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Director (C & C)

PUNJAB EDUCATION, CURRICULUM, TRAINING AND ASSESSMENT AUTHORITY
21- E-II, Gulberg-III, Lahore
No: PECTAA/C&C Unit/2026/1258
Dated: 14.11.2026

NOTIFICATION

In pursuance of Section 9(1)(b) of the Punjab Education, Curriculum, Training and Assessment Authority Act-2025 and with the approval accorded by the Academics Committee of the Punjab Education, Curriculum, Training and Assessment Authority in its 13th meeting held on 05.11.2026, the Smart Syllabus (Accelerated Learning Programme – ALP / Deleted Topics and Exercise Questions), Pairing Schemes and Model Papers of Grade-12 for the Academic Session 2026-27 and BISEs Annual Examination-2027 **(Annex-A)** are hereby notified for implementation across Punjab.

No Smart Syllabus (Accelerated Learning Programme – ALP / Deleted Topics and Exercise Questions) has been notified for the subjects of Tarjama-tul-Quran and Ethics for Grade-12, as no topics or exercise questions have been deleted in these subjects.

(SAADIA SARDAR)
Director (Curriculum & Compliance)

CC:

1. PSO to the Minister, Government of the Punjab, School Education Department
2. PS to the Vice Chairperson, PECTAA / Parliamentary Secretary for School Education
3. PS to the Chairperson, Chief Minister Task Force for Examination & Assessment
4. PS to the Secretary, Government of the Punjab, School Education Department
5. PS to the Secretary, Government of the Punjab, Higher Education Department
6. PS to the Special Secretary, Government of the Punjab, SED
7. Staff Officer to the Chief Executive Officer, PECTAA
8. PS to all Managing Directors, PECTAA
9. PA to the Secretary, Punjab Boards Committee of Chairpersons (PBCC)
10. PS to the Chairperson, BISE / PBTE (Lahore, Gujranwala, Rawalpindi, Sargodha, Faisalabad, Sahiwal, Multan, Dera Ghazi Khan and Bahawalpur)
11. PA to all Directors, PECTAA
12. PS to the Programme Director, PMIU
13. PS to Managing Director, Punjab Education Foundation
14. PS to the Chief Executive Officer, Punjab Education Initiatives Management Authority
15. PS to the Managing Director, Punjab Daanish Schools & Centres of Excellence Authority
16. PS to the DPI (Colleges / Secondary Education), Punjab
17. PS to the DPI (Colleges / Secondary Education), South Punjab, Multan
18. PS to all Chief Executive Officers (Education), District Education Authorities, Punjab
19. PA to all Directors (Education), Colleges, Punjab
20. Director (IT), PECTAA for uploading the Notification and the Smart Syllabus (Accelerated Learning Programme-ALP / Deleted Topics and Exercise Questions), Pairing Schemes and Model Papers for Grade-12 on the website of PECTAA.
21. Office File

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Annex-A

Smart Syllabus / Accelerated Learning Program (ALP)
English Grade-12
for Academic Session 2026-27 & BISE Exam-2027

Total Units: 13 Excluded Units: 05 Remaining Units: 08

Details of Excluded Units:

Sr. No.	Unit No. & Name	Pages
1.	**Unit 2:** The Last Lesson	08 to 16
2.	**Unit 3:** On His Blindness (Poem)	17 to 22
3.	**Unit 6:** The Fun They Had	39 to 44
4.	**Unit 8:** The Devoted Friend	50 to 61
5.	**Unit 12:** A Visit to the Swat Valley	90 to 98

Pairing Scheme

Instructions for Preparation of Exam Paper of English-12 (Intermediate Part-II)

The paper of English for Grade-12 will consist of **100** marks.

Objective Type = 20 Marks Time: 30 minutes
Subjective Type = 80 Marks Time: 2:30 hours

The paper will be made as per the following details/ instructions:

Objective Type (Part-II)		
Time: 30 Minutes		**20 Marks**
Question No. 1 (Each item will carry 01 Mark.)		
Contents taken from:	**Items**	**Marks**
Unit No. 1, 4 and 5 from English 12 (Text + Exercises)	4 Synonyms from the mentioned units.	4 Marks
Unit No. 7, 9, 10 and 11 from English 12 (Text + Exercises)	3 Synonyms from the mentioned units.	3 Marks
Unit No. 13 (Novel) from English 12 (Text + Exercise)	3 Antonyms from the mentioned unit.	3 Marks

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Entire textbook of English 12 except Units 2, 3, 6, 8, 12 (Text + Exercises)	5 MCQs on Prepositions	5 Marks
Entire textbook of English 12 except Units 2, 3, 6, 8, 12 (Text + Exercises)	5 MCQs on Correct Sentences (Parts of Speech)	5 Marks

Subjective Type (Part-II)			
Time: 2:30 Hours			**80 Marks**
Q. No.	**Content taken from / Type**	**Details**	**Marks**
	SECTION – I		
2.	Unit No. 1, 4 and 5 from English 12	Attempt any 5 out of 8 short questions	2 × 5 = 10 marks
3.	Unit No. 7, 9, 10 and 11 from English 12	Attempt any 5 out of 8 short questions	2 × 5 = 10 marks
4.	Unit No. 13 from English 12	Attempt any 5 out of 8 short questions	2 × 5 = 10 marks
5.	**Critical Appreciation** taken from Unit No. 7 and 10 of English 12	Write a critical appreciation of a poem.	10 Marks
	SECTION – II		
6.	**Essay** Three from English Grammar & Composition Grades 11-12 by PECTAA and one will be unseen.	Write an essay from the given four topics.	15 Marks
7.	**Idioms/ Phrasal Verbs** Idioms from English Grammar and Composition 11-12 by PECTAA, and Phrasal Verbs will be unseen.	Any 5 idioms / phrasal verbs out of 8. (6 idioms + 2 phrasal verbs)	2 × 5 = 10 Marks
8.	**Translation** Will be unseen.	Translate Urdu paragraph into English.	15 Marks
8.	**Note:** Foreign and English Medium candidates can write a paragraph on the given topic instead of translation. Will be unseen. (For Foreign and English Medium Candidates)		

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Model Paper English-12

English (Compulsory) **Time Allowed: 30 Minutes**

Paper-II: Objective Part **Maximum Marks: 20**

Q.1: Fill in the right bubble.

(a) Choose the correct synonym of the underlined word from the columns A, B, C and D and fill up the bubble sheet: (7)

	Questions	(A)	(B)	(C)	(D)
1.	They **rebuked** Addas.	praised	scolded	encouraged	admired
2.	Twitter encourages **concise** communication.	careless	lengthy	brief	confusing
3.	They **represent** a powerful blend of learning.	conceal	depict	reject	ignore
4.	See, it seems that we have lost this **slave**.	servant	master	leader	owner
5.	It was too **marvellous**.	ordinary	terrible	wonderful	unpleasant
6.	They had something to **whisper** to her, a secret.	murmur	shout	declare	announce
7.	The air was **fresh** and sweet.	stale	rotten	new	dirty

(b) Choose the correct antonym of the underlined word from the columns A, B, C and D and fill up the bubble sheet: (3)

8.	He **slipped** his feet into his sandals.	inserted	removed	wore	placed
9.	It was a **tiny** movement that drew their eyes to the hanging box.	bright	loud	small	huge
10.	He worked **deliberately**, selecting the largest shells.	randomly	accidently	intentionally	carefully

(c) Choose the correct option for the following blanks from the columns A, B, C and D and fill up the bubble sheet: (5)

	Questions	(A)	(B)	(C)	(D)
11.	I am too busy _____ climb trees.	for	to	for	at
12.	You cannot swing _____ them.	for	on	to	at
13.	No harm could come _____ it.	on	at	for	to
14.	The hook _____ the side was stuck fast.	in	for	on	at
15.	That is the way __ a house to open!	for	to	in	by

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(d) Choose the correct sentence from each of the groups and fill up the bubble sheet: (5)

16.	**One of key advantages of MOOCs is the accessibility.**
(A)	One of the key advantages of MOOCs is accessibility.
(B)	One of the key advantage of MOOCs are accessibility.
(C)	One of the key advantages for MOOCs is accessible.
(D)	One of key advantages of MOOCs is the accessibility.
17.	**Cut down my trunk and makes a boat.**
(A)	Cut down my trunk and make a boat.
(B)	Cutting down my trunk and make a boat.
(C)	Cut down mine trunk and makes a boat.
(D)	Cut down my trunk and making a boat.
18.	**The key is not just to uses them.**
(A)	The key is not just to use them.
(B)	The key is not just using them.
(C)	The key is not just used them.
(D)	The key is not just uses them.
19.	**Even the dinner hour was give up to talking about it.**
(A)	Even the dinner hour was given up to talking about it.
(B)	Even the dinner hour was given up for talking about it.
(C)	Even the dinner hour was given to up talking about it.
(D)	Even the dinner hour was gave up to talking about it.
20.	**Send me the rest, since I needing it very much.**
(A)	Send me the rest, since I need it very much.
(B)	Send me the rest, since I needs it very much.
(C)	Send me the rest, because I need very much it.
(D)	Send me the rest, since I am need it very much.

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English (Compulsory) **Time Allowed: 2:30 Hours**

Paper-II: Subjective Part **Maximum Marks: 80**

SECTION – I

Q.2 Write short answers (in 3-5 lines) of any FIVE questions of the following: (2 × 5 = 10)

i. Why did Hazrat Muhammad (ﷺ) travel to Taif?

ii. List two key advantages of MOOCs mentioned in the essay.

iii. What is the main purpose of LinkedIn for students and professionals?

iv. How did the boy use the tree's apples, branches, and trunk?

v. How does Twitter act as a “micro-university of ideas”?

vi. What did the boy want when he grew older?

vii. Why is the story considered a tale of selfless friendship?

viii. What does the term MOOC stand for, and what is its main purpose?

Q.3 Write short answers (in 3-5 lines) of any FIVE questions of the following:

(2 × 5 = 10)

i. Compare and contrast Kezia Burnell and Aunt Beryl. How do their actions reflect different values?

ii. Katherine Mansfield never openly criticises society in direct statements. How does she subtly expose social cruelty through children's behaviour?

iii. In what way is ‘The Doll’s House’ itself a miniature model of the class society and social injustice?

iv. What does the carriage symbolize in the poem, “Because I could Not Stop for Death”?

v. What did Lencho's second letter reveal about his faith and his perception of the post office employees?

vi. What does Shakespeare suggest about the transient nature of life in the poem, “All the World’s a Stage”?

vii. Why was Lencho not surprised or filled with gratitude when he received the money? Instead, what emotion did he feel and why?

viii. What does the "house the only one in the entire valley sitting on the crest of a low hill" symbolise about Lencho and his family's place in the world?

Q.4 Write short answers (in 3-5 lines) of any SEVEN questions of the following:

(2 × 5 = 10)

i. How do the beggars' expert judgments on Kino reveal a social system that calculates human worth in terms of money?

ii. Highlight the incidents that reflect the cultural hegemony of the colonizers.

iii. How does the "shell of hardness" that forms over Kino represent him being cut off from the person he used to be?

iv. How might Kino's aspirations for wealth be seen as false consciousness, adopting the values of the oppressors?

v. How does Juana’s seeing the pearl "like a sin" show her understanding of it as a physical object that brings destruction?

vi. What does Juan Tomás's lament about being "cheated from birth to coffin" reveal about his class consciousness?

vii. How do the neighbours' selfish speculations about the wealth reflect their false consciousness regarding class interests?

viii. How does the pearl become a catalyst for violence exemplify capital's corrupting influence?

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Q.5 Write a critical appreciation of Emily Dickinson's poem "Because I Could Not Stop for Death." (10)

SECTION – II

Q.6 Write an essay (300-400 words) on any ONE of the following topics: (15)

i Pollution ii Patriotism iii My Hobby iv Climate Change

Q.7 Use any FIVE of the following idioms in sentences of your own: (2 × 5 = 10)

i	Apple of discord	ii	Bag and baggage	iii	Poke one's nose	iv	Without fail
v	To bell the cat	vi	Die in harness	vii	Call off	viii	Look into

Q.8 Translate the following passage into English: (15)

اخلاقی گراوٹ کا مطلب صرف اقدار کا زوال نہیں بلکہ احساس ذمہ داری کا خاتمہ بھی ہے۔ جب معاشرے میں سچ اور جھوٹ کے درمیان فاصلہ ختم ہونے لگے اور جب مفاد کو اصول پر ترجیح دی جانے لگے تو یہ اخلاقی گراوٹ کی واضح علامت ہے اور اس کے ساتھ عدم برداشت معاشرے کو مزید کھوکھلا کر دیتی ہے۔

Q.8 English Medium / Foreign candidates will write a paragraph (150-200 words) on "Artificial Intelligence."

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سمارٹ سلیبس [Smart Syllabus]

مضمون: اردو برائے بارھویں جماعت (XII)

اردو (لازمی) برائے جماعت بارھویں (XII) کی درسی کتاب میں سے طلبہ کی سہولت کے پیشِ نظر چھے (6) اسباق حذف کیے جا رہے ہیں تا کہ طلبہ بائیس (22) کے بجائے سولہ (16) اسباق پر توجہ مرکوز کرتے ہوئے بھرپور تیاری کر سکیں۔

حذف شدہ اسباق کی تفصیل:۔

نمبر شمار	حصّہ	عنوانات			صفحہ نمبر
1	حصّہ نثر	محشر	از	غوث بہار	48 تا 56
2	حصّہ نثر	سیر دوسرے درویش کی	از	میر امّن دہلوی	64 تا 69
3	حصّہ نثر	بہادر خان کی سرگزشت	از	پروفیسر انور رومان	71 تا 77
4	حصّہ نثر	حکیم احسن اللہ خان	از	شمس الرحمٰن فاروقی	79 تا 86
5	حصّہ نظم	نئی نسل کا نوحہ	از	امجد اسلام امجدؔ	111 تا 113
6	حصّہ غزل	وہی خواب آنکھوں میں۔۔۔	از	محسنؔ احسان	137 تا 139

امتحانی بورڈ کے پرچہ مرتبین کے لیے لازم ہے کہ سوالیہ پرچہ ترتیب دیتے وقت درج بالا اسباق میں سے معروضی، انشائی اور دیگر نوعیت کے سوالات (کُلّی یا جزوی صورت میں) شامل نہ کریں۔

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Pairing Scheme of Urdu-12 [Smart Syllabus]

امتحانی پرچہ اُردو (لازمی) برائے بارھویں جماعت (XII) کے لیے ہدایات [سمارٹ سلیبس]

اُردو لازمی برائے بارھویں جماعت (XII) کا پرچہ 100 نمبروں پر مشتمل ہوگا۔ معروضی طرز 20 نمبروں پر مشتمل ہوگا اور اس کا وقت 20 منٹ ہوگا۔ انشائی طرز 80 نمبروں پر مشتمل ہوگا اور اس کا وقت 2 گھنٹے 40 منٹ (2:40) ہوگا۔

نوٹ: بورڈ کے امتحان میں؛ مصنفین اور شعرا کے تعارف میں سے کسی قسم کا سوال نہیں پوچھا جائے گا۔

پرچہ مرتبین درج ذیل ہدایات کو پیشِ نظر رکھیں:۔

معروضی طرز

سوال	نمبر	ہدایات
سوال: 1 کثیر الانتخابی سوالات (MCQs)	کل نمبر: 20	**نصابی کتاب:** مجوزہ حصہ نثر میں سے پانچ (5) کثیر الانتخابی سوالات (MCQs) بنائے جائیں۔ ہر سبق میں سے ایک سے زیادہ MCQs نہ بنائے جائیں۔ **حصہ قواعد:** اس حصے میں کل پندرہ (15) سوالات ہوں گے: ☆ **مطابقت:** مطابقت کے درست استعمال (پیکٹا کی اُردو قواعد و انشا ص 21 تا 22 اور 29 تا 30) سے متعلق 2 سوالات اور حروف کے درست استعمال (پیکٹا کی اُردو قواعد و انشا ص 16 تا 17) سے متعلق 3 سوالات بنائے جائیں۔ ☆ **رموزِ اوقاف** رموزِ اوقاف سے متعلق 5 سوالات بنائے جائیں۔ (پیکٹا کی اُردو قواعد و انشا ص 13 تا 15) ☆ **اِمدادی افعال** اِمدادی افعال سے متعلق 5 سوالات بنائے جائیں۔ (پیکٹا کی اُردو قواعد و انشا ص 18 تا 21)

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انشائی طرز

سوال	نمبر	ہدایات
سوال:2 **اشعار کی تشریح** **(نظم وغزل)**	کل نمبر:20 جز(الف):10 نمبر جز(ب):10 نمبر	**مجو(الف) حصہ نظم:** مجوزہ چھے (6) نظموں میں سے کوئی دو نظموں کے دو اجزا کا انتخاب کیا جائے۔ ایک جُز کا انتخاب پہلی تین (3) نظموں (حمد، نعت، اِنسان کامل کی برکات) میں سے جب کہ دوسرے جُز کا انتخاب آخری تین (3) نظموں (داستان تیاری میں باغ کی، نثار میں تری گلیوں کے ۔۔۔، میں روزے سے ہوں) میں سے کیا جائے۔ ہر نظم سے دو اشعار تشریح کے لیے منتخب کریں۔ طلبہ ان میں سے کسی ایک جُز کی تشریح کریں گے۔ نمبروں کی تقسیم: [نظم کا عنوان:01 نمبر، شاعر کا نام:01 نمبر، تشریح:08 نمبر، کل نمبر 10] **مجو(ب) حصہ غزل:** مجوزہ چار (4) غزلوں میں سے دو غزلیہ اجزا (تین تین اشعار پر مبنی) دو الگ الگ غزلوں میں سے انتخاب کریں۔ ایک جُز کا انتخاب پہلی دو (2) غزلوں (میر درد، مرزا غالب) میں سے جب کہ دوسرے جُز کا انتخاب آخری دو (2) غزلوں (علامہ اقبالؒ، ادا جعفری) میں سے کیا جائے۔ طلبہ کو ان میں سے کسی ایک جُز کے تین اشعار کی الگ الگ تشریح کرنے کی ہدایت کریں۔ نیز تشریح لکھتے ہوئے غیر ضروری طوالت سے گریز کیا جائے۔ نمبروں کی تقسیم: [شاعر کا نام:01 نمبر، تشریح:03+03+03=09 نمبر، کل نمبر 10]
سوال:3 **پیراگراف کی تشریح** **مع سیاق و سباق** **اور حوالہ متن**	کل نمبر:15	مجوزہ چھے (6) نثری اسباق میں سے، پہلے تین (3) اسباق (ہجرتِ حبشہ، ماں جی، کافی) اور آخری تین (3) اسباق (رستم و سہراب، مینار، نظریۂ پاکستان) میں سے ایک ایک پیراگراف تشریح کے لیے دیا جائے۔ طلبہ دو (2) میں سے کسی ایک پیراگراف کی تشریح کریں گے۔ نمبروں کی تقسیم: [مصنف کا نام:01 نمبر، سبق کا عنوان:01 نمبر، سیاق و سباق:03 نمبر، تشریح:10 نمبر، کل نمبر 15]

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سوال:4 نثری سبق کا خلاصہ	کل نمبر:10	مجوزہ چھے(6) نثری اسباق میں سے، پہلے تین(3) اسباق (ہجرتِ حبشہ، ماں جی، کافی) اور آخری تین (3) اسباق (رستم وسہراب، مینار، نظریۂ پاکستان) میں سے ایک ایک سبق منتخب کیا جائے۔ دیے گئے دو(2) اسباق میں سے کسی ایک سبق کا خلاصہ درکار ہے۔ طلبہ مصنف کا نام بھی لکھیں گے۔ نمبروں کی تقسیم: [مصنف کا نام:01 نمبر، سبق کا خلاصہ:09 نمبر، کل نمبر 10]
سوال:5 نظم کا خلاصہ یا مرکزی خیال	کل نمبر:5	مجوزہ چھے(6) نظموں میں سے، پہلی تین(3) نظموں (حمد، نعت، انسان کامل کی برکات) میں سے ایک نظم اور آخری تین (3) نظموں (داستان تیاری میں باغ کی، نثار میں تری گلیوں کے۔۔۔، میں روزے سے ہوں) میں سے ایک نظم منتخب کی جائے۔ دی گئیں دو(2) نظموں میں سے کسی ایک نظم کا خلاصہ یا مرکزی خیال پوچھا جائے۔ نمبروں کی تقسیم: [شاعر کا نام:01 نمبر، نظم کا خلاصہ یا مرکزی خیال:04 نمبر، کل نمبر 05]
سوال:6 مضمون نویسی	کل نمبر:20	پیکٹا کی اُردو قواعد وانشا (ص146 تا192) میں شامل (نمونہ، مجوزہ) مضامین میں سے کوئی تین عنوانات کا انتخاب کیا جائے۔ نمونے کے مضامین میں سے دو(2) جبکہ مجوزہ مضامین میں سے ایک (1) عنوان منتخب کیا جائے۔ طلبہ ان تین عنوانات میں سے کسی ایک پر مضمون لکھیں گے۔ مضمون کی طوالت کم وبیش اُردو قواعد انشا میں دیے گئے نمونے کے مضامین کے مطابق ہو۔
سوال:7 مکتوب نگاری یا آپ بیتی	کل نمبر:10	طلبہ کو دیے گئے خط اور آپ بیتی میں سے کوئی ایک تحریر کرنے کی ہدایت کریں۔ (خط برطابق پیکٹا کی اُردو قواعد انشا ص79 تا89 اور آپ بیتی برطابق پیکٹا کی اُردو قواعد انشا ص114 تا128) نمبروں کی تقسیم برائے خط (مکتوب نگاری): [طرزِ تخاطب: 1 نمبر، تاریخ تحریر: 1 نمبر، القاب وآداب: 1 نمبر، نفسِ مضمون: 6 نمبر، مکتوب نگار کا نام وپتا:1 نمبر، کل نمبر 10]

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اُردو (لازمی)	(معروضی طرز)	ماڈل پیپر (سالِ دوم)	وقت: 20 منٹ	کل نمبر: 20

سوال 1: ہر سوال کے چار ممکنہ جوابات A، B، C اور D دیے گئے ہیں۔ درست جواب کی نشان دہی کریں۔ (20=20 x 1)

نمبر شمار	سوالات	(A)	(B)	(C)	(D)
i	پہلی جنگِ عظیم میں انگریز کا مقابلہ ہوا:	برطانیہ سے	ہندوستان سے	ترکی سے	جرمنی سے
ii	مسلمانوں نے ہجرت کی مکہ مکرمہ سے:	عراق کی طرف	حبشہ کی طرف	یمن کی طرف	شام کی طرف
iii	نانا جی نے بقرعید پر ماں جی کو عیدی دی:	گیارہ پیسے	بارہ پیسے	دو آنے	تین آنے
iv	مصنف کو کافی میں بُو آتی ہے:	نسوار کی	چائے کی	سگریٹ کی	سگار کی
v	سہراب کی موت کا سبب تھا:	رستم کی تلوار	پہچان نہ ہونا	سازش	بیماری

مطابقت اور حروف کے صحیح استعمال کو مدِ نظر رکھتے ہوئے درست جواب منتخب کیجیے:

vi	وہ گھوڑا گاڑی کس.....ہے؟	کا	کی	کے	کو
vii	روزنامہ ''جنگ'' دل چسپی سے -----	پڑھی جاتی ہے	پڑھا جاتا ہے	پڑھی جاتی ہیں	پڑھے جاتے ہیں
viii	---- مجھے بخار تھا، اس لیے کالج نہ آسکا:	اگر	مگر	چوں کہ	اگرچہ
ix	اس نے میرا قلم ہی نہیں چُرایا---جھوٹ بھی بولا:	لیکن	کیوں کہ	جب کہ	بلکہ
x	اس کا گھر بار، دکانیں اور زمین سب کچھ-----	پک گیا	پک گئے	پک گئیں	پک گئی

رموزِ اوقاف کے اصولوں کو مدِ نظر رکھتے ہوئے، درست جواب منتخب کیجیے:

xi	جُملہ معترضہ کے آغاز اور آخر میں علامت لگائی جاتی ہے:	'' ''	!	/	( )
xii	مختصر ترین ٹھہراؤ کو کہتے ہیں:	وقفہ	سکتہ	رابطہ	ختمہ
xiii	جذبے کے اِظہار کے لیے علامت اِستعمال کی جاتی ہے:	،	؟	!	( )
xiv	توسین کی علامت ہے:	'' ''	( )	!	؟
xv	رموزِ اوقاف دراصل ہیں:	واقعات	علامات	الفاظ	حکایات

امدادی افعال کے اصولوں کو مدِ نظر رکھتے ہوئے، درست جواب منتخب کیجیے:

نمبر شمار	امدادی فعل	(A)	(B)	(C)	(D)
xvi	چاہنا	اس نے وہی کیا جو چاہا۔	کھانا آیا چاہتا ہے۔	مجھے انصاف چاہیے۔	آپ چاہتے کیا ہیں؟
xvii	ڈالنا	اس نے ڈول پانی میں ڈالا۔	دودھ بالٹی میں ڈال دو۔	پھول کی پتیاں ڈالتے جاؤ۔	جو دل میں ہے ابھی سے کہ ڈالو۔
xviii	چکنا	اس کا حساب چُکا دو۔	مَیں خط لکھ چکا ہوں۔	دہی کو ذرا چکھنا۔	ہونہار بِروا کے چکنے چکنے پات
xix	ہونا	تم عجیب آدمی ہو۔	تم کہاں ہو؟	سب خاموش ہو جائیں۔	یہ تمام واقعہ میرا سُنا ہوا ہے۔
xx	رہنا	وُہ یہاں رہتا ہے۔	تم کہاں رہ گئے؟	وُہ کہاں رہا؟	وہ اکثر یہاں آتا رہتا ہے۔

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اُردو (لازمی)	(انشائی طرز)	ماڈل پیپر (سالِ دوم)	وقت: 2:40 گھنٹے	کل نمبر: 80

سوال 2: (الف) درج ذیل نظمیہ اجزا میں سے کسی ایک جُز کی آسان تشریح کیجیے۔ نظم کا عنوان اور شاعر کا نام بھی تحریر کیجیے۔ (10=1+1+8)

جو اُن کے جادۂ رحمت سے منحرف ہو جائیں		زمانے اُن کو کبھی محترم نہیں کرتے
میسّر آتی ہے جن کو دُرود کی توفیق		کسی بھی حال میں ہوں کوئی غم نہیں کرتے

یا

یونہی ہمیشہ اُلجھتی رہی ہے ظلم سے خلق		نہ اُن کی رسم نئی ہے نہ اپنی رِیت نئی
یونہی ہمیشہ کھلائے ہیں ہم نے آگ میں پھول		نہ اُن کی ہار نئی ہے نہ اپنی جِیت نئی

(ب) درج ذیل غزلیہ اجزا میں سے کسی ایک جز کے ہر شعر کی الگ الگ تشریح کیجیے۔ شاعر کا نام بھی تحریر کیجیے: (10=1+3+3+3)

سب کہاں کچھ لالہ و گُل میں نمایاں ہو گئیں		خاک میں کیا صورتیں ہوں گی کہ پنہاں ہو گئیں
یاد تھیں ہم کو بھی رنگا رنگ بزم آرائیاں		لیکن اب نقش و نگارِ طاقِ نسیاں ہو گئیں
رنج سے خوگر ہوا انساں تو مِٹ جاتا ہے رنج		مشکلیں مجھ پر پڑیں اتنی کہ آساں ہو گئیں

یا

ستاروں سے آگے جہاں اور بھی ہیں		ابھی عشق کے اِمتحاں اور بھی ہیں
تہی زندگی سے نہیں یہ فضائیں		یہاں سیکڑوں کارواں اور بھی ہیں
قناعت نہ کر عالمِ رنگ و بُو پر		چمن اور بھی آشیاں اور بھی ہیں

سوال 3: سیاق و سباق کے حوالے سے کسی ایک جز کی تشریح کیجیے۔ مصنف کا نام اور سبق کا عنوان بھی لکھیے: (15=1+1+3+10)

(الف) کافی امریکا کا قومی مشروب ہے۔ میں اس بحث میں نہیں اُلجھنا چاہتا کہ امریکی کلچر کافی کے زور سے پھیلا یا کافی کلچر کے زور سے رائج ہوئی۔ یہ بعینہٖ ایسا سوال ہے جیسے کوئی بے ادب یہ پوچھ بیٹھے کہ ''غبارِ خاطر'' چائے کی وجہ سے مقبول ہوئی یا چائے ''غبارِ خاطر'' کے باعث؟ ایک صاحب نے مجھے لاجواب کرنے کی خاطر یہ دلیل پیش کی، امریکا میں تو کافی اس قدر عام ہے کہ جیل میں بھی پلائی جاتی ہے۔ عرض کیا کہ جب خود قیدی اس پر احتجاج نہیں کرتے تو ہمیں کیا پڑی کہ وکالت کریں۔

(ب) میں نے ایک اور روشن مینار بھی دیکھا ہے۔ پہلے تو یہ میرے ذہن میں نقشے پر لگے ہوئے ایک نقطے کی صورت میں محفوظ رہا اور پھر ایک دن آنکھیں جھپکیں تو وہ نقطہ مینار بن چکا تھا۔ ایشیا کے نقشے پر نظر ڈالیں تو سائبیریا سے لنکا تک خشکی نظر آتی ہے۔ لنکا کے جزیرے کی شکل نقشے میں دیکھی تو گمان گزرا جیسے قدرت کی آنکھوں سے خشکی کا آخری قطرہ ٹپک کر سمندر میں گر پڑا ہو۔ اس جزیرے کی جنوبی حد ہمارے نقشے میں زمین کی آخری حد تھی۔ سکول کے طالب علم نے سوچا کہ خشکی کی اس حدِ آخر پر کھڑا ہو کر اگر یہ کہیں کہ ایشیا میرے قدموں میں سائبیریا تک پھیلا ہوا ہے تو یہ بات جغرافیے کی رُو سے درست اور تاریخ کی رُو سے نادرست ہوگی۔

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سوال 4: کسی ایک نثری سبق کا خلاصہ لکھیے اور مصنف کا نام بھی تحریر کیجیے: (10=1+9)

(الف) ماں جی

(ب) نظریۂ پاکستان

سوال 5: کسی ایک نظم کا خلاصہ یا مرکزی خیال لکھیے اور شاعر کا نام بھی تحریر کیجیے: (5=1+4)

(الف) اِنسانِ کامل ؐ کی برکات

(ب) مَیں روزے سے ہوں

سوال 6: درج ذیل عنوانات میں سے کسی ایک عنوان پر مفصل مضمون تحریر کیجیے: (20)

(الف) پاکستان چین اقتصادی راہداری

(ب) تعمیرِ وطن میں طلبہ کا کردار

(ج) قدرتی آفات

سوال 7: چچا جان کے نام خط لکھیں جس میں تحفہ ملنے پر شکریہ ادا کیا گیا ہو۔ (10)

یا

ایک پھول کی آپ بیتی تحریر کیجیے۔



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PECTAA Transformation, Innovation and Excellence	**Smart Syllabus / Accelerated Learning Programme (ALP) of Pakistan Studies Grade-12 for Academic Session 2026-27 & BISE Exam 2027**

سمارٹ سلیبس (ALP)

برائے مضمون مطالعہء پاکستان جماعت بارھویں تعلیمی سیشن 27-2026ء

مطالعہء پاکستان برائے جماعت بارھویں کی درسی کتاب میں سے طلبہ کی سہولت کے پیش نظر دو ابواب حذف کیے جا رہے ہیں تا کہ طلبہ پچھے کے بجائے چار اسباق پر توجہ مرکوز کرتے ہوئے بھرپور تیاری کر سکیں۔

حذف شدہ ابواب کی تفصیل:

باب سوم	پاکستان کا انتظامی نظام	صفحہ 34 تا 48
باب چہارم	پاکستان کے وسائل اور معاشی ترقی	صفحہ 49 تا 67

امتحانی بورڈ کے پرچہ مرتبین کے لیے لازم ہے کہ سوالیہ پرچہ ترتیب دیتے ہوئے درج بالا ابواب میں سے معروضی، انشائی اور دیگر نوعیت کے سوالات میں سے کوئی سوال یا جزو شامل نہ کریں۔

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امتحانی پرچہ مطالعہء پاکستان برائے جماعت بارھویں کی تیاری کے لیے ہدایات

ممتحنین (Paper Setters) کے لیے ضروری ہدایات

مطالعہء پاکستان برائے جماعت بارھویں کا سالانہ پرچہ 50 نمبروں پر مشتمل ہوگا، جس کے لیے طلبہ کو دو گھنٹے کا وقت دیا جائے گا۔ یہ پرچہ دو اجزا پر مشتمل ہوگا جس کی تقسیم (Pairing Scheme) حسب ذیل ہے:

حصہ اوّل: کثیر الانتخابی سوالات (کل نمبر 10)

مختصر جوابی سوالات (کل نمبر 24)

حصہ دوم: مفصل جوابی سوالات (کل نمبر 16)

مطالعہ پاکستان برائے جماعت بارھویں کے مندرجہ بالا دونوں حصوں کے مختلف سوالات کی تیاری کے لیے درج ذیل ہدایات کو ملحوظ رکھیں:

حصّہ اوّل	سوال نمبر 1: کثیر الانتخابی سوالات (MCQs)	1×10= 10 کل نمبر 10	کثیر الانتخابی سوالات کی تیاری کے لیے پوری کتاب (ماسوائے باب سوم اور چہارم) کے متن کو ملحوظ رکھیں جس کی تقسیم حسب ذیل ہے: کثیر الانتخابی سوالات باب اوّل اور باب دوم میں سے دو دو جبکہ باب پنجم اور ششم میں سے تین تین سوالات بنائے جائیں۔
	سوال نمبر 2: مختصر جوابی سوالات	2×6= 12 کل نمبر 12	اس حصے میں کل نو (9) مختصر جوابی سوالات بنائے جائیں جن میں سے کوئی سے چھے (6) سوالات کے مختصر جواب دینے کا کہا جائے۔ اس حصے کے سوالات باب اوّل میں سے چار، باب دوم میں سے پانچ سوالات پوچھے جائیں اور صرف مشقوں میں دیے گئے مختصر سوالات ہی پرچے میں شامل کیے جائیں۔
	سوال نمبر 3: مختصر جوابی سوالات	2×6= 12 کل نمبر 12	اس حصے میں کل نو (9) مختصر جوابی سوالات بنائے جائیں جن میں سے کوئی سے چھے (6) سوالات کے مختصر جواب دینے کا کہا جائے۔ اس حصے کے سوالات باب پنجم میں سے چھے اور باب ششم میں سے تین سوالات پوچھے جائیں اور صرف مشقوں میں دیے گئے مختصر سوالات ہی پرچے میں شامل کیے جائیں۔

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حصّہ دوم	سوال نمبر 4: سوال نمبر 5: سوال نمبر 6: مفصل جوابی سوالات	2×8= 16 کل نمبر 16	کتاب کی مشقوں میں دیے گئے مفصل جوابی سوالات میں سے ہی تین (3) سوالات دیے جائیں اور ان میں سے کوئی سے دو سوالوں کا جواب پوچھا جائے۔ ہر سوال کا جواب آٹھ (8) نمبر پر مشتمل ہوگا۔ ان تین (3) سوالوں کا انتخاب درج ذیل ترتیب کے مطابق کیا جائے: سوال نمبر 4: باب اوّل یا باب پنجم سے لیا جائے۔ سوال نمبر 5: باب دوم سے لیا جائے۔ سوال نمبر 6: باب ششم سے لیا جائے۔

ماڈل پرچہ مطالعہء پاکستان برائے جماعت بارھویں (انٹر پارٹ-II)

وقت: 2 گھنٹے　　کل نمبر: 50

حصہ معروضی (کثیر الانتخابی سوالات)

سوال 1: ہر سوال کے چار ممکنہ جوابات دیے گئے ہیں۔ جوابی کاپی پہ درست جواب کے مطابق متعلقہ دائرے کو مار کر یا پین سے بھر دیں۔　　10 = 10 × 1

(i) قراردادِ مقاصد 1949ء پیش کرنے والے وزیر اعظم کا نام ہے:

(الف) خواجہ ناظم الدین　(ب) محمد علی بوگرہ　(ج) چودھری محمد علی　(د) لیاقت علی خاں

(ii) برصغیر میں جداگانہ انتخاب کے اصول کو نافذ کیا گیا:

(الف) 1907ء میں　(ب) 1908ء میں　(ج) 1909ء میں　(د) 1910ء میں

(iii) شہریوں کو جائیداد بنانے اور نجی جائیداد رکھنے کا حق جس زمرے میں آتا ہے:

(الف) معاشرتی حقوق　(ب) معاشی حقوق　(ج) مذہبی حقوق　(د) ثقافتی حقوق

(iv) حکومتِ پاکستان اور اقوامِ متحدہ نے یو این پائیدار ترقی کے فریم ورک پر دستخط کیے:

(الف) 2016ء میں　(ب) 2018ء میں　(ج) 2020ء میں　(د) 2022ء میں

(v) ایلیمنٹری تعلیم کا دورانیہ ہے:

(الف) چھے سال　(ب) سات سال　(ج) آٹھ سال　(د) نو سال

(vi) پاکستان نے پہلی مرتبہ ہاکی کا ورلڈ کپ جیتا:

(الف) 1971ء میں　(ب) 1972ء میں　(ج) 1973ء میں　(د) 1974ء میں

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(vii) بھولو پہلوان کو حکومت پاکستان کی جانب سے تمغائے امتیاز سے نوازا گیا:

(الف) 1960ء میں (ب) 1962ء میں (ج) 1964ء میں (د) 1965ء میں

(viii) بھارت نے جموں وکشمیر کی خصوصی حیثیت ختم کی:

(الف) 1965ء میں (ب) 1971ء میں (ج) 1999ء میں (د) 2019ء میں

(ix) بین الاقوامی مالیاتی فنڈ (IMF) کا مرکزی دفتر ہے:

(الف) امریکا میں (ب) برطانیہ میں (ج) روس میں (د) چین میں

(x) دوسری اسلامی سربراہی کانفرنس لاہور میں منعقد ہوئی:

(الف) 1972ء میں (ب) 1973ء میں (ج) 1974ء میں (د) 1977ء میں

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سوال 2: درج ذیل میں سے چھ سوالات کے مختصر جوابات دیں۔ **(2 × 6 = 12) نمبر**

(i) جدیدیت کسے کہتے ہیں؟ (ii) دولت کی منصفانہ تقسیم سے کیا مراد ہے؟

(iii) رواداری کا مفہوم تحریر کریں۔ (iv) دوقومی نظریہ سے کیا مراد ہے؟

(v) حقوق کی تعریف لکھیں۔ (vi) خوراک میں خود کفالت اہمیت تین سطروں میں تحریر کریں۔

(vii) پاکستان میں چائلڈ لیبر اور کم عمر کے افراد کے روزگار کے خاتمے کے لیے حکومتی سطح پر کیے گئے دو اقدامات تحریر کریں۔

(viii) اسلامی نظریاتی کونسل کے فرائض بیان کریں۔ (ix) 1962ء کے آئین کی منسوخی کی وجہ بتائیں۔

سوال 3: درج ذیل میں سے چھ سوالات کے مختصر جوابات دیں۔ **(2 × 6 = 12) نمبر**

(i) خصوصی افراد کی تعلیم کیا ہوتی ہے؟ (ii) پاکستان میں سیاحت کے فروغ کے لیے دو تجاویز پیش کریں۔

(iii) قومی یکجہتی کا مفہوم تحریر کریں۔ (iv) پیشہ ورانہ اور عام تعلیم میں کیا فرق ہے؟

(v) انفارمیشن ٹیکنالوجی سے کیا مراد ہے؟ (vi) کھیل سے حاصل ہونے والے ذہنی فوائد بیان کریں۔

(vii) خارجہ پالیسی کی تعریف تحریر کریں۔ (viii) پاکستان اور عوامی جمہوریہ چین کے اقتصادی راہ داری منصوبہ کیا ہے؟

(ix) مشرقِ وسطیٰ کا خطہ پاکستان کی معیشت کے لیے کیوں اہم ہے؟

حصہ انشائی (حصہ دوم)

نوٹ: درج ذیل میں سے کوئی سے دو سوالات کے تفصیلی جوابات دیں۔ **(8 × 2 = 16) نمبر**

4- اسلامی فلاحی ریاست کی تعریف اور اس کے فرائض بیان کریں۔

5- 1973ء کے آئین کی اسلامی دفعات کی وضاحت کریں۔

6- پاکستان کی خارجہ پالیسی کے بنیادی اصولوں کا تجزیہ کریں۔

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Chapter No.	Chapter Name	Topics	Page No.	Exercise
13	Thermal Physics	13.6: Stellar evolution Examples: 13.3, 13.4, 13.5	9 – 11 12	MCQs: 13.7, 13.8 Short answer questions: 13.7, 13.8 CRQs: 13.3, 13.4 Comprehensive Questions: 13.4, 13.6 Numerical Problems: 13.5, 13.6
14	Simple Harmonic Motion	14.4: Simple harmonic motion and uniform circular motion Example: 14.3 14.6: Graphical representation of S.H.M 14.11: Sharpness of resonance	22 – 25 25 28 35 – 38	MCQs: 14.8 Short answer questions: 14.5, 14.7 CRQs: 14.4, 14.5 Comprehensive Question: 14.2 Numerical Problems: 14.1, 14.3, 14.4
15	Physical Optics	15.4: Interference of microwaves 15.7: Newton's rings 15.8: Diffraction grating	45, 46 50, 51 51, 52	MCQs: 15.2, 15.3, 15.7, 15.8 Short answer questions: 15.6, 15.7, 15.8, 15.9 CRQs: 15.4 Numerical Problems: 15.5, 15.6, 15.7
16	Electrostatics	16.6: Combined capacitance of capacitors Example: 16.5 Example: 16.6 Example: 16.7 16.9: Exponential decay of discharging capacitor through resistor Example: 16.10	68 - 70 68, 69 70, 71 72, 73 75 – 77 77	MCQs: 16.4, 16.8, 16.10 Short answer questions: 16.6, 16.7 CRQs: 16.4, 16.5 Comprehensive Questions: 16.3, 16.5 Numerical Problems: 16.6, 16.8, 16.9
17		Example: 17.1	86	MCQs: 17.1, 17.3, 17.7, 17.8

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	Alternating Current	17.10: AC through RC-series circuit 17.11: AC through RL-series circuit Example: 17.5 17.12: Rectification	95, 96 96 – 98 96 98 – 101	Short answer questions: 17.4, 17.6 CRQs: 17.6 Comprehensive Questions: 17.3, 17.4 Numerical Problems: 17.1, 17.6
18	Quantum Physics	18.5: Wave particle duality 18.6: Electron microscope 18.7: Atomic spectra	118, 119 119 119-122	MCQs: 18.2, 18.4, 18.6, 18.8, 18.9 Short answer questions: 18.8, 18.9, 18.10 CRQs: 18.1, 18.3, 18.5, 18.9, 18.10 Comprehensive Questions: 18.3, 18.4 Numerical Problems: 18.2, 18.7, 18.8
19	Nuclear and Particle Physics	19.3: Nuclear reactor 19.6: Radioactive tracers 19.7: Annihilation reactions Example: 19.4	134-136 141, 142 142 143	MCQs: 19.3, 19.4, 19.5, 19.9 Short answer questions: 19.4, 19.5, 19.6 CRQs: 19.1, 19.2, 19.6 Comprehensive Questions: 19.3, 19.5 Numerical Problems: 19.5, 19.6
20	Medical Physics	20.4: Computed tomography scanning (CT-Scan) 20.5: Positron emission tomography scanning (PET- Scan)	152, 153 153, 154	MCQs: 20.1, 20.2, 20.6, 20.9 Short answer questions: 20.1, 20.6 CRQs: 20.1, 20.4, 20.5, 20.6 Comprehensive Questions: 20.4, 20.5
21	Space and Environment	21.6: Emission and absorption spectra from different stars 21.7: Cosmic redshift: evidence for an expanding universe 21.10: Ocean currents and wind patterns 21.15: Satellite remote sensing	161, 162 162 165, 166 169, 170	MCQs: 21.6, 21.9, 21.10 Short answer questions: 21.5, 21.7 CRQs: 21.1, 21.3, 21.5, 21.6 Comprehensive Questions: 21.5, 21.6 Numerical Problems: 21.6, 21.7

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LIST OF EXCLUDED PHYSICS-11 PRACTICALS FOR ACADEMIC SESSION 2026-2027

- Investigate momentum conservation by colliding trolleys and ticker-timer for elastic and inelastic collisions.
- Determine the moment of inertia of a flywheel.
- Investigate the fall of spherical steel balls through a viscous medium and determine: (i) terminal velocity (ii) coefficient of viscosity of the fluid.
- Investigate the laws of vibration of stretched strings by sonometer or electromagnetic method.
- Determine Young's modulus of the material of a given wire using Searle's apparatus.
- Determine emf of a cell using potentiometer.
- Investigate the relationship between current passing through a tungsten filament lamp and the potential applied across it.

LIST OF EXCLUDED PHYSICS-12 PRACTICALS FOR ACADEMIC SESSION 2026-2027

- Determine the wavelength of light by using a diffraction grating.
- Determine the slit separation of a diffraction grating by using laser light of known wavelength.
- Measure the diameter of a wire or hair using laser.
- Determine the pick count of a nylon mesh by using a diffraction grating and a laser.
- Determine resistance of voltmeter by discharging a capacitor through it.
- Determine time constant by charging and discharging a capacitor through a resistor.
- Determine the impedance of a RL circuit at 50Hz and hence find inductance.
- Determine the impedance of a RC circuit at 50Hz and hence find capacitance.
- Observe the line spectrum of mercury with diffraction grating and spectrometer to determine the wavelength of several different lines, and hence, draw a conclusion about the width of visible spectrum.

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Pairing Scheme / Instructions for Preparation of BISE Examination Paper

Max. Marks: 85 **Time: 3 hours**

Paper Pattern

Part / Question(s)	Description	Marks
Part-I: Q-1	**Objective:** 17 Multiple Choice Questions (MCQs) from Chapters 13 to 21.	17
Part-II: Q-2 to Q-4	**Subjective:** Short answer questions. Students will attempt 8 out of 12 in Q-2, 8 out of 12 in Q-3, and 6 out of 9 in Q-4.	44
Part-III: Q-5 to Q-9	**Subjective:** Five detailed questions will be given. Students will attempt any three. Each question will have one long/theoretical part and one numerical part.	24
Total Marks:		**85**

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Part-I: Objective

Q.1: 17 Multiple Choice Questions (MCQs) will be developed from the entire content of the textbook. The chapter-wise distribution will be as follows: **(1 × 17) = 17 Marks**

Question	Chapters Included	Distribution
Q. 1	Chapters: 13, 14, 15, 16, 17, 18, 19, 20 and 21	2 each from Ch 13 to 20 and 1 from Ch 21

Part-II: Subjective- Short Answer Questions

This section will contain three short answer questions. Each short answer question will be asked from the content of the textbook. The detail is as follows:

Short Questions	Chapters Included	Total Parts Asked	Distribution	Attempt / Marks
Q. 2	Chapters: 13, 14, 15	12 parts	4 + 4 + 4	8 parts = 16
Q. 3	Chapters: 16, 17, 18	12 parts	4 + 4 + 4	8 parts = 16
Q. 4	Chapters: 19, 20, 21	9 parts	3 + 3 + 3	6 parts = 12

Q. 2: Eight short answer questions have to be answered out of twelve. Four short answer questions will be asked from each of Chapters 13, 14 and 15. (2 × 8) = 16 marks

Q. 3: Eight short answer questions have to be answered out of twelve. Four short answer questions will be asked from each of Chapters 16, 17 and 18. (2 × 8) = 16 marks

Q. 4: Six short answer questions have to be answered out of nine. Three short answer questions will be asked from each of Chapters 19, 20 and 21. (2 × 6) = 12 marks

Part-III: Subjective- Detailed Questions / Numericals

This section will contain five (05) detailed questions. Students have to attempt any three questions, carrying 8 marks each. Each detailed question will be asked from the content of the textbook according to the following pairing:

Question	Chapter(s) Included	Part Pattern	Marks
Q. 5	Chapter 13, Chapter 14	Long question, Numerical	5 + 3
Q. 6	Chapter 15, Chapter 16	Long question, Numerical	5 + 3
Q. 7	Chapter 17	Long question, Numerical	5 + 3
Q. 8	Chapter 18, Chapter 19	Long question, Numerical	5 + 3
Q. 9	Chapter 20, Chapter 21	Long question, Numerical	5 + 3

Note: In Part-III, each question will consist of two parts. Part (a) will be a long/theoretical question carrying 5 marks, while Part (b) will be a numerical carrying 3 marks. Where two chapters are paired, one part may be asked from one chapter and the second part from the other chapter. In Q-7, both parts will be selected from Chapter 17 according to the available content.

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MODEL PAPER OF PHYSICS GRADE-12

Objective Type Questions

Time: 20 Minutes **Marks: 17**

Question 1: Four possible answers A, B, C & D to each question are given. The choice which you think is correct, fill the circle in front of the question (on bubble sheet) with Marker or Pen ink. Cutting or filling two or more circles will result in zero mark in that question. **(1 × 17 = 17)**

1. V_{rms} of the gas molecule is 300 m s^{-1}. If its absolute temperature is reduced to half and molecular weight is doubled, then V_{rms} will become:
   (a) 75 m s^{-1} (b) 150 m s^{-1} (c) 300 m s^{-1} (d) 600 m s^{-1}

2. The *rms* speed of the gas at 27 °C is *v*. If temperature of the gas is raised to 327 °C, the *rms* speed of the gas is:
   (a) *v* (b) $v/\sqrt{2}$ (c) $\sqrt{2}\,v$ (d) 3 *v*

3. Which quantity is zero at the extreme position of a body executing simple harmonic motion?
   (a) Acceleration (b) Speed (c) Displacement (d) angular frequency

4. If a tunnel is bored through the centre of Earth and a stone is dropped into it, then:
   (a) stone will stop at the centre of Earth
   (b) stone will move out from other side of the tunnel
   (c) stone will perform S.H.M.
   (d) none of the above

5. When light from two lamps falls on a screen, no interference pattern is obtained. Why is this so?
   (a) The lamps are not point sources (b) Lamps emit light of different amplitudes
   (c) The light from lamps is not coherent (d) The light from lamps is white

6. The colours appearing on the soap bubbles are due to the phenomenon of light:
   (a) reflection (b) refraction (c) interference in thin film (d) diffraction

7. In a charged capacitor, the energy resides in:
   (a) the positive plate (b) the negative plate
   (c) both positive and negative plates (d) the electric field between the plates

8. If a dielectric is inserted between the plates of a charged isolated capacitor, the potential difference across the plates:
   (a) increases (b) decreases (c) remains same (d) becomes zero

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9. In a purely inductive or capacitive circuit, the average power consumed is:
   (a) equal to apparent power (b) minimum
   (c) maximum (d) zero

10. If magnetic field is doubled in an inductor, then magnetic energy density becomes:
   (a) half (b) four times (c) six times (d) constant

11. If the frequency of incident light is above the threshold frequency, increasing the intensity mainly increases the:
   (a) stopping potential (b) photoelectric current
   (c) work function (d) threshold frequency

12. de-Broglie waves are associated with:
   (a) moving charged particles only (b) moving neutral particles only
   (c) all moving particles (d) particles in motion or at rest

13. The K.E. of the fission fragments is ultimately converted to:
   (a) potential energy (b) heat energy
   (c) magnetic energy (d) chemical energy

14. After four half-lives, the fraction of a radioactive sample remaining is:
   (a) 1/4 (b) 1/16 (c) 1/8 (d) 1/32

15. Characteristic X-rays are produced due to:
   (a) nuclear reactions (b) inner shell electronic transitions
   (c) outer shell transitions (d) ion collisions

16. In X-ray imaging, what does "contrast" mainly depend on?
   (a) Density and thickness of tissues (b) Heartbeat rate
   (c) Distance from the detector (d) Surface temperature of the body

17. What is a standard candle in astronomy?
   (a) A star with unknown brightness
   (b) An object with known intrinsic brightness
   (c) A planet reflecting sunlight
   (d) A black hole emitting radiation

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Subjective Type Questions

Time: 2:40 Hrs. **Marks: 68**

SECTION 1

Q. 2: Attempt any EIGHT short questions out of TWELVE. Each question carries 2 marks.

(8 × 2 = 16)

(i) Do all gases have the same average translational kinetic energy at the same temperature? Justify your answer.

(ii) What will be the K.E near absolute zero? Explain briefly.

(iii) If the density of a gas is doubled while the rms speed remains unchanged, what happens to the gas pressure?

(iv) Explain briefly, why it is not possible to increase the temperature of the gas while keeping its volume and pressure constant.

(v) Define simple harmonic motion and write its equation.

(vi) What role do shock absorbers play in oscillations of vehicles in a bumpy road? Explain briefly.

(vii) Will a pendulum that keeps correct time at Karachi, be accurate at Murree or at the top of mount Everest? Explain briefly.

(viii) A car crosses a bumpy road and its body must not keep oscillating for a long time. Which type of damping is most suitable and why?

(ix) State Huygens' principle in terms of secondary wavelets.

(x) What is the significance of path difference in deriving Bragg's equation?

(xi) In Young's double-slit experiment, what happens to fringe spacing if the whole apparatus is submerged in water? Give reason.

(xii) Compare the double slit experimental arrangements for light and sound waves, similarities and differences.

Q. 3: Attempt any EIGHT short questions out of TWELVE. Each question carries 2 marks.

(8 × 2 = 16)

(i) If the absolute potential at a point is zero, what can you say about the electric intensity at that point?

(ii) Is electron-volt a unit of potential difference or energy? Explain briefly.

(iii) Why does the capacitance of a capacitor increase when a dielectric is inserted between its plates?

(iv) The electric field is negative of gradient of potential. What does the negative sign indicate physically?

(v) Why are choke coils preferred over resistors for limiting current in AC circuits?

(vi) How do capacitive and inductive reactance oppositely vary with frequency?

(vii) Describe the phase relation between current and voltage in a purely capacitive AC circuit.

(viii) Is it possible to achieve mutual inductance using a combination of four coils? If yes, justify your answer?

(ix) State Planck's quantum relation and explain how photon energy depends on frequency.

(x) Is work function of a metal related to threshold frequency in photoelectric emission? State briefly.

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(xi) Radiation with a certain frequency causes electrons to be emitted from the surface of one metal and not from the surface of another metal. Why?

(xii) How does the photoelectric current vary with intensity of incident light on a metal surface?

Q. 4: Attempt any SIX short questions out of NINE. Each question carries 2 marks. (6 × 2 = 12)

(i) What is meant by the half-life of a radioactive material?

(ii) After four half-lives, what percentage of a radioactive sample remains?

(iii) What factors make a fusion reaction difficult to achieve?

(iv) What do you know about the terms K_α and K_β X-rays?

(v) Why is ultrasound not effective for imaging air-filled organs such as lungs? Explain briefly.

(vi) What occurs when ultrasound hits the boundary between two tissues?

(vii) What is a standard candle, and how is it used to measure distances to galaxies?

(viii) State Hubble's law and explain its connection to the Big Bang Theory.

(ix) How would the spectrum of light from galaxies look different if the universe were not expanding?

SECTION 2

Attempt any THREE questions. Each question carries equal marks. (8 × 3 = 24)

Q. 5: (a) Show that the temperature of an ideal gas is a direct measure of the average translational kinetic energy of its molecules. **(5)**

(b) The displacement of a particle executing S.H.M is given by; $x = 0.05 \sin(4t + \pi/3)$. Find its velocity at the displacement of 0.03 m, maximum velocity and amplitude. **(3)**

Q. 6: (a) Determine the electric potential energy stored in a capacitor from the area under the potential-charge graph. **(5)**

(b) Coherent light with wavelength 450 nm falls on a pair of slits. On a screen 1.80 m away, the distance between dark fringes is 3.90 mm. What is the slit separation? **(3)**

Q. 7: (a) Explain the behaviour of a capacitor in an AC circuit. Derive the expression for capacitive reactance and show why current leads voltage by 90°. **(5)**

(b) An alternating current is represented by $I = 420 \sin(100\pi t)$. Find the rms current and the frequency of the AC. **(3)**

Q. 8: (a) What is photoelectric effect? Explain it on the basis of Einstein's photoelectric equation. **(5)**

(b) Americium-241 is an artificially produced radioactive element that emits α-particles. Its sample of mass 5.1 μg is found to have an activity 5.9×10^5 Bq. Determine, for this sample: (i) total number of nuclei (ii) decay constant (iii) half-life in years **(3)**

Q.9: (a) Describe how an ultrasound image is created using the concepts of echoes and reflected sound waves. **(5)**

(b) A supernova, acting as a standard candle, has a luminosity of 1.0×10^{36} W. If the observed flux at Earth is 2.0×10^{-12} W m^{-2}, calculate the distance between the Earth and the supernova. **(3)**

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Chapter No. / Name	Excluded Topics and Exercise Questions	Page No.
13. Thermoregulation and Osmoregulation	• 13.1.1/Basic mechanism of homeostasis	1-2
	• 13.2.3/ Nature of Excretory Products in relation to Habitat	7-8
	• MCQ No. 6, 7 & 8	32
	• Short answers No. 4 last two bullets	11
	• Long questions No. 1 & 4	12
	• All Inquisitive Questions	12
14. Human Urinary System	• 14.3/ Disorders of Urinary Tract	19-24
	• MCQ No. 9 & 10	25
	• Short answers No. 6, 7, 8 (ii & iii)	25
	• Long questions No. 5, 6 & 7	25
	• All Inquisitive Questions	25
15. Human Nervous System	• Table: Twelve pairs of Cranial Nerves &their Functions	43
	• Table: effects of Autonomic Nervous System on Body Parts	45
	• 15.6/ Receptors in Human Body	45-48
	• 15.7/ Effects of Drugs on Nervous Coordination	48-51
	• 15.8/ Disorders of Nervous System	51-53
	• 15.9/ Diagnostic Tests for Nervous Disorders	53-55
	• MCQ No. 12-17	57
	• Short answers No. 1, 2, 7-11, 12 last bullet	57-58
	• Long questions No. 12-18	58
	• All Inquisitive Questions	58
16. Human Endocrine System	• 16.1.1/Chemical Nature of Hormones	59-61
	• Box: Artificially synthesized steroids	70
	• 16.2.8/ Other Endocrine glands/tissues	70-71
	• 16.3/ Feedback Mechanism in Endocrine System	71-72
	• MCQ No. 5	73
	• Short answers No. 1, 2, & 9 last bullet	73-74
	• Long questions No. 2 & 7	74
	• All Inquisitive Questions	74

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Chapter No. / Name	Excluded Topics and Exercise Questions	Page No.
17. Human Reproductive System	• All Inquisitive Questions	84
18. Inheritance	• 18.2.1/ Limitations to the Law of Independent Assortment • 18.2.2/ Inheritance and Mathematical Probabilities along with the box • 18.5/ Polygenic inheritance and Epistasis • 18.8.3/Sex Limited and Sex Influenced Traits • MCQ No. 9 & 13 • Short answers No. 1, 2, 12, 15 (iv& v), 16 (Bullet No. 6, 9 and 10) • Long questions No. 4, 5 & 11 • All Inquisitive Questions	90-91 91-92 98-102 112-113 114-115 115-116 116 116
19. Chromosomes and DNA	• Difference between DNA replication in prokaryotes and Eukaryotes • Stability and Variability in DNA • 19.7/ Regulating Gene Expression • Box: Minor Mutations in Humans • Box: Possible ways to treat Genetic Diseases • Tidbit • Short answers No. 7, 8 (Repressor and Activated proteins) • Long questions No. 11, 12 • All Inquisitive Questions	131 131 142-144 146 148 152 154-155 155 156 156
20. Biotechnology	• 20.4/ Genetically Modified Organisms (GMO) • MCQ No. 10 • Short answers No. 5 • All Inquisitive Questions	164-167 169 169 170
21. Immunity	• 21.3.2/Cell Mediated and Antibody mediated Immunity • MCQ No. 10 • Short answers 7 last bullet • Long questions No. 6 & 7 • All Inquisitive Questions	179-184 186 187 187 187
22. Biostatistics	Whole chapter is deleted.	188-209
23. Pharmacology	• 23.4/ Monoclonal Antibodies • MCQ No. 6	214-215 215

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Chapter No. / Name	Excluded Topics and Exercise Questions	Page No.
	• Short answers 5 • Long questions No. 3 • All Inquisitive Questions	216 216 216
24. Evolution	• 24.3/ Evidences of Evolution • MCQ No. 2, 3 & 8 • Short answers No. 2, 3 & 8 (second bullet) • Long questions No. 3, 4, 5 & 6 • All Inquisitive Questions	221-223 227 228 228 228
25. Ecology	• 25.1/Levels of Ecological Organization • 25.4/ Characteristics of Population • 25.6/ Important Ecosystem of Pakistan • MCQ No. 1 & 5 • Short answers No. 5, 6, 9, 10, 11, 12 (1, 3 and 4 bullet) • Long questions No. 4, 6 & 7 • All Inquisitive Questions	230-232 237-240 243-246 246-247 248 248 248

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Pairing Scheme of Biology Grade-12

for Academic Session 2026-27 & BISE Exam-2027

Instructions for Preparation of Exam Paper of Biology Grade-12

Biology paper for Grade-12 will consist of 85 marks. The paper will be made as per following details:

Objective Part

Q. 1 MCQs = 17 **1 × 17 = 17**

The detail is as follows:

Chapter No.	13	14	15	16	17	18	19	20	21	23	24	25
No. of MCQs	1	1	2	1	1	2	2	2	1	1	1	2

Subjective Part

Total Marks: 68 **Time Allowed: 2 hours and 40 Minutes**

Section-I: Short Answer Questions (SAQs) (44 Marks)

Q. 2: (Short Answer Questions): Attempt any 8 out of 12 **2 × 8 = 16**

Chapter	No. of SAQs	Chapter	No. of SAQs
13	3	14	3
19	3	20	3

Q. 3: (Short Answer Questions): Attempt any 8 out of 12 **2 × 8 = 16**

Chapter	No. of SAQs	Chapter	No. of SAQs
15	2	16	2
17	2	18	4
24	2	---	

Q. 4: (Short Answer Questions): Attempt any 6 out of 9 **2 × 6 = 12**

Chapter	No. of SAQs	Chapter	No. of SAQs
21	3	23	3
25	3	---	

Section-II: Long Questions (8 × 3 = 24)

Attempt any 3 questions out of 5.

Each question consists of two parts: **(a) 4 marks and (b) 4 marks.**

Q. 5: Chapter 13 (a) & Chapter 25 (b)
Q. 6: Chapter 14 (a) & Chapter 24 (b)
Q. 7: Chapter 15 (a) & Chapter 21 (b)
Q. 8: Chapter 16 (a) & Chapter 20 (b)
Q. 9: Chapter 17 (a) & Chapter 19 (b)

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MODEL PAPER OF BIOLOGY GRADE-12

Maximum Marks: 17 **Time Allowed: 20 mins.**

Objective Part

Q. 1: Four possible answers A, B, C and D to each question are given. The choice which you think is correct; fill that circle in front of that question with marker or ink pen in the answer book. Cutting or filling two or more circles will result in zero mark in that question. **(1 × 17 = 17)**

	MCQs	(A)	(B)	(C)	(D)
i.	Positive feedback loops are less common because they:	Are slow	Destabilize the system	Use no effectors	Never stop
ii.	Efferent arterioles of juxtamedullary nephrons give rise to:	Peritubular venules	Afferent arterioles	Vasa recta	Interlobular arteries
iii.	Nissl's granules are mainly composed of:	Mitochondria	Ribosomes and RER	Golgi bodies	Lysosomes
iv.	Sodium–potassium pump moves:	2 Na^+ in, 3 K^+ out	3 Na^+ in, 2 K^+ out	2 K^+ in, 3 Na^+ out	3 K^+ in, 2 Na^+ out
v.	Releasing hormones from hypothalamus reach the anterior pituitary through:	nerve fibers	lymph vessels	blood vessels	synapses
vi.	LH stimulates:	Sertoli cells	Germ cells	Leydig cells	Epididymis
vii.	Crossing over may alter expected ratios by:	preventing segregation	creating linkage breaks	increasing dominance	reducing fertilization
viii.	A woman is a carrier for hemophilia. What percentage of her sons may inherit the disease?	25%	50%	75%	100%

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ix.	Okazaki fragments are joined by:	Helicase	Ligase	Primase	Gyrase
x.	GC hairpin structure mainly functions to:	Start transcription	Stop RNA polymerase	Repair DNA	Translate protein
xi.	Which vector is specially designed for large DNA fragments?	BAC	tRNA	mRNA	Operon
xii.	Most reliable method to confirm gene presence is:	Antibiotic test	Blue-white screening	DNA hybridization	Microscopy
xiii.	Why are natural TILs often ineffective against malignant melanoma?	They cannot divide	Tumor suppresses immune response	They lack nuclei	They produce antibodies only
xiv.	Primary reservoir of sedimentary cycles is:	Atmosphere	Oceans	Earth's crust	Biosphere
xv.	The first step in drugs discovery is;	Lead optimization	Preclinical Testing	Target identification	Hit identification
xvi.	Changes in gene frequency due to migration of individuals are called;	Genetic drift	Mutation	Gene flow	Genetic recombination
xvii.	Which group of bacteria is involved in nitrification?	Azotobacter	Nitrosomonas	Clostridium	Rhizobium

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Subjective Part

Time Allowed: 2.40 Hrs. **Maximum Marks: 68**

(Section-I)

Q. 2: Write short answers to any eight (8) questions. **(2 × 8 = 16)**

i. Enlist the structural / anatomical adaptations to reduce water loss in terrestrial animals.

ii. What are the physiological adaptations to reduce water loss in terrestrial animals?

iii. Why is thermoregulation important for animals?

iv. Differentiate the two types of nephrons.

v. What is glomerular filtration?

vi. How does ADH relate to Diabetes Insipidus?

vii. Why does DNA have a strong affinity for histone proteins?

viii. Evaluate Griffith's hypothesis about the role of the polysaccharide coat in virulence.

ix. What is a pulse-chase experiment?

x. What is meant by a palindromic sequence in restriction sites?

xi. How the vector turns into recombinant vector?

xii. Differentiate between blue colonies and white colonies in blue-white screening.

Q. 3: Write short answers to any eight (8) questions. (2 × 8 = 16)

i. Define neuroglia. Write its function.

ii. Name any two excitatory neurotransmitters and state where they act.

iii. What are the functions of Luteinizing Hormone (LH)?

iv. What is myxedema? What are its symptoms?

v. Name the accessory glands of male reproductive system and their functions.

vi. Why do primary oocytes remain inactive for many years in females?

vii. Justify why O-negative individuals are called universal donors and AB-positive individuals are called universal recipients.

viii. Write brief note on Y-linked inheritance in humans.

ix. How can gene linkage and its frequency be detected?

x. What is Se gene? Where it is located?

xi. Differentiate between Natural selection and neutral selection.

xii. State Hardy-Weinberg theorem.

Q. 4: Write short answers to any six (6) questions. (2 × 6 = 12)

i. How does respiratory tract provide first line defence?

ii. How does the membrane-attack complex (MAC) destroy microbes?

iii. Differentiate between polyclonal and monoclonal antibodies.

iv. Differentiate between antiviral and antiretrovirals drugs.

v. Write a mode of Tetracycline action?

vi. Explain how penicillin kills bacteria.

vii. Write note on ammonification.

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viii. Explain how energy is lost between trophic levels in an ecosystem.

ix. Design a simple strategy to protect agriculture from climate change impacts.

(SECTION – II)

Note: Attempt any three questions. **(8 × 3 = 24)**

Q. 5: (a) Classify the animals on the bases of the ability to thermoregulate. 4

(b) Explain the flow of energy in successive trophic levels. 4

Q. 6: (a) Describe how the counter-current mechanism helps regulate urine concentration. 4

(b) Explain the theory of natural selection as proposed by Darwin. 4

Q. 7: (a) Explain the events and propagation of action potential. 4

(b) How do inflammatory response act as non-specific response to infections? 4

Q. 8: (a) State the names of the hormones secreted by thyroid gland. Write the function of each hormone. 4

(b) Explain the steps of polymerase chain reaction (PCR). 4

Q. 9: (a) Describe the events of a menstrual cycle. 4

(b) Explain the experimental work conducted by Griffith that demonstrated that DNA is the hereditary material. 4

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List of Excluded Practicals for Biology Grade-11

- Use of graticule and micrometer to study stomata and cells.
- Measuring the size of primary, secondary cell walls and middle lamella by micrometry
- Demonstration of the evolution of CO_2 from leaf discs placed in dark and light, with the help of indicator (hydrogen carbonate).

List of Excluded Practicals for Biology Grade-12

- Examination of the prepared slides of histology of ovaries and drawing its structures.

Smart Syllabus / Accelerated Learning Programme (ALP) of Mathematics Grade-12 for Academic Session 2026-27 & BISE Exam-2027

Unit No.	Name of the Unit	Excluded Content & Examples / Questions
1	**Graphical Representation of Functions**	• Example 3; Page 3. • Exercise 1.1, Q. 1 (v) and Q. 2; Page 4. • (iii) Exponential Function is Strictly Increasing or Strictly Decreasing (1.4 Exponential Functions); Page 7. • Horizontal Asymptote of Exponential Function; Page 8, examples 6 & 7. • 1.5.2 Graphs of Hyperbolic Functions; Pages 10 to 12. • Exercise 1.2, Q. 1, 2, 3, 4 & 6; Pages 14 to 15. • 1.6.1 Graphical behavior of logarithmic functions. • Exercise 1.3, Q. 1, 3, 5, 7, 8 & 9; Pages 23 to 24. • Example 20 (1.10 Solving Problems Involving Exponential and Logarithmic Equations and Inequalities); Pages 27 to 28. • Exercise 1.4, Q. 1 (iii & v), Q. 2 (v & vi); Page 28. • 1.11 Applications of Exponential and Logarithmic Functions in Real-Life Situations, Examples 21 to 27; Pages 28 to 32. • Exercise 1.5, Q. 4, 7, 8, 11 & 12; Page 33.
2	**Further Differentiation**	• Exercise 2.3, Q. 2 & 6; Pages 47 to 48. • Exercise 2.4, Q. 1 (iv), Q. 2 (iv & v), Q.3 & 5; Pages 55 to 56. • Exercise 2.5, Q. 2 (b), Q. 3 (ii), Q. 4 (i); Page 59. • Exercise 2.6, Q. 2 (ii), Q. 3 (i & iii), Q. 5; Page 64. • Exercise 2.7, Q. 1, 4, 5 & 7; Page 70.
3	**Integration**	• Examples 11 & 12; Pages 75 to 76. • Exercise 3.1, Q. 3 (viii, ix, x & xii); Pages 76 to 77. • Exercise 3.2, Q. 1 (iii, v & viii), Q.2 (v, ix, xi, xiii & xiv); Page 84. • Examples 35, 38 & 39 (3.4 Integration by Parts); Pages 86 to 89. • Exercise 3.3, Q.11, 15, 16, 20 & 23; Page 90. • Exercise 3.4, Q. 4, 5, 6, 9, 12, 13, 14 & 15; Page 94. • Examples 49 to 56 (3.6 The Definite Integral and its Properties); Pages 98 to 101. • Exercise 3.5, Q. 1 (vi, vii & ix), Q. 3, Q. 6 (iii), Q. 7, 10, 12, 14, Q. 15 (i & iv), Q. 16 (iv); Pages 101 to 103. • Exercise 3.6, Q. 2, Q. 3 (iii & iv), Q. 11, 12, 13, 14 & 15; Pages 114 to 115. • Exercise 3.7, Q. 1, 2, 7, 10, 11 & 12; Pages 121 to 123.

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Unit No.	Name of the Unit	Excluded Content & Examples / Questions
4	**Differential Equations**	• Exercise 4.1, Q. 1 (v), Q. 2, 3, 4, 5 & 6 (4.2.4 Flow of Electricity in Series Circuits); Pages 128 to 129. • 4.5 Applications of First-Order Differential Equations in Real-Life Problems, Examples 8 to 12; Pages 138 to 142. • Exercise 4.3, Q. 5, 6, 7, 8, 9 & 10; Page 143.
5	**Analytical Geometry**	• Exercise 5.1, Q. 4, 5, Q. 7 (vi), Q.8 & 11; Page 158. • Exercise 5.2, Q. 6, 7 & 9; Page 162. • Exercise 5.3, Q. 11 & 12; Page 166.
6	**Conics**	• Examples 8 & 9 (6.1 Circle); Pages 175 to 176. • Exercise 6.1, Q. 4, 8, 10 & 12; Page 177. • Example 14 (6.2 Tangent and Normal to a Conic); Pages 183 to 184. • Exercise 6.2, Q. 5 & 6; Page 187. • Exercise 6.3, Q. 5, 6 & 7; Pages 192 to 193. • Exercise 6.4, Q. 5, 6, 7, 11, 12 & 13; Pages 202 to 203. • Exercise 6.5, Q.3, 6, 9, 11, 12, 14, 18, 19 & 20; Pages 215 to 216. • Exercise 6.6, Q. 6 to 11; Pages 221 to 222.
7	**Kinematics**	• Exercise 7, Q. 1 to 5; Page 235.
8	**Numerical Solutions of Nonlinear Equations**	• Exercise 8.2, Q. 1 (i & iii), Q. 2 (ii & iii), Q. 3 (iv & v); Pages 248 to 249. • Exercise 8.3, Q. 1, 2, 7 & 8; Page 253. • Exercise 8.4 (Complete); Page 258.
9	**Inverse Trigonometric Functions and Their Graphs**	• Graphs of Inverse Trigonometric Functions (Figures 9.1 to 9.15), Section 9.1; Pages 259 to 269. • Exercise 9.2, Q. 11, 12, 13, 17, 18, 20 & 21; Pages 277 to 278.
10	**Solution of Trigonometric Equations**	• Exercise 10.1, Q. 14, 19 to 24; Page 283. • Exercise 10.2, Q. 1 to 5; Page 288.
11	**Vector Valued Functions and Their Derivatives**	• Exercise 11.3 (Complete); Pages 297 to 298.

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PAIRING SCHEME / PAPER PATTERN

Subject: Mathematics **Class: 12th (2nd Year)** **Total Marks: 100**
Session: _____ **Time Allowed: 3 Hours** **Paper Code: Math-XII**

The Mathematics paper for Grade 12 (2nd Year) will be have 100 marks and will have a duration of 3 hours.

<table>
<tr><th>Section</th><th>Details</th><th>Marks</th></tr>
<tr><td>Objective
(MCQs)</td><td>Q-1: There will be 20 Multiple Choice Questions (MCQs) from the entire textbook. The distribution is as follows:
<table>
<tr><th>Unit</th><th>No. of MCQs</th><th>Unit</th><th>No. of MCQs</th></tr>
<tr><td>1</td><td>2</td><td>2</td><td>3</td></tr>
<tr><td>3</td><td>3</td><td>4</td><td>1</td></tr>
<tr><td>5</td><td>2</td><td>6</td><td>2</td></tr>
<tr><td>7</td><td>2</td><td>8</td><td>1</td></tr>
<tr><td>9</td><td>1</td><td>10</td><td>2</td></tr>
<tr><td>11</td><td>1</td><td colspan="2">---</td></tr>
</table></td><td>1 × 20 = 20</td></tr>
<tr><td rowspan="3">Part-I:
Subjective

Note: This section contains three short answer questions (SAQs)</td><td>This section contains three (3) short questions.
Q-2: Students are required to attempt any 8 out of 12 short questions. The detail is as follows:
<table>
<tr><th>Unit</th><th>No. of SAQs</th><th>Unit</th><th>No. of SAQs</th></tr>
<tr><td>1</td><td>2</td><td>2</td><td>5</td></tr>
<tr><td>4</td><td>3</td><td>7</td><td>2</td></tr>
</table></td><td>2 × 8 = 16</td></tr>
<tr><td>Q-3: Students are required to attempt any 8 out of 12 short questions. The detail is as follows:
<table>
<tr><th>Unit</th><th>No. of SAQs</th><th>Unit</th><th>No. of SAQs</th></tr>
<tr><td>3</td><td>5</td><td>5</td><td>3</td></tr>
<tr><td>6</td><td>4</td><td colspan="2">---</td></tr>
</table></td><td>2 × 8 = 16</td></tr>
<tr><td>Q-4: Students are required to attempt any 9 out of 13 short questions. The detail is as follows:
<table>
<tr><th>Unit</th><th>No. of SAQs</th><th>Unit</th><th>No. of SAQs</th></tr>
<tr><td>8</td><td>3</td><td>9</td><td>3</td></tr>
<tr><td>10</td><td>3</td><td>11</td><td>4</td></tr>
</table></td><td>2 × 9 = 18</td></tr>
</table>

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<table>
<tr><th>Section</th><th>Details</th><th>Marks</th></tr>
<tr><td>Part-II:
Subjective</td><td>This section contains five (5) long questions (LQs), each bifurcated into two parts a & b (carrying 5 marks each) and students have to attempt any three (3) questions. The details are as follows:
<table>
<tr><th colspan="4">Q-5:</th></tr>
<tr><th>Unit</th><th>Part-a</th><th>Unit</th><th>Part-b</th></tr>
<tr><td>1</td><td>1 LQ</td><td>9 or 10</td><td>1 LQ</td></tr>
</table>
<table>
<tr><th colspan="4">Q-6:</th></tr>
<tr><th>Unit</th><th>Part-a</th><th>Unit</th><th>Part-b</th></tr>
<tr><td>2</td><td>1 LQ</td><td>4</td><td>1 LQ</td></tr>
</table>
<table>
<tr><th colspan="4">Q-7:</th></tr>
<tr><th>Unit</th><th>Part-a</th><th>Unit</th><th>Part-b</th></tr>
<tr><td>2</td><td>1 LQ</td><td>5</td><td>1 LQ</td></tr>
</table>
<table>
<tr><th colspan="4">Q-8:</th></tr>
<tr><th>Unit</th><th>Part-a</th><th>Unit</th><th>Part-b</th></tr>
<tr><td>3</td><td>1 LQ</td><td>7</td><td>1 LQ</td></tr>
</table>
<table>
<tr><th colspan="4">Q-6:</th></tr>
<tr><th>Unit</th><th>Part-a</th><th>Unit</th><th>Part-b</th></tr>
<tr><td>6</td><td>1 LQ</td><td>8</td><td>1 LQ</td></tr>
</table>
</td><td>3 × 10 = 30</td></tr>
</table>

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MODEL PAPER

MATHEMATICS GRADE-12 (2nd Year)

BISE Examination 2027 — Smart Syllabus (ALP) — Paper Code: Math-XII

Time Allowed: 3 Hours **Total Marks:** 100

Instructions:

(1) Q. 1 (MCQs) is compulsory; each MCQ carries one mark. Cutting or overwriting an answer cancels it.

(2) Part-I: Attempt any **8** of 12 parts in Q.2, any **8** of 12 parts in Q.3 and any **9** of 13 parts in Q. 4. Each part carries 2 marks.

(3) Part-II: Attempt any **THREE** questions from Q. 5 to Q. 9. Each question has two parts i.e. (a) and (b) that carries 5 marks each.

(4) A non-programmable scientific calculator may be used. Take $g = 9.8$ m/s^2 wherever needed.

OBJECTIVE (MCQs) — Marks: 20

Q. 1 Choose the correct option. Each MCQ carries one mark. (1 × 20 = 20)

No.	Question	A	B	C	D
1	The y-intercept of the graph of $y = 2(x+1)(x-3)$ is:	6	-3	-6	3
2	If the graph of $y = f(x)$ is shifted 3 units upward, the new function is:	$f(x+3)$	$f(x-3)$	$3f(x)$	$f(x)+3$
3	If $y = \tan^{-1}(2x)$, then $\frac{dy}{dx} =$	$\frac{2}{1+4x^2}$	$\frac{1}{1+4x^2}$	$\frac{2}{1+2x^2}$	$\frac{2x}{1+4x^2}$
4	If $x = at^2$ and $y = 2at$, then $\frac{dy}{dx} =$	t	$2t$	$\frac{1}{t}$	$\frac{2}{t}$
5	The function $f(x) = x^3 - 3x$ has a relative maximum at $x =$	1	-1	0	3
6	$\int \cos 3x\, dx =$	$3\sin 3x + c$	$-1/3 \sin 3x + c$	$-3\sin 3x + c$	$1/3 \sin 3x + c$
7	$\int \frac{f'(x)}{f(x)}\, dx =$	$\ln\lvert f(x)\rvert + c$	$f(x) + c$	$\frac{[f(x)]^2}{2} + c$	$\frac{1}{f(x)} + c$
8	The area bounded by $y = x^2$, the x-axis and the lines $x = 0$, $x = 3$ is:	3	6	9	27
9	The differential equation $\frac{dy}{dx} = \frac{x+y}{x}$ is:	separable	homogeneous	of order 2	of degree 2
10	The slope of the line $3x - 4y + 7 = 0$ is:	$\frac{3}{4}$	$-\frac{3}{4}$	$\frac{4}{3}$	$-\frac{4}{3}$

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No.	Question	A	B	C	D
11	The lines represented by $ax^2 + 2hxy + by^2 = 0$ are perpendicular if:	$a - b = 0$	$h^2 = ab$	$h = 0$	$a + b = 0$
12	The centre of the circle $x^2 + y^2 - 6x + 4y - 3 = 0$ is:	$(-3,2)$	$(3,-2)$	$(6,-4)$	$(-6,4)$
13	The eccentricity of the hyperbola $\frac{x^2}{9} - \frac{y^2}{16} = 1$ is:	$\frac{4}{3}$	$\frac{3}{5}$	$\frac{5}{3}$	$\frac{5}{4}$
14	A car starts from rest with uniform acceleration 2 m/s^2. Its velocity after 5 s is:	2.5 m/s	7 m/s	25 m/s	10 m/s
15	If the position of a particle is $x(t) = t^3 - 2t$, its velocity at $t = 2$ s is:	10	4	12	6
16	By the Location of Root Theorem, a root of $x^3 - x - 4 = 0$ lies in:	$(0,1)$	$(1,2)$	$(2,3)$	$(3,4)$
17	The principal value of $\sin^{-1}(-1/2)$ is:	$\frac{5\pi}{6}$	$\frac{7\pi}{6}$	$-\frac{\pi}{6}$	$\frac{11\pi}{6}$
18	The solutions of $\tan x = 1$ in $[0,2\pi]$ are:	$\frac{\pi}{4}$ only	$\frac{\pi}{4}, \frac{3\pi}{4}$	$\frac{3\pi}{4}, \frac{7\pi}{4}$	$\frac{\pi}{4}, \frac{5\pi}{4}$
19	If $\cos x = -1/2$ and x lies in the third quadrant, then $x =$	$\frac{4\pi}{3}$	$\frac{2\pi}{3}$	$\frac{5\pi}{3}$	$\frac{7\pi}{6}$
20	The domain of $\mathbf{r}(t) = \sqrt{t}\,\mathbf{i} + \ln(t-1)\,\mathbf{j}$ is:	$[0,\infty)$	$(1,\infty)$	$(0,\infty)$	$[1,\infty)$

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SUBJECTIVE — PART-I (Short Questions) — Marks: 50

Q. 2 Attempt any EIGHT parts. **(2 × 8 = 16)**

(i) Prove the following hyperbolic identity: $1 - \tanh^2 x = \operatorname{sech}^2 x$.

(ii) Given the function $f(x) = \sqrt{x}$, find the equation of the function after vertical stretch by factor 2.

(iii) A particle moving in a straight line starts from rest and is accelerated uniformly to attain a velocity of 30 km/h in 5 seconds. Find the distance travelled by the particle in the last three seconds.

(iv) The acceleration of a particle is $a(t) = \frac{1}{1+t}$ for $t \geq 0$. If the velocity is 0 m/s when $t = 0$, find the velocity at $t = 5$ seconds.

(v) Differentiate $y = x^2 \cos x$ with respect to the variable involved.

(vi) Find $f'(x)$ if $f(x) = \sin(2^x)$.

(vii) Find y_2 if $y = x^4 - 3x^2 + 4x - 5$.

(viii) Find the linear approximation of the function $f(x) = \sqrt{x^2 + 16}$ at $x = 3$.

(ix) Find the differential dy if $y = x^3 - 3\sqrt{x}$.

(x) Show that the relation $y = cx - 1$ is a solution of the differential equation $x\frac{dy}{dx} = 1 + y$.

(xi) Find the general solution of the differential equation $y\,dx + x\,dy = 0$.

(xii) A particle is moving in a straight line and its acceleration is given by $a = 2t - 7$. Find velocity v in terms of t if $v = 10$ m/sec, when $t = 0$.

Q. 3 Attempt any EIGHT parts. **(2 × 8 = 16)**

(i) Find the integral, $\int x^2 \left(x + \frac{1}{x}\right) dx$.

(ii) Find the anti-derivative $\int \frac{e^x}{1+e^{2x}}\, dx$.

(iii) Evaluate $\int \ln x\, dx$.

(iv) Solve by partial fraction $\int \frac{5x+7}{(x+1)(x+2)}\, dx$.

(v) Evaluate the definite integral $\int_1^2 (x^2 + x)\, dx$.

(vi) For what value of k if the lines $x + y - 4 = 0$, $2x - y + 1 = 0$ and $kx + 2y - 10 = 0$ are concurrent.

(vii) Find the area of the triangle formed by the points $A(-3,2)$, $B(4,-1)$, $C(1,5)$.

(viii) Workout the value of k such that the lines represented by the equation $(k-8)x^2 - 9xy + 3ky^2 = 0$ are perpendicular to each other.

(ix) Find an equation of the circle with centre at $(5,7)$ and radius 2.

(x) Find the equations of tangents to the circle $x^2 + y^2 = 4$ which are parallel to the line $3x + 4y + 1 = 0$.

(xi) Write the equation of the parabola with focus $(-3,2)$ and directrix $x = 5$.

(xii) Find the length of the latus rectum of the hyperbola $9x^2 - 16y^2 = 144$.

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Q. 4 Attempt any NINE parts. **(2 × 9 = 18)**

(i) Find the real root of $f(x) = x^3 - x - 1$ correct to two decimal places using the graphical method, by finding some interval of sign change.

(ii) Find the real root of $f(x) = x^3 - 3x - 10$ correct to 3 decimal places using the bisection method, within the interval of sign change [2,3].

(iii) Use Trapezoidal Rule to approximate the value of $\int_0^4 \sqrt{x}\ dx$ taking $n = 4$.

(iv) Find the principal value of $\tan^{-1}(-\sqrt{3})$.

(v) Find the domain of $f(x) = \sin^{-1}(5x - 3)$.

(vi) Prove that $\cos(\sin^{-1}x) = \sqrt{1 - x^2}$.

(vii) Solve the trigonometric equation $\sin x = \frac{1}{\sqrt{2}}$.

(viii) Solve the trigonometric equation $\sqrt{2}\cos x \sin x - \sin x = 0$.

(ix) A person standing 20 meters away from the base of a tree measures the angle of elevation to the top of the tree as 30°. Find the height of the tree.

(x) Give two real-life examples where vector-valued functions are necessary.

(xi) Given $x(t) = t^2 + 1$, $y(t) = \sqrt{t}$, construct $\mathbf{r}(t)$.

(xii) Find the first-order derivative of $\mathbf{r}(t) = (t^2 + 1)\hat{\imath} + (t^3 + t^2 + 3t)\hat{\jmath}$ with respect to t.

(xiii) Find the first-order derivative of $\mathbf{r}(t) = te^{-t}\,\hat{\imath} + \cos(3t)\,\hat{\jmath} + \ln(1 + t^2)\hat{k}$ with respect to t at $t = 0$.

SUBJECTIVE — PART-II (Long Questions) — Marks: 30

Attempt any THREE questions. Each part carries 5 marks. **[3 × (5 + 5) = 30]**

Q. 5 (a) Solve the equation: $3^{(x+1)} - 2 \cdot 9^x + 9 = 0$.

(b) Prove that: $\sin^{-1}\frac{12}{13} - \sin^{-1}\frac{3}{5} = \sin^{-1}\frac{33}{65}$.

Q. 6 (a) Using the Second Derivative Test, find local extreme values of $f(x) = x^4 - 8x^2 + 2$.

(b) Solve the initial value problem: $\frac{dy}{dx} - x = xy^2;\ y(0) = 1$.

Q. 7 (a) Find two positive integers whose sum is 12 and the product of one with the square of the other will be maximum.

(b) The vertices of $\triangle PQR$ are $P(1,2)$, $Q(5,-6)$ and $R(7,-2)$. Find the equations of all three medians.

Q. 8 (a) Find the area bounded by the parabola $y = x^2 - 6x + 8$, $x = 2$, $x = 4$ and the x-axis.

(b) A particle is projected vertically upwards with a velocity 100 m/s, and another is let fall from a height of 200 m at the same time. Find the height of the point where they meet each other.

Q. 9 (a) Find the equation of the ellipse as the locus of points $P(x, y)$ such that the sum of the distances from P to the points $(-3,0)$ and $(3,0)$ is 10.

(b) Find the real root of the nonlinear equation $e^x = 4x$ near $x = 2$, accurate to 3 decimal places, using the Newton–Raphson method.

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Smart Syllabus / Accelerated Learning Program (ALP) for Computer Science & Entrepreneurship Grade-12 for Academic Session 2026-27 & BISE Exam-2027

Details of excluded content for Computer Science and Entrepreneurship-12 are as under:

NOTE: No question should be included from excluded topics in any section, including: Unit Summary, Content-based questions, Exercises, MCQs, Short questions and Essay Type (Long) questions.

Unit No.	Unit Name	Excluded Content
1	**Computer Networks**	Home Network Setup and Configuration, Wi-Fi Security and Router Configuration, Network Diagnostic Tools and Commands (Page No. 11-13) Network Load Balancing (Page No. 14) Usability and Security Tradeoffs (Page No. 16)
2	**Computational Thinking and Algorithms**	Applying Predicate Logic to real-world Problems (Page No. 28-29) Logic-Based Reasoning and inference (Page No. 29) **Exercise:** Long Question (Q. 8) (Page 32)
3	**Object-Oriented Programming using Python**	Polymorphism (Page No. 39-41) **Exercise:** MCQs (Q. 5, 7) (Page No. 43) Short Questions (9, 10) Long Questions (5, 7) (Page No. 44)
4	**Development of Graphical User Interface (GUI)**	Graphical User Interface development with Tkinter (Page 45-52) **Exercise:** MCQs (Q. 1-9) (Page No. 58) Short Questions (Q. 1-8) Long Questions (1-7) (Page 59)
5	**Code Testing and Debugging**	Complete Unit is excluded.

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6	**Data and Analytics**	Validation and Model Improvement (Page No. 82-83), Predictive Modeling and Causality (Page No. 83-84), Machine Learning Tools and Platforms (Page No. 84-85) **Exercise:** MCQ. (Q 10) (Page No. 87) Short Questions (Q. 9, 10) Long Questions (Q. 7, 8) (Page No. 88)
7	**Hypothesis Testing**	Data Visualization for Hypothesis Testing (Page No. 96-99) **Exercise:** MCQs. (Q 8-10) (Page No. 101) Short Questions (Q. 8-10) Long Questions (Q.5 – 8) (Page No. 88)
8	**Applications of Computer Science**	Ethical and Cultural Implications of AI Systems (Page No. 108-111) **Exercise:** MCQs (Q 5, 6) (Page No. 116) Short Questions (Q. 5, 6), Long Question (Q 7) (Page No. 117)
9	**Cybersecurity and Safe Digital Collaboration**	Digital Collaboration and Equity in Computing (Page No. 124-127) Ethical, Legal and Environmental Impacts of Computing (Page No. 131-133) **Exercise:** MCQs (Q 7-10) (Page No. 135) Short Questions (Q. 8, 9) Long Questions (Q. 7, 8) (Page No. 136)

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Pairing Scheme

Instructions for Preparation of Exam Paper of Computer Science and Entrepreneurship for Class-12

ESSENTIAL INSTRUCTIONS FOR PAPER

The paper of Computer Science and Entrepreneurship for class-12 will consist of 75 marks. Timing of the paper will be 2:30 hours. The paper will be made as per following details:

<table>
<tr>
<td>Part-I:
Objective:</td>
<td>Q-1: Fifteen (15) Multiple Choice Questions will be selected from the entire contents of textbooks. The distribution is as under:
<table>
<tr><th>Chapter</th><th>No. of MCQs</th><th>Chapter</th><th>No. of MCQs</th></tr>
<tr><td>1</td><td>2</td><td>2</td><td>3</td></tr>
<tr><td>3</td><td>2</td><td>4</td><td>2</td></tr>
<tr><td>6</td><td>2</td><td>7</td><td>2</td></tr>
<tr><td>8</td><td>1</td><td>9</td><td>1</td></tr>
</table>
</td>
<td>1 × 15 = 15</td>
</tr>
<tr>
<td rowspan="3">Part-II:
Subjective:</td>
<td>This section will contain three (3) questions i.e. 2, 3, 4 and each question contain 9 short questions. The detail is as under:
Q-2: Attempts (6 out 9)
<table>
<tr><th>Chapter</th><th>No. of SAQs</th><th>Chapter</th><th>No. of SAQs</th></tr>
<tr><td>1</td><td>3</td><td>2</td><td>4</td></tr>
<tr><td>6</td><td>2</td><td>---</td><td>---</td></tr>
</table>
</td>
<td>2 × 6 = 12</td>
</tr>
<tr>
<td>Q-3: Attempts (6 out 9)
<table>
<tr><th>Chapter</th><th>No. of SAQs</th><th>Chapter</th><th>No. of SAQs</th></tr>
<tr><td>3</td><td>3</td><td>4</td><td>6</td></tr>
</table>
</td>
<td>2 × 6 = 12</td>
</tr>
<tr>
<td>Q-4: Attempts (6 out 9)
<table>
<tr><th>Chapter</th><th>No. of SAQs</th><th>Chapter</th><th>No. of SAQs</th></tr>
<tr><td>7</td><td>4</td><td>8</td><td>2</td></tr>
<tr><td>9</td><td>3</td><td>---</td><td>---</td></tr>
</table>
</td>
<td>2 × 6 = 12</td>
</tr>
</table>

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Part-III: Subjective:	This section will contain five (5) long questions and students have to attempt any 3 questions out of 5. Each question carries 8 marks. The detail is as under: The details are as follows: **Q-5:** One (1) detailed question should be asked from Chapter No. 1 **Q-6:** One (1) detailed question should be asked from Chapter No. 3 **Q-7:** One (1) detailed question should be asked either from Chapter No. 6 **Q-8:** One (1) detailed question should be asked from Chapter No. 8 **Q-9:** One (1) detailed question should be asked either from Chapter No. 9	$3 \times 8 = 24$

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Model Paper

Computer Science and Entrepreneurship Grade-12

(Intermediate Part-II)

OBJECTIVE

Total Marks: 1 × 15 = 15 **Time Allowed: 20 mins**

Question 1: Encircle the correct answer. Four possible answers A, B, C, D are given to each question. The choice which you think is correct, fill that circle in front of that question with marker or pen ink in the answer book. Cuttings are filling two or more circles will result in zero marks for that question.

1. Which protocol is mainly used to view web pages?
   a. FTP b. DNS
   c. TCP d. HTTP

2. Which device converts digital signals for internet transmission?
   a. Switch b. Hub
   c. Modem d. NIC

3. Which of the following is a compound proposition?
   a. P b. Q
   c. P AND Q d. True

4. A proposition that is true for at least one case is called:
   a. Unsatisfiable b. Invalid
   c. Satisfiable d. Equivalent

5. The purpose of a truth table is to:
   a. Write Programs b. Store Data
   c. Evaluate Logical Expression d. Design Algorithms

6. Which concept hides data inside a class?
   a. Inheritance b. Polymorphism
   c. Encapsulation d. Abstraction

7. Which keyword is used to define a class in Python?
   a. def b. class
   c. function d. object

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8. CRUD operations in database stand for:

a. Create, Read, Update, Delete
b. Create, Run, Update, Delete
c. Create, Read, Update, Download
d. Create, Read, Manage, Delete

9. A unique identifier for each record in a table:

a. Primary Key
b. Foreign Key
c. Secondary Key
d. Alternate key

10. Data organized in rows and columns is called:

a. Un-structured Data
b. Structured Data
c. Raw Data
d. Random Data

11. Machine learning allows systems to:

a. Work without data
b. Learn from data and improve performance
c. Only store data
d. Replace databases

12. Which of the following is a test statistic?

a. Mean
b. t-value
c. Mode
d. Median

13. A hypothesis is:

a. A final result
b. Test Value
c. Proposed Explanation
d. A dataset

14. Which of the following is an example of Cloud Computing?

a. AWS
b. MS-Word
c. Smartwatch
d. USB flash drive

15. What is the main danger of downloading unknown software?

a. Faster browsing
b. Malware infection
c. Getting rewards
d. Extra storage

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Model Paper

Computer Science and Entrepreneurship Grade-12

(Intermediate Part-II)

Total Marks: 60 **Time Allowed: 2:10 hours**

SUBJECTIVE

SECTION-I

Q # 2: Write short answers of any six questions from the following: (2 × 6 = 12)

i. What is network architecture?

ii. Which topology is being used, and why did this failure happen?

iii. How does DNS (Domain Name System) function like a phonebook for the internet?

iv. Why is propositional logic insufficient for a statement like "All students love coding," making predicate logic necessary instead?

v. What is meant by computational thinking?

vi. What do you mean by proposition?

vii. What are truth values?

viii. What is the primary difference between Supervised Learning and Unsupervised Learning?

ix. Why we used machine learning?

Q # 3: Write short answers of any six questions from the following: (2 × 6 = 12)

i. How does encapsulation help in keeping data secure and private?

ii. If you have a class called Player for a video game, write a single line of code to add an attribute for the player's health and set it to 100.

iii. What is difference between class and object?

iv. What is encapsulation in OOP, why is it important?

v. How do you connect python to a database like SQLite?

vi. What is the CRUD operation in database management?

vii. Difference between entity and attribute?

viii. What do you meant by relationship?

ix. Difference between primary key and foreign key?

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Q # 4: Write short answers of any six questions from the following: (2 × 6 = 12)

i. What is the main difference between the Null Hypothesis (H_0) and the Alternative Hypothesis (H_a)?

ii. Why is it considered an ethical issue to completely delete "outliers" (unusual data points) from your dataset just to make your hypothesis look correct?

iii. If you reject the Null Hypothesis at a 5% significance level ($\alpha = 0.05$), what is the percentage chance that you might be making a mistake and rejecting a true hypothesis?

iv. Why is the p-value important in hypothesis testing?

v. How Artificial Intelligence is useful in our daily lives? Give two examples.

vi. How does blockchain ensure security and transparency in transactions?

vii. How does Two-Factor Authentication(2FA) improve online security?

viii. How does e-waste impact the environment?

ix. How can downloading suspicious software affect a computer?

SECTION-II

Note: Attempt any three descriptive answers of the following questions: (8 × 3 = 24)

Q. 5: What is OSI model? Explain its layers and their functions? **(08)**

Q. 6: Write a Python program to demonstrate multilevel inheritance using Grandfather, Father, and Son. **(08)**

Q. 7: Describe model evaluation techniques and explain accuracy, precision, recall and F1-score. **(08)**

Q. 8: Discuss the benefits and challenges of Artificial Intelligence (AI) in society. How can ethical principles ensure fair and responsible use of AI? **(08)**

Q. 9: Describe how privacy and security settings on online platforms can be managed. Explain why reading privacy policies is important for data protection? **(08)**

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Excluded Practicals for
Computer Science and Entrepreneurship for Grade-11

List of Practicals
• Create Python programs that handle exceptions effectively. • Write and execute Python programs that involve file handling for reading and writing data. • Build Python programs that invoke functions, both with and without loops, in a modular approach. • Develop the ability to locate and correct simple code errors, such as syntax issues, through systematic examination. • Build basic statistical models, such as linear regression, for solving real-world problems. • Apply statistical models to solve real-world problems in areas like business, science, healthcare, or social issues. • Work collaboratively on modeling projects, sharing ideas, and insights to build effective models. • Read and interpret boxplots, with an emphasis on understanding sample sizes and their relationship to population parameters. • Use data analysis tools like RStudio or Python to re-randomize data for experimentation purposes. • Effectively communicate the applications and implications of cloud computing and blockchain, both orally and in written form.

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Excluded Practicals for
Computer Science and Entrepreneurship for Grade-12

List of Practicals

• Set up basic networks, configure network devices, and establish network connections.
• Proficiency in using diagnostic tools and commands to identify and resolve network issues.
• Implement basic security measures
• Implement inheritance hierarchies to represent relationships between objects.
• Implement polymorphism through method overriding and abstract classes or interfaces.
• Design interactive user interfaces using Tkinter components
• Understand the event-driven nature of GUI applications and implementing event handlers.
• Handle user events, such as button clicks and mouse interactions, within Tkinter applications.
• Create responsive and visually appealing GUIs that enhance the user experience.
• Organize GUI elements in a structured and user-friendly layout
• Troubleshoot and resolve GUI-related issues.
• Develop and execute comprehensive unit tests, analyze test results, and refine code based on testing outcomes.
• Evaluate machine learning models using various metrics, including error, accuracy, precision, recall, and F-measure.
  o Assess machine learning models with validation datasets to ensure their robustness.
• Implement train-test splitting of data to assess model performance.
  o Explain the meaning of machine learning model results in real-world scenarios.
• Apply feature engineering techniques in machine learning model building.
  o Interpret the results of machine learning model outputs, including identifying features with the most impact.
• Evaluate models with appropriate metrics related to the algorithm type and improve models using hyperparameter tuning.
• Interpret the visuals to support and illustrate conclusions drawn from hypothesis tests.
  o Use data analysis and statistical software tools (e.g., Excel, R, Python) to create data visuals.
  o Create graphs, bar charts, histograms, or other relevant data visualizations to represent data and findings.

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Smart Syllabus /Accelerated Learning Programme (ALP) Chemistry Grade-12 for Academic Session 2026-27 & BISE Exam-2027

Note: All types of questions for BISE Examination paper will be prepared from the entire content of the textbook other than those topics and questions which have been excluded / deleted in the Smart Syllabus (ALP) for Chemistry-12 (Session 2026-27).

Chapter No.	Chapter Name	Deleted Topics and Exercise Questions	Page No.
17	Group 2 Elements	**17.5:** Solubility of Group 2 Sulphates and Hydroxides **17.6:** Complex Ion Formation **17.8:** Uses of Group 2 Compounds Quick Check: 17.3 & 17.4 Multiple Choice Questions (MCQs): viii, ix & x Short Answer Questions (SAQs): b, f & h Constructed Response Questions (CRQs): C Descriptive Questions (DQs): 06	(P 7-8) (P 8-9) (P 10-11)
18	Transition Metals	**18.9:** Stereoisomerism in Transition metal complexes **18.10:** Redox Reaction of Transition metals Quick Check: 18.7 & 18.8 Multiple Choice Questions (MCQs): ix Short Answer Questions (SAQs): g, j & k Constructed Response Questions (CRQs): a & b Descriptive Questions (DQs): 7 & 8	(P 28-29) (P 30-31)
19	Basics of Organic Chemistry	**19.8:** Mechanisms of Chemical Reactions **19.9:** Isomerism **19.10:** Stereochemistry in drug development Quick Check: 19.6 (c) & 19.7 Multiple Choice Questions (MCQs): iii, V, VI, VII, VIII & IX Short Answer Questions (SAQs): a, f, g, h, & i Constructed Response Questions (CRQs): b, c, & d Descriptive Questions (DQs): 5, 6 & 7	(P 46-47) (P 47-51) (P 52)

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Chapter No.	Chapter Name	Deleted Topics and Exercise Questions	Page No.
20	Aromatic Hydrocarbons	**20.3:** Comparison of reactivity of benzene with alkanes and alkenes. **20.6:** Other Reactions of Benzene Quick Check: 20.7 Multiple Choice Questions (MCQs): Nil Short Answer Questions (SAQs): Nil Constructed Response Questions (CRQs): a & b Descriptive Questions (DQs): Nil	**(**P 60) (P 65-67)
21	Halogenoalkanes	**21.4:** Examples of reactions of Halogenoalkanes **21.5:** Halogenoarenes Quick Check: 21.3 & 21.4 Multiple Choice Questions (MCQs): IX Short Answer Questions (SAQs): g, h & i Constructed Response Questions (CRQs): e Descriptive Questions (DQs): 6	(P 78-79) (P 80)
22`	Hydroxy Compounds	**22.2:** Acidity of Alcohols & Phenols **22.6.2:** Reactions of Aromatic Ring in Phenols Quick Check: 22.2 & 22.5 Multiple Choice Questions (MCQs): VII & VIII Short Answer Questions (SAQs): b, C (ii) & f Constructed Response Questions (CRQs): a & d Descriptive Questions (DQs): 4 & 7	(P 86-87) (P 92-93)
23	Carbonyl Compounds and Carboxylic Acids	**23.3:** Oxidation of Aldehydes and Ketones **23.8:** Acyl Chlorides **23.9:** Hydrolysis of Acyl Chlorides, Alkyl Chlorides & Aryl Chlorides Quick Check: 23.3 (b,c) & 23.5 Multiple Choice Questions (MCQs): II & X Short Answer Questions (SAQs): c & g Constructed Response Questions (CRQs): c Descriptive Questions (DQs): 9	(P 102-103) (P 110) (P 110-111)

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Chapter No.	Chapter Name	Deleted Topics and Exercise Questions	Page No.
24	Organic Nitrogen Compounds	**24.3.2:** Distinction between Primary and Secondary Amines **24.3.3:** Reactions of Phenyl amines (Aromatic Amines) **24.4:** Alkanenitriles **24.5:** Amides Quick Check: 24.4 Multiple Choice Questions (MCQs): IV, V, VI, VII & VIII Short Answer Questions (SAQs): c, d, f, h & k Constructed Response Questions (CRQs): a, b, & c Descriptive Questions (DQs): 7	(P 119) (P 119-121) (P 122) (P 122-124)
25	Organic Synthesis	**25.2:** Retro synthesis and Synthesis of Some Compounds **25.3:** Synthesis of Pharmaceutical Products **25.4:** Use of artificial intelligence (AI) in drug Designing Quick Check: 25.2 & 25.3 Multiple Choice Questions (MCQs): VII Short Answer Questions (SAQs): h & j Constructed Response Questions (CRQs): b Descriptive Questions (DQs): 4, 5 & 6	(P 132-133) (P134-136) (P 137)
26	Polymers	**26.2:** Nylon **26.3**: Identification of the type of a polymer, repeat Unit and monomers from a polymer section **26.5:** Challenge of Non-degradable Polymer **26.6:** Polymer in Artificial Organs Quick Check: 26.1 & 26.2 Multiple Choice Questions (MCQs): IV, V, VI, IX & X Short Answer Questions (SAQs): a, d, f, h, i & J Constructed Response Questions (CRQs): b Descriptive Questions (DQs): 6	(P 145-146) (P 147-148) (P 150-151) (P 151-152)

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Chapter No.	Chapter Name	Deleted Topics and Exercise Questions	Page No.
27	Biochemistry	**27.1.1:** Nutritional Importance of Carbohydrates **27.2.2:** Biological functions of Proteins **27.3:** Enzymes As Biocatalysts **27.4.4:** Nutritional and Biological importance of Lipids **27.5:** Nucleic Acids **27.6:** Minerals Quick Check: 27.1 (c), 27.2 (d, e), 27.3, 27.4 (b) & 27.5 Multiple Choice Questions (MCQs): IV, V, IX, & X Short Answer Questions (SAQs): g, h, i, j, k & l Constructed Response Questions (CRQs): d & e Descriptive Questions (DQs): 7	(P 158) (P 161-162) (P 162-164) (P 166) (P 167-169) (P 169-170)
28	Chromatography	**28.4:** Gas Chromatography Multiple Choice Questions (MCQs): VII, VIII, IX & X Quick Check: 28.2 Short Answer Questions (SAQs): f, g & h Constructed Response Questions (CRQs): b Descriptive Questions (DQs): 6	(P 176-178)
29	Spectroscopy-1	**29.1:** Index of Hydrogen Deficiency **29.2**: Atomic Spectrum **29.6:** Mass Spectrometry Quick Check: 29.1 & 29.4 Multiple Choice Questions (MCQs): V, VI, VII, & VIII Short Answer Questions (SAQs): a & d Constructed Response Questions (CRQs): a Descriptive Questions (DQs): 5 & 6	(P 182-183) (P 184) (190-194)

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Chapter No.	Chapter Name	Deleted Topics and Exercise Questions	Page No.
30	Spectroscopy-2 NMR	**30.7:** ^{13}C NMR Spectroscopy Quick Check: 30. 6 & 30.7 Multiple Choice Questions (MCQs): VII, VIII, IX & X Short Answer Questions (SAQs): c & f Constructed Response Questions (CRQs): Nil Descriptive Questions (DQs): 6	(P 209)
31	Materials and Energy	**31.2:** Toxicity and Recycling in Material Science **31.7**: Energy Density and Specific Energy **31.8:** Solar energy and Photovoltaic Cell Multiple Choice Questions (MCQs): V, VI & VIII Short Answer Questions (SAQs): a, b, d, g & h Constructed Response Questions (CRQs): d Descriptive Questions (DQs): 7	(P 216-218) (P 223-224) (P 224-225)
32	Medicine, Agriculture and Industry	**32.1** Therapeutic Index and Therapeutic windows **32.3.2** Opiates and Opioid receptors **32.4** Challenges in treating viral infections **32.8** Effect of Climate Change on crops **32.9** Genetic Engineering **32.13** Applications of Industrial Chemistry **32.14** Safety measure and Precautions Quick Check: 32.1, 32.2 (c) & 32.3 Multiple Choice Questions (MCQs): I, III, VI, X Short Answer Questions (SAQs): a, c, d, f & j Constructed Response Questions (CRQs): a & c Descriptive Questions (DQs): 5, 6 & 8	(P 228-229) (P 230) (P 231) (P 234-235) (P 235) (P 238) (P 238)

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Chapter No.	Chapter Name	Deleted Topics and Exercise Questions	Page No.
33	Water	**33.4:** Water Pollution due to human activities **33.5**: Effect of water pollution on the environment **33.7:** Protection and Conversation of water Resources **33.8:** Rules and regulations regarding water pollution and conservation Quick Check: 33.4 & 33.5 Multiple Choice Questions (MCQs): Nil Short Answer Questions (SAQs): g, I, j Constructed Response Questions (CRQs): c & d Descriptive Questions (DQs): 7	(P 249-250) (P 250-251) (253-254) (P 254)

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Pairing Scheme of Chemistry Grade-12
for Academic Session 2026-27 & BISE Exam-2027

Instructions for Preparation of Exam Paper of Chemistry Grade-12

The Chemistry paper for class 12 will consist of 85 marks. Timing of the paper will be three hours. The paper will be made as per following details:

<table>
<tr><td>Part-I:
Objective:</td><td>Q-1: One multiple-choice question (MCQ) from each Chapter i.e. Chapter 17 to 33.</td><td>1 × 17 = 17</td></tr>
<tr><td rowspan="3">Part-II:
Subjective:</td><td>Q-2: 8 short answer questions must be answered out of 12. The detail is as follows:
<table>
<tr><td>Chapter</td><td>17</td><td>18</td><td>19</td><td>20</td><td>24</td><td>25</td></tr>
<tr><td>No. of Short Questions</td><td>1</td><td>1</td><td>3</td><td>2</td><td>3</td><td>2</td></tr>
</table></td><td>2 × 8 = 16</td></tr>
<tr><td>Q-3: 8 short answer questions have to be answered out of 12. The detail is as follows:
<table>
<tr><td>Chapter</td><td>21</td><td>22</td><td>23</td><td>27</td><td>28</td><td>29</td></tr>
<tr><td>No. of Short Questions</td><td>1</td><td>1</td><td>2</td><td>2</td><td>3</td><td>3</td></tr>
</table></td><td>2 × 8 = 16</td></tr>
<tr><td>Q-4: 6 short answer questions have to be answered out of 9. The detail is as follows:
<table>
<tr><td>Chapter</td><td>26</td><td>30</td><td>31</td><td>32</td><td>33</td></tr>
<tr><td>No. of Short Questions</td><td>1</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
</table></td><td>2 × 6 = 12</td></tr>
<tr><td>Part-III:
Subjective:</td><td>This section will contain five detailed questions bifurcated in two-part a & b (carrying 4 & 4 marks each) and students must attempt 3 questions The detail is as follows:
Q-5:
<table>
<tr><td>Chapter</td><td>17</td><td>21</td></tr>
<tr><td>Part</td><td>a</td><td>b</td></tr>
</table>
Q-6:
<table>
<tr><td>Chapter</td><td>18</td><td>26</td></tr>
<tr><td>Part</td><td>a</td><td>b</td></tr>
</table>
Q-7:
<table>
<tr><td>Chapter</td><td>20</td><td>31</td></tr>
<tr><td>Part</td><td>a</td><td>b</td></tr>
</table>
Q-8:
<table>
<tr><td>Chapter</td><td>22</td><td>32</td></tr>
<tr><td>Part</td><td>a</td><td>b</td></tr>
</table>
Q-9:
<table>
<tr><td>Chapter</td><td>23</td><td>33</td></tr>
<tr><td>Part</td><td>a</td><td>b</td></tr>
</table></td><td>8 × 3 = 24</td></tr>
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MODEL PAPER OF CHEMISTRY FOR CLASS-12

Objective Type

Time Allowed: 20 Min. **1 × 17 = 17**

Note: Four possible answers A, B, C and D to each question are given. For the choice which you think is correct, fill that circle with marker or pen ink in the answer book. Cutting or filling two or more circles will result in zero marks for that question.

(i) Which Group 2 oxide forms the most alkaline solution in water?

(a) Beryllium oxide (b) Magnesium oxide

(c) Calcium oxide (d) Strontium oxide

(ii) In the complex ion, $[Fe(CN)_6]^{4-}$, what is coordination number of central metal ion?

(a) 2 (b) 4 (c) 6 (d) 8

(iii) Which of the following is organic in nature?

(a) CO_2 (b) CS_2 (c) HCN (d) $CHCl_3$

(iv) Bromine reacts more readily with phenol than with benzene. This is because the

(a) Benzene ring in phenol is more susceptible to nucleophilic attack

(b) Benzene ring in phenol is deactivated because the oxygen of the OH group is very electronegative

(c) lone pair of electrons on the oxygen atom in phenol overlap with the delocalized electrons in the benzene ring

(d) lone pair of electrons on the oxygen atom enable phenol to act as an electrophile

(v) Which one of the following is not a nucleophile?

(a) H_2O (b) H_2S (c) BF_3 (d) NH_3

(vi) Dehydration of alcohols is an example of:

(a) Substitution Reaction (b) Addition Reaction

(c) Elimination Reaction (d) Redox Reaction

(vii) Ketones are prepared by the oxidation of

(a) Primary alcohols (b) Secondary alcohols

(c) Tertiary alcohols (d) Phenol

(viii) Which one of the following bases is a strongest one?

(a) Ammonia (b) Ethyl amine

(c) Phenyl amine (d) Diethyl amine

(ix) Which functional group is formed when carboxylic acid reacts with alcohol in the presence of an acid as catalyst?

(a) Alkane (b) Alcohol (c) Aldehdye (d) Ether

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(x) Which pair of monomers reacts to form a polyester?

(a) Diamine and dicarboxylic acid (b) Diol and dicarboxylic acid

(c) Ethene and chloroethene (d) Amino-carboxylic acid

(xi) Glucose is a building block for all, except:

(a) Cellulose (b) Glycogen (c) Insulin (d) Starch

(xii) A substance has a very low R_f value. What does this indicate?

(a) It is insoluble in the solvent (b) It is highly soluble in the solvent

(c) It strongly sticks to the paper (d) It has a high density

(xiii) The types of transitions possible in UV-visible region for a compound with molecular formula C_2H_4 are:

(a) $n \rightarrow \pi^*$ (b) $n \rightarrow \boldsymbol{\sigma}^*$ (c) $\boldsymbol{\sigma} \rightarrow *$ (d) $\pi \rightarrow \pi^*$

(xiv) NMR relies on the magnetic properties of nuclei known as:

(a) Chemical shift (b) Nuclear density (c) Nuclear spin (d) Signal intensity

(xv) Which property makes ceramics suitable for furnace bricks?

(a) Conductivity (b) Low density

(c) High melting point (d) Flexibility

(xvi) Which N-P-K nutrient promotes protein synthesis and chlorophyll?

(a) Nitrogen (b) Phosphorus (c) Potassium (d) Sulphur

(xvii) Which condition is a direct result of cadmium (Cd) replacing calcium (Ca) in the skeletal system?

(a) Minamata disease (b) Blue Baby Syndrome

(c) Itai-itai disease (d) Chloracne

Subjective Type (Part I)

Time allowed: 2.40 Hrs. **Max. Marks: 68**

Q. 2: Write short answers to any eight (08) questions: (2 × 8 = 16)

i. Give the products of the thermal decomposition of Strontium nitrate. Write the chemical equation.

ii. How do transition metals function as effective catalysis? Give some examples?

iii. Alkanes have no functional group. Justify.

iv. Give the systematic name of the following compounds

(i) $CH_3\text{-}CH_2\text{-}CN$ (ii) $CH_3COCH_2CH_2\text{-}CH_3$ (iii) CH_3CH_2COOH

v. Define electrophile and nucleophile with two examples each.

vi. Explain what is meant by the term delocalized π-electrons.

vii. What is a meta directing group?

viii. What is Zwitter Ion?

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ix. Give two preparations of phenylamine.

x. Give two preparations of secondary amines.

xi. Differentiate between synthesis and retrosynthesis.

xii. How is carboxylic acid converted into an amide group?

Q. 3: Write short answers to any eight (08) questions: (2 × 8 = 16)

i. How does chloropropane react with alcoholic KOH?

ii. How do you convert propanal to propan-1-ol?

iii. How is ethanol converted to acetic acid?

iv. Give the reaction of ethanoyl chloride with phenol?

v. How is the tertiary structure of protein formed?

vi. In what ways are fats and oil different?

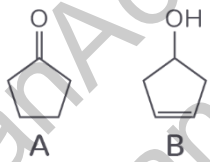
vii. What is Principle of Paper Chromatography?

viii. Why is TLC is not suitable for large-scale separation?

ix. What information does a chromatogram provide?

x. Will $CH_3CHOHCH_3$ show a significant absorption in the UV Visible region? Justify your answer.

xi. What is spectroscopy?



xii. Explain how the two isomers shown in the diagram can be distinguished using IR spectroscopy.

Q. 4: Write short answers to any six (06) questions: (2 × 6 = 16)

i. State two reasons why TMS is a standard in ^1H NMR.

ii. Give two applications of PVC.

iii. Why does deuterium (D) not appear in the NMR spectrum?

iv. State two applications of X-Ray Crystallography in science or industry.

v. Name two specific semiconductors mentioned in the text and their modern applications.

vi. How structure of penicillin allows it to inhibit the transpeptidase enzyme?

vii. What is the concept of pesticide resistance in a target pest population, linking it to the principles of natural selection and repeated application?

viii. Why microplastics are called a growing environmental crisis?

ix. Identify two types of chemical pollutants commonly found in urban storm water run off.

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Subjective Type (Part II)

Note: Attempt any three questions. **8 × 3 = 24**

Q.5:

(a) Explain the process of extraction of Mg through Dow's Method. (4)

(b) Describe the S_N1 and S_N2 mechanisms of nucleophilic substitution in halogenoalkanes. (4)

Q.6:

(a) Describe the splitting of d orbitals and color formation in octahedral and tetrahedral complexes. (4)

(b) Illustrate the formation of two condensation polymers. (4)

Q.7:

(a) Explain the atomic orbital model for the structure of benzene. (4)

(b) Explain how X-rays interact with crystals to produce diffraction patterns and how these patterns help to determine atomic positions. (4)

Q.8:

(a) Describe four methods for the preparation of alcohols. (4)

(b) Describe the structure and mechanism of action of penicillin. (4)

Q.9:

(a) Explain the relative acidic strengths of unsubstituted carboxylic acids and substituted carboxylic acids. (4)

(b) Explain the various technologies used in water treatment. (4)

List of Excluded Practicals of Chemistry-11 For Academic Session 2026-2027

- To demonstrate that gases spread by diffusion to areas of lower concentration.
- To separate the given mixture of alcohol and water by distillation.
- To determine the heat of neutralization of NaOH and HCI.

List of Excluded Practicals of Chemistry-12 For Academic Session 2026-2027

- To prepare ethene gas (C_2H_4) in the laboratory by the dehydration of ethanol (C_2H_5OH) using concentrated sulphuric acid (H_2SO_4) as a dehydrating agent.
- To recycle expanded or solid post-consumer polystyrene waste by dissolution in a nontoxic organic solvent (ethyl acetate/acetone) followed by precipitation and recovery as reusable polystyrene resin.
- To determine the Iodine Number (Iodine Value) of a given vegetable oil or fat sample using the iodometric back-titration, and to measure its degree of unsaturation.

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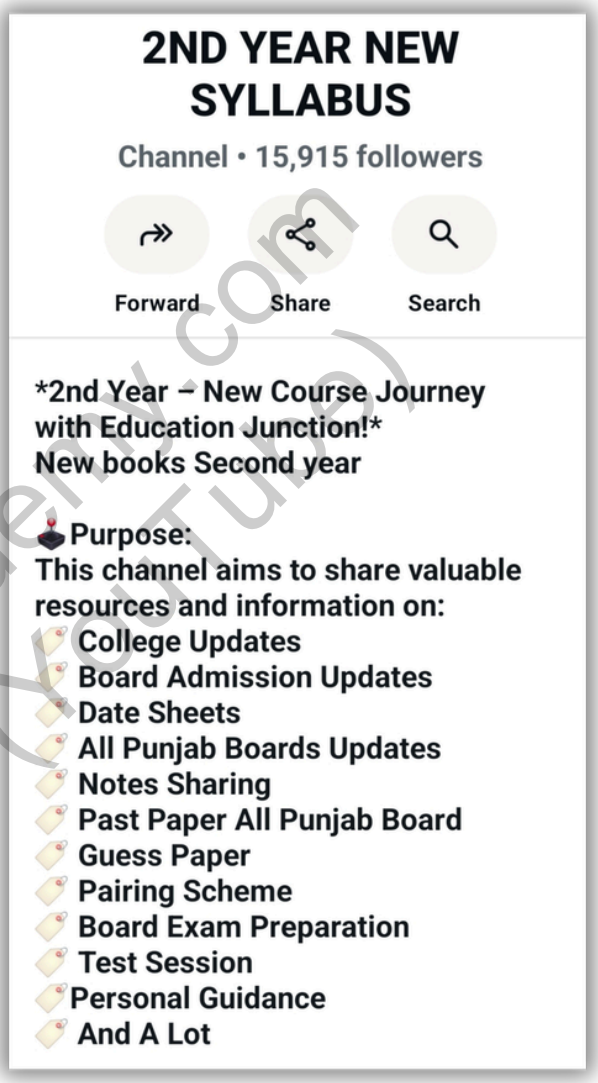
PECTAA Transformation, Innovation and Excellence	**IMPORTANT NOTE** **PECTAA has neither developed nor notified any "Smart Syllabus / ALP" for the subjects of "Tarjama-tul-Quran" and "Ethics" for Grades 9 to 12.**

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STUDENT OF 2ND YEAR
EDUCATION JUNCTION

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- Board Admission Updates
- Date Sheets
- All Punjab Boards Updates
- Notes Sharing
- Past Paper
- Guess Paper
- Pairing Scheme
- Board Exam Preparation
- Test Session
- Personal Guidance
- And A Lot



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