायाः महत्वं निरूपयत।
2. संस्कृतवाङ्मये वराहमिहिरस्य वैशिष्ट्यं विवृणुत।
3. वराहमिहिरस्य बृहत् संहितायां वर्णितान् अंशान् विवृणुत।
4. वराहमिहिरस्य वैदुष्यं स्वपाठ्यक्रमतुस्य विवृणुत।
5. "वैज्ञानिकषास्त्रमुखम्" ग्रन्थे लिखितानुसारं षण्णां वैज्ञानिकानां परिचयं कृत्वा तेषु वराहमिहिरस्य वैशिष्ट्यं स्पष्टीकुरुत।

देवासुरसम्पदविभ्रान्तौः

वेदव्यासः

1. भगवद्गीता कस्मिन् पर्वणे अस्ति ?
2. भगवद्गीता प्रवक्तः कः ?
3. भगवद्गीते कति अध्यायाः सन्ति ? कति श्लोकाः सन्ति ?
4. कस्मिन् सद्धर्मे श्रीकृष्णः भगवद्गीता बोधयति ?
5. तेजः इमा दृतिः शोक्मद्रोहो नातिमान्तिता ।
अर्कति संपदं देवीमभिजातस्य भारत ॥ श्लोकस्य भावं लिखतु ।
6. अथयं सत्त्वसंशुद्धिर्ज्ञानयोगव्यवस्थितिः ।
दानं दमश्च युश्च स्वहायश्चपि आजयिम् ॥ श्लोकस्य भावं लिखतु ।
7. यः शास्त्रविद्धिमुत्सृज्य वर्तते कामकाशः ।
न स सिद्धिमवाप्नोति न सुखं न परां गतिम् ॥ श्लोकस्य पदविभ्रान्तं भावं लिखतु ।
8. न श्योचं नापि पाचाशे न सत्त्वं तेषु विद्यते । सद्धर्मं व्याख्यात ।
9. कामः क्रीडस्तथा मोभस्तस्मादेतत्त्रये लजेत् । सद्धर्मं विवृणुत ।
10. अर्कति संपदं देवीमभिजातस्य भारत । सद्धर्मं लिखतु ।

निबद्धप्रश्नाः

1. भगवद्गीतामुद्दिश्य निबद्धमेकं लिखत ।
2. गीतोक्तं देवीसम्पदं व्याख्यात ।
3. गीतोक्तान् आसुरीसम्पदं निरूपयत ।
4. आसुरगुणैः संसारबन्धः कथं भवति । विहादयत ।

UNIT-IV

1. धातुः नाम किम्।
2. संस्कृतभाषायां धातवः कति भवन्ति।
3. को नाम लकारः? तेषां किं प्रयोजनम्।
4. संस्कृतभाषायां कति पुरुषाः भवन्ति। ते कानि।
5. धातुनां कति भेदाः। ते कानि।
6. अश् धातोः लट् लकारः लिखति।
7. विद्वान् शक्तिं पूज्यते। इति वाक्यस्य अर्थः आढ्यभाषायां लिखतु।
8. अत्रहाद्रेण मित्राणि जायन्ते। वाक्यार्थं लिखतु।
9. आत्मनेपद धातोः उदाहरणानि लिखतु।

निबन्धप्रश्नाः

1. आकर्षणशास्त्रे शब्द, धातोः स्थानं विवृणुत।
2. वृशिर् धातोः पञ्चमकार रूपाः लिखतु।
3. आत्मनेपद मुद् धातोः पञ्चमकार रूपाः लिखतु।

UNIT-V

1. समास पद युक्तिः कः?
2. "समासः" इति पदस्य निर्वचनं किम्?
3. विग्रहवाक्यस्य प्रयोजनं लिखतु?
4. अग्रयीग्रन्थ समासः निर्वचनं किम्? उदाहरणानि कानि?
5. "पञ्चवर्ति" विग्रहवाक्यम् किम्?
6. षड्विधस्य उदाहरणम् किम्?
7. यतुयी तसुरुष उदाहरणम् किम्?
8. तसुरुष समासस्य भेदाः के?
9. प्रादि द्विगुसमासस्य उदाहरणानि कानि।

निबन्धप्रश्नाः

1. आकर्णशब्दे समाशाः प्रयोजनं किम् ?
2. द्विगु समाशे कति श्रेदाः सन्ति । तस्य उदाहरणानि कानि ?
3. कर्मधारयसमाशे कति श्रेदाः सन्ति । ते उदाहरणानि कानि ?
4. द्वन्द्वसमाशस्य श्रेदाः के ? ते उदाहरणानि कानि ?

४. न गङ्गदत्तः पुत्रेति रूपम्

1. "पञ्चतन्त्र" रचयिता कः ?
2. अमरशाकंशः कस्मिन् शब्दे पालयितुं ?
3. पञ्चतन्त्रे कति आगाः सन्ति ?
4. "द्वितीपदेशः" रचयिता कः ?
5. अशक्तमुन्मूलयेत् प्राज्ञः तीक्ष्णं तीक्ष्णोत् तीक्ष्णोत् अतृणा ।
अथकांश्च सुस्वाथयि कण्ठकेनेव कण्ठकम् ॥ श्लोकस्य भावं लिखति ।
6. न स्वल्पस्य कृते अग्निं नाशयेत् मणिमाद्वरः ।
नतदेव द्वि पाण्डित्यं यत्स्वल्पात् अग्निरक्षणम् ॥ इति श्लोकस्य भावं लिखति ।
7. अतिशान्तं प्रणम्यापि रक्षेत् प्राणत् धनानि च । सन्दर्भं लिखतु ।
8. बुध्नुस्तेनः किं न करोति पापम् । सन्दर्भं लिखतु ।
9. अर्चनाद्यो समुत्सहे अर्हा त्यजति पण्डितः । ससन्दर्भं व्याख्यातु ।
10. द्वितीपदेशो कति आगाः सन्ति ?

निबन्धप्रश्नाः

1. "न गङ्गदत्तः पुत्रेति रूपम्" इति पाठ्यांशस्य सारांशं लिखत ।
2. पञ्चतन्त्रमनुश्रुत्य गङ्गदत्तस्य कथां विवृणुत ।
3. "न स्वल्पस्य कृते अग्निं नाशयेत् मणिमाद्वरः" इति गङ्गदत्तेन किमर्थं चिन्तितम् ? विवृणुत ।
4. गङ्गदत्त प्रियदर्शनयोः सम्भाषणं विवृणुत ।

Department: SCIENCE
Semester: IIInd Semester
SKILLS

Program: BSc
Name of the Subject: BASIC COMPUTER

QUESTION BANK

Unit -I

UNDERSTANDING OF COMPUTER AND WORD PROCESSING

PART-A

S No	SHORT QUESTIONS
1	Explain the basic applications of computer?
2	What are the components of computer system?
3	Explain the following? a) Central processing unit(CPU) b) keyboard c) mouse
4	Explain the applications of IECT?
5	What is an operating system?
6	Explain the following? d) Spell check e) Language setting f) thesaurus
7	Write the differences between data and information?
8	What is hardware and software?
9	What is user interface?
10	What is computer memory? Explain the types of memory units?

PART –B	
SNo	LONG QUESTIONS
1	Explain in detail about printing of a word document?
2	Discuss in detail about input and output devices?
3	Explain the process of to create and manipulate the text in MS-word?
4	Discuss in detail about open and closing of documents in Ms-word?
5	What is word processing explain its usage, advantages and disadvantages?
Unit – II	
SPREAD SHEET, PRESENTATION SOFTWARE & INTRODUCTION TO INTERNET, WWW AND WEB BROWSERS	
PART–A	
S No	SHORT QUESTIONS
1	What is spreadsheet?
2	Define computer networks?
3	Explain the following? a) LAN b) WAN c) ISP
4	What is e-governance? Explain the usage of e-governance websites?
5	What is search engine?
6	What is instant messaging?
7	Explain the applications of an internet?
8	Discuss about the domain name with an example?
9	Explain the following? a) IP address b) URL c) Netiquettes

10	Discuss about manipulation of cells in a spreadsheet?
PART –B	
SNo	LONG QUESTIONS
1	Explain in detail about printing of spreadsheet?
2	What is electronic email? Explain the usage of email and its advantages and disadvantage?
3	Give a brief description about functions and formulas in spreadsheet with examples?
4	Discuss in detail about Preparation and presentation of slides?
5	How to send and receiving emails? Explain in detail?

Department: Science –

Program: B SC (Computers)

Semester: IISemester

Name of the Subject: Differential Equations

QUESTIONBANK

Unit -I	
<p>Differential Equations of first order and first degree: Introduction - Equations in which Variables are Separable - Homogeneous Differential Equations - Differential Equations Reducible to Homogeneous Form - Linear Differential Equations - Differential Equations Reducible to Linear Form - Exact differential equations - Integrating Factors - Change in variables - Total Differential Equations - Simultaneous Total Differential Equations - Equations of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$</p>	
PART-A	
SNo	SHORT QUESTIONS
1	Solve $\frac{dy}{dx} + x^2 = x^2 e^{3y}$.
2	Solve $(x^2 - y^2) dx + 2xy dy = 0$.
3	Solve $\frac{dy}{dx} = \frac{y}{x} + \tan \frac{y}{x}$.
4	Solve $x^2 \frac{dy}{dx} + 2y = x^2 \log x$.
5	Solve $(1+xy)y dx + (1-xy)x dy = 0$.
6	Solve $x^2 y dx - (x^3 + y^3) dy = 0$.
7	Solve $(1-xy) dx - x(1+xy) dy = 0$.
8	Solve $x dx + y dy = \frac{a^2(x dy - y dx)}{x^2 + y^2}$.
9	Solve $x dx + z dy + (y + 2z) dz = 0$.
10	Solve $\frac{ax}{x^2} = \frac{dy}{y^2} = \frac{dz}{nxy}$.

PART-B	
SNo	LONGQUESTIONS
1	Solve $(2x + 4y + 3) \frac{dy}{dx} = x + 2y + 1$.
2	Solve $(1-x^2) \frac{dy}{dx} + 2xy = x(1-x^2)^{1/2}$.
3	Solve $\sin 2x - (1+y^2 + \cos^2 x) dy = 0$.
4	Solve $\frac{dx}{x(y^2-z^2)} = \frac{dy}{y(z^2-x^2)} = \frac{dz}{z(x^2-y^2)}$.
5	Using the substitution $y^2 = v-x$, reduce the equation $y^{3 \frac{dy}{dx}} + x + y^2 = 0$ to the homogeneous form and hence solve the equation.

Unit-II	
<p>Differential Equations first order but not of first degree: Equations Solvable for p - Equations Solvable for y - Equations Solvable for x - Equations that do not contain x (or y) - Equations Homogeneous in x and y - Equations of the First Degree in x and y - Clairaut's equation.</p> <p>Applications of First Order Differential Equations: Growth and Decay - Dynamics of Tumour Growth - Radioactivity and Carbon Dating - Compound Interest - Orthogonal Trajectories</p>	

PART-A	
SNo	SHORTQUESTIONS
1	Solve $p^2 - 7p + 12 = 0$.
2	Solve $y = 2px + \tan^{-1}(xp^2)$.
3	Solve $y = 3x + \log p$.
4	Solve $x = y - p^2$.
5	Solve $y = 2p + 3p^2$.
6	Solve $x(1 + p^2) = 1$.
7	Explaining growth and decay.
8	In a culture of yeast, the amount A of active yeast grows at a rate proportional to the amount present. If the original amount doubles in 2 hours, how long does it take for the original amount to triple?
9	If Rs. 10,000 is invested at 6 percent per annum, find what amount has accumulated after 6 years if interest is compounded: (a) annually, (b) quarterly and (c) continuously
10	Define orthogonal trajectories.

PART-B	
SNo	LONGQUESTIONS
1	Solve $x^2 p^2 - 2xyp + (2y^2 - x^2) = 0$.
2	Solve $x^2 p^2 + yp(2x+y) + y^2 = 0$ by reducing it to Clairaut's form by using the substitution $y = u$ and $xy = v$.
3	Use the transformation $x^2 = u$ and $y^2 = v$ to solve the equation $axyp^2 + (x^2 - ay^2 - b)p - xy = 0$

4	It is found that 0.5 percent of radium disappears in 12 years. (a) What percentage will disappear in 1000 years? (b) What is the half-life of radium?
5	Find the orthogonal trajectory of $r = c_1(1 - \sin\theta)$.

Unit- III

Higher order Linear Differential Equations: Solution of homogeneous linear differential equations with constant coefficients - Solution of non-homogeneous differential equations $P(D)y = Q(x)$ with constant coefficients by means of polynomial operators when $Q(x) = be^{ax}, b \sin ax/b \cos ax, bx^k, V e^{ax}, xV$ - Method of undetermined coefficients

PART-A

SNo	SHORT QUESTIONS
1	Solve $y'' - y' - 2y = e^x$.
2	Solve $D^2y - 3Dy + 2y = x$
3	Solve $\frac{d^2y}{dx^2} - y = \sin x$
4	Solve $y'' + y = 3e^{-2x}$.
5	Solve $y'' + 3y' + 2y = 4$.
6	Solve $(D^2 + D)y = x^2 + 2x$.
7	Solve $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = 3 \sin x$.
8	Solve $\frac{d^3y}{dx^3} - \frac{d^2y}{dx^2} = 2x^3$.
9	Solve $(D^2 - 1)y = \cosh x$.
10	Solve $(D^3 - 4D^2 + 5D - 2)y = 0$.

PART-B

SNo	LONG QUESTIONS
1	Solve $\frac{d^2y}{dx^2} + \frac{dy}{dx} + y = 3x^2 e^x$.
2	Solve $(D-1)^3 y = e^x(\cos 2x + x^2)$.
3	Solve $(D^4 + 2D^2 + 1)y = x^2 \cos x$.
4	Solve $(D^2 - 2D + 1)y = xe^x \sin x$.
5	Solve $(D^2 - 2D - 8)y = 9xe^x + 10e^x$ by using the method of undetermined coefficients.

Unit-IV

Method of variation of parameters - Linear differential equations with non-constant coefficients - The Cauchy - Euler Equation - Legendre's Linear Equations - Miscellaneous Differential Equations.

Partial Differential Equations: Formation and solution - Equations easily integrable - Linear equations of first order

PART-A

SNo	SHORT QUESTIONS
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1	Using the method of variation of parameter solve $y''+3y'+2y=12e^x$.
2	Solve $(D^2+a^2)y=\cos ax$, by the method of variation of parameter
3	Solve $(D^2-3D+2)y=\sin e^{-x}$ by using the method of variation of parameters.
4	Solve $(x^2D^2+xD-4)y=x^2$.
5	Solve $(x^2D^2+4xD+2)y=e^x$.
6	Solve $\frac{d^2y}{dx^2}=xe^x$.
7	Solve $\frac{d^3y}{dx^3}=x+\log x$.
8	Solve $\frac{\partial^2z}{\partial x^2}+z=0$ when $x=0, z=e^y$ and $\frac{\partial z}{\partial x}=1$.
9	Solve $\frac{\partial^2z}{\partial x \partial y} + \frac{\partial z}{\partial x}=4xy$.
10	Solve $(y+z)p+(x+z)q=x+y$.

PART-B

SNo	LONG QUESTIONS
1	Solve $(x^2D^2+xD-1)y=x^2e^x$ by using the method of variation of parameters.
2	Solve $y''-\frac{z}{x}y'+\frac{z}{x^2}y=x^2e^x$ by using the reduction of order method.
3	Solve $(x+3)^2\frac{d^2y}{dx^2}-4(x+3)\frac{dy}{dx}+6y=\log(x+3)$.
4	By eliminating the arbitrary functions, obtain the partial differential equations from (a) $z=f(x^2+y^2)$ (b) $z=f(x+ct)+g(x-ct)$.
5	Solve $(x^2-yz)p+(y^2-zx)q=z^2-xy$.

Department: Computer Science

Program:

B.Sc Semester: II Ind Semester

Name of the Subject: Programming in C++

QUESTION BANK

Unit -I	
Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays. Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions. Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.	
PART-A	
SNo	SHORT QUESTIONS
1	Write about tokens in C++.
2	What are these searching techniques in C++.
3	What is sorting? Explain the sorting methods.
4	What is function overloading?

5	Write about function overriding.
6	Write about the basic concepts of OOP.
7	Write about the applications of OOP.
8	Write about the data types used in C++.
9	Write about the control structures.
10	What are default arguments?
PART-B	
SNo	LONG QUESTIONS
1	Write a C++ program on Bubble sorting.
2	Write a C++ program on linear search.
3	What is function overloading? Write an example program.
4	Write an essay on object-oriented programming concepts.
5	Explain the concept of passing data by value and by reference.
Unit-II	
Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Array of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading, Object Conversion, Aggregation.	
PART-A	
SNo	SHORT QUESTIONS
1	Define class and Object.
2	What is an inline member function?
3	Explain constructor and destructor.
4	Explain static member function.
5	What is operator overloading?
6	Explain array of objects.
7	What is an aggregation? Explain its types.
8	How to create an object in C++? Give example.
9	What are friends of class?
10	What is a parameterised constructor?
PART-B	
SNo	LONG QUESTIONS
1	Explain inline member functions with example program.
2	Write about different types of constructors.

3	What is constructor overloading?
4	Explain friend function and friend class with a program.
5	Explain the concept of creating an object to the class with an example program.
Unit- III	
Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Class Hierarchies, Polymorphism-Function Overloading, Function Overriding and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance. C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.	
PART-A	
SNo	SHORT QUESTIONS
1	Explain Inheritance.
2	Write about types of polymorphism.
3	Write about access specifiers in C++.
4	What are virtual member functions?
5	What is an abstract base class?
6	Write about the types of Inheritance.
7	Write about the stream classes.
8	What are virtual member functions?
9	Explain about dynamic method dispatch.
10	Explain about class Hierarchies.
PART-B	
SNo	LONG QUESTIONS
1	Write about constructors and destructors in base class.
2	Write a program on method overriding.
3	What are pure virtual functions? Write a program.
4	Write a program on formatted and unformatted operations.
5	Write a C++ program on multiple inheritance.
Unit-IV	
Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception. Templates: Function Templates-Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates- Introduction, Defining Objects of the Class Template, Class Templates and Inheritance,, Introduction to the STL.	

PART –A

SNo	SHORTQUESTIONS
1	What is exception handling?
2	Explain about try catch throw and throws.
3	What is STL?
4	Write the steps for the working of function templates.
5	Explain about predefined exceptions.
6	Write about declaring class template.
7	Discuss about handling an exception.
8	How to write a template class?
9	How to create an object for a template class?
10	Explain re-throwing an exception.

PART-B

SNo	LONGQUESTIONS
1	Write a program on template class.
2	How to create a template class in inheritance?
3	Write a program using different data types in a template class.
4	Write a program using multiple catch exceptions.
5	Write a program to handle arrayIndexOutOfBoundsException.

PART-A

SNo	SHORTQUESTIONS
1	What is exception handling?
2	Explain about try catch throw and throws.
3	What is STL?
4	Write the steps for the working of function templates.
5	Explain about predefined exceptions.
6	Write about declaring class template.
7	Discuss about handling an exception.
8	How to write a template class?
9	How to create an object for a template class?
10	Explain re-throwing an exception.

PART-B

SNo	LONGQUESTIONS
1	Write a program on template class.

2	How to create a template class in inheritance?
3	Write a program using different data types in a template class.
4	Write a program using multiple catch exceptions.
5	Write a program to handle arrayIndexOutOfBoundsException.

Department: Science

Program: MPCS

Semester: SEM II

Name of the Subject: Physics

QUESTION BANK

UNIT-I:	
Kinetic theory of gases: Introduction – Deduction of Maxwell's law of distribution of molecular speeds, Transport Phenomena – Viscosity of gases – thermal conductivity – diffusion of gases	
Thermodynamics: Basics of thermodynamics – Kelvin's and Clausius statements – Thermodynamic scale of temperature – Entropy, physical significance – Change in entropy in reversible and irreversible processes – Entropy and disorder – Entropy of universe – Temperature Entropy (T-S) diagram – Change of entropy of a perfect gas – change of entropy when ice changes into steam.	
PART-A	
SNO	SHORT QUESTIONS
1	Explain briefly the Maxwell's distribution law of molecular speed.
2	Explain the terms viscosity and diffusion of gases.
3	Define thermal conductivity of a gas.
4	What do you mean by transport phenomenon?
5	Explain the terms 'system and surroundings'.
6	Distinguish between isothermal and adiabatic process.
7	What are reversible and irreversible processes.
8	Define and explain the term entropy.
9	State and explain the second law of thermodynamics.
10	Relate the disorder and entropy of a system.
PART-B	
SNO	LONG QUESTIONS
1	Write down the Maxwell's law of distribution of molecular speeds in a gas and obtain expressions for the average speed, rms speed of a gas parameters K, T and m.
2	What are transport phenomena in gases? Derive an expression for the coefficient of viscosity of a gas on the basis of kinetic theory.
3	State and prove Carnot's theorem.
4	Define entropy. What is the physical concept of entropy? Write a note on entropy changes in reversible and irreversible processes.

5	What is entropy. Derive an equation of entropy in case of perfect gas. Also find the change of entropy when ice changes into steam.
UNIT-II: Thermodynamic potentials and Maxwell's equations, Low temperature Physics	
<p>Thermodynamic potentials and Maxwell's equations: Thermodynamic potentials – Derivation of Maxwell's thermodynamic relations – Clausius-Clayperon's equation – Derivation for ratio of specific heats – Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect – expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas.</p> <p>Low temperature Physics: Joule Kelvin effect – liquefaction of gas using porous plug experiment. Joule expansion – Distinction between adiabatic and Joule Thomson expansion – Expression for Joule Thomson cooling – Liquefaction of helium, Kapitza's method – Adiabatic demagnetization – Production of low temperatures – Principle of refrigeration, vapour compression type.</p>	
PART-A	
SNO	SHORT QUESTIONS
1	What are the thermodynamic potentials? What is their importance.
2	Write Maxwell's thermodynamic relations.
3	State and explain Joule-Kelvin effect.
4	What do you mean by specific heat of a gas? Obtain the ratio of specific heats.
5	Obtain first TdS equation.
6	Write a short note on refrigeration.
7	Write the properties of good refrigerant.
8	Explain Joule expansion.
9	Write a short note on adiabatic demagnetization.
10	Describe the liquefaction of helium.
PART-B	
SNO	LONG QUESTIONS
1	Define the four thermodynamic potentials. Obtain Maxwell's thermodynamic equations using these potentials.
2	What is Joule-Kelvin effect? Explain the Joule-Kelvin effect from Maxwell's thermodynamic relations.
3	What is Clausius-Clapeyron's equation? Derive this equation using Maxwell's relations.
4	Describe the porous plug experiment of Joule Thomson. What are the important conclusions arrived at it?
5	Describe how low temperatures are produced by adiabatic demagnetization? Give the theory of the experiment.

UNIT-III:Quantumtheoryofradiation

Quantum theory of radiation:Black body-Ferry's black body – distribution of energy in the spectrumof Black body – Wein's displacement law, Wein's law, Rayleigh-Jean's law – Quantum theory ofradiation-Planck'slaw–deductionofWein'sdistributionlaw,Rayleigh-Jeanslaw,Stefan'slawfromPlanck's law. 56 hrs10 Measurement of radiation using pyrometers – Disappearing filament opticalpyrometer–experimentaldetermination–Angstrompyroheliometer - determinationofsolarconstant,effectivetemperature ofsun.

PART-A

SNO	SHORTQUESTIONS
1	Whatdoyoumeanbythermal radiation?mentionfewpropertiesofthermalradiation
2	DescribeFerry'sblackbody
3	DeriveWien'sdisplacementlaw.
4	Whatisablackbody?Explainedistributionofenergyinablackbodyradiation
5	StateandexplainWein'sdisplacement lawandStephan'slaw
6	DerivePlanck'sradiationlaw
7	DeriveStephan'slawfromPlank'slaw
8	Definesolarconstant
9	Writeabriefnoteonoptical pyrometer
10	Howistemperatureofthesunis determined ?
PART-B	
SNO	LONGQUESTIONS
1	What is a black body? What is a black body radiation? Define emissive and abosortive powers
2	StateanddeduceWien'sdisplacement law
3	DerivePlanck'sformulaforthedistributionofenergyinblackbodyradiation.explaintheassu mptionmade
4	definesolarconstant.explainwith nessarytheoryhowthesolarconstantisdetermined ?howisthe temperatureofthesunestimated fromthedataofsolarsystem
5	Explainhowanopticalphyrometeroranyotherequivalentarrangement canbeusedforthemeasure of very hightemperatures

UNIT-IV:StatisticalMechanics

Statistical Mechanics:Introduction, postulates of statistical mechanics. Phase space, concept of ensembles and some known ensembles, classical and quantum statistics and their differences, concept of probability, Maxwell-Boltzmann's distribution law- Molecular energies in an ideal gas Maxwell-Boltzmann's velocity distribution law, Bose-Einstein Distribution law, Fermi Dirac Distribution law, comparison of three distribution laws, Application of B-E distribution to Photons-planks radiation formula, Application of Fermi-Dirac statistics to white dwarfs and Neutron stars.

PART-A

SNO	SHORT QUESTIONS
1	Define the terms phase space and ensemble
2	Define ensemble and phase space.
3	Write the differences between classical and quantum statistics.
4	State and explain Bose-Einstein statistics.
5	Explain Fermi-Dirac distribution law.
6	Explain Maxwell-Boltzmann's law.
7	What are the basic differences in three statistics? Compare.
8	Compare Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac distribution laws.
9	What are fermions and bosons? Mention the difference between them.
10	Compare the three distribution laws of statistical mechanics.

PART-B

SNO	LONG QUESTIONS
1	Express Bose-Einstein distribution law mathematically. Apply it to a proton gas to obtain energy distribution.
2	Distinguish between classical and quantum statistics. Obtain an expression for Fermi-Dirac distribution law.
3	State and explain Fermi-Dirac distribution law and apply it to an electron gas to get electron energy distribution $n(E)$ with energy (E)
4	Explain how Fermi-Dirac statistics explains the stable existence of stars.
5	Discuss statistical equilibrium and derive the necessary condition for it.