CONTENT

CUET (PG) BIOCHEMISTRY

PART – A

1. ENGLISH LANGUAGE COMPREHENSION / VERBAL ABILITY 3
2. GENERAL AWARENESS 85
3. MATHEMATICAL/QUANTITATIVE ABILITY 112
4. ANALYTICAL SKILLS 134

PART-B

INTRODUCTION TO BIOCHEMISTRY

1. STRUCTURE OF ATOMS, MOLECULES, BONDS, INTERACTIONS 155
2. ACID, pH, BUFFER & SOLUTIONS 161

CELL BIOLOGY

1. PROKARYOTIC, ARCHAEA & EUKARYOTIC CELL STRUCTURE 167
2. BIOLOGICAL MEMBRANES PLASMA MEMBRANE 168
3. PROTEIN SORTING 172
4. CELL ORGANELLES 174
5. GENOME ORGANIZATION 185
6. THE CELL CYCLE 188
7. MITOSIS & MEIOSIS 190
8. CELL SIGNALING 193
9. CELL- CELL & CELL - MATRIX INTERACTIONS . 200

BIOCHEMICAL TECHNIQUES

1. CENTRIFUGATION 203
2. IMMUNOCHEMICAL TECHNIQUES 206
3. PROTEIN/DNA SEQUENCING 208
4. MASS SPECTROMETRIC & SPECTROSCOPIC TECHNIQUES 210
5. ELECTROPHORETIC TECHNIQUES 216
6. CHROMATOGRAPHIC TECHNIQUES 222
7. SURFACE-PLASMON WAVE & BIOSENSOR 228

BIOMOLECULES

1. AMINO ACIDS 230
2. PROTEINS 241
3. CARBOHYDRATES & GLYCOBIOLOGY 255
4. LIPIDS 266
5. NUCLEOTIDES & NUCLEIC ACIDS 273
6. VITAMINS 281

METABOLISM

1. METABOLISM 283

BIOENERGETICS & MEMBRANE BIOLOGY

1. THERMODYNAMICS 332
2. MEMBRANE TRANSPORT 336

ANIMAL PHYSIOLOGY

1. GENERAL PHYSIOLOGY 340
2. MUSCLE & BONES 342
3. RESPIRATION SYSTEM 347
4. BRAIN & NEUROPHYSIOLOGY 349
5. GASTROINTESTINAL PHYSIOLOGY 352
6. ENDOCRINOLOGY & REPRODUCTION 360

CLINICAL BIOCHEMISTRY

1. CANCER 373
2. CIRCULATORY SYSTEM 377
3. KIDNEY & FILTRATION 383

MICROBIOLOGY

1. VIRUSES & OTHER ACELLULAR AGENTS 389
2. THE MICROBES 396
3. MORPHOLOGY & PHYSIOLOGY OF MICROORGANISMS GRAM STAINING & OTHER STAINING METHODS 398
4. MICROBIAL NUTRITION 403
5. MICROBIAL GROWTH 404

6. MICROBES & DISEASE 406
7. PLASMID 409
8. ANTIBIOTICS 410
9. FERMENTATION 412
10. APPLIED MICROBIOLOGY & INDUSTRIAL MICROBIOLOGY 413

IMMUNOLOGY

1. INNATE IMMUNITY 415
2. CELL & ORGANS OF IMMUNE SYSTEM 418
3. ANTIGENS 422
4. ANTIBODIES 423
5. ANTIGEN – ANTIBODY INTERACTION 431
6. VDJ RECOMBINATION 432
7. HYBRIDOMA TECHNOLOGY 433
8. MHC 435
9. AUTOIMMUNITY, TRANSPLANTATION IMMUNOLOGY, HYPERSENSITIVITY DISORDERS, CONGENITAL & ACQUIRED IMMUNODEFICIENCIES 437
10. VACCINE 439

ENZYMOLOGY

1. ENZYMES 442

MOLECULAR BIOLOGY / GENETIC ENGINEERING

1. REPLICATION 458
2. DNA DAMAGE & REPAIR 466
3. TRANSCRIPTION & RNA SPLICING 470
4. TRANSLATION 478
5. THE GENETIC CODE 486
6. LAC, TRP OPERON 490
7. REGULATORY RNAs 493
8. GENE REGULATION 495
9. MULTIPLE ALLELES 496
10. GENE INTERACTION 497
11. EXTRACHROMOSOMAL INHERITANCE 498
12. SEX LINKED INHERITANCE, GENOMIC IMPRINTING & MATERNAL INFLUENCE 499
13. HUMAN GENETIC DISORDERS 500
14. PEDIGREE ANALYSIS 504
15. LINKAGE 505
16. TRANSFORMATION, CONJUGATION, TRANSDUCTION & MAPPING OF GENES 506
17. POINT MUTATIONS, GROSS MUTATION AND TRANSPOSABLE ELEMENTS 508
18. ANIMAL TISSUE CULTURE 511
19. PLANT TISSUE CULTURE 513
20. MICROSCOPY 515
21. TECHNIQUES OF MOLECULAR BIOLOGY, BIOINFORMATICS & BASIC TECHNIQUES 519
22. RECOMBINANT DNA & GENETIC ANALYSIS 529
23. AGROBACTERIUM MEDIATED GENE TRANSFER 539
24. PROTEIN/ENZYME STRUCTURE, PURIFICATION, CHARACTERIZATION & FUNCTION ANALYSIS 540
25. RADIOISOTOPE TECHNIQUES 543
26. DRUG DISCOVERY & DEVELOPMENT 545
27. APPLICATION OF BIOTECHNOLOGY TO AGRICULTURE, INDUSTRY, & MEDICINES 546

CUET (PG)

BIOCHEMISTRY

PART – A

NUMBER OF QUESTION ASKED IN CUET-PG BIOCHEMISTRY (2022 to 2023)			
PART - A		**2022**	**2023**
1	English Language Comprehension/ Verbal Ability	10	10
2	General Awareness	6	4
3	Mathematical/Quantitative Ability	4	4
4	Analytical Skills	3	5

CHAPTER-1

ENGLISH LANGUAGE COMPREHENSION / VERBAL ABILITY

Previous Year Exam Questions

[CUET - PG]

Comprehension:

Read the following passage and answer the next five questions by choosing the correct options:

Multicultural emphasises the importance of cultural diversity. It recognises the dignity and importance of cultural distinctiveness. It reiterates that cultural differences are natural phenomena. Cultural diversity. diverse ideas, perspectives and beliefs enhance our vision of a better society. Multiculturalism stands for heterogeneity and diversity. It is an inclusive process in which all cultures are valued.

In India, immigration and multiculturalism are as old as recorded history. Since time immemorial, wave after wave of ethnically and culturally diverse people have poured into India, settled here, and assimilated into its mosaic. Each community, while interacting and being influenced by the others, retained its own identity, customs, beliefs and ways of life. It has truly been said that Indian culture is a 'culture of cultures', like a beehive of interlocking cells.

Hinduism has played a seminal role in shaping the Indian mind and character. It has dogma, no prophet, no single sacred book. It believes in freedom of thought and expression. It encompasses different forms of belief: monotheism, polytheism, agnosticism as well as atheism. Hinduism is also the foundation of a general sprit of tolerance and acceptance of the 'other', the belief that different paths can lead to the same goal.

Hinduism's flexibility has endowed Indian civilisation with a unique resilience and power of absorptive survival. The 700 years of Muslim rule from the 11-12th century bequeathed a mixed legacy. Politically, Islam in India represented subjugation. But culturally, it generated outstanding creative achievement and synthesis. The centuries of Muslim rule impacted all aspects of Indian life producing a composite Indi-Islamic culture.

British colonial rule replaced Muslim rule, adding one more layer to India's plural personality. India's exposure to the West was both debilitating and nourishing. On the one hand, colonial rule devalued Indian civilisation by claiming and justifying 'civilising mission' of British. On the other hand, the work of great European Ideologists helped India rediscover her classical literature, her forgotten wisdom and values.

It is striking how the intellectual journey of the leaders of the Indian renaissance went from India to the the West, before returning to India with a new-found sense of Indianness. All of them represented a mingling of East and West, a synthesis of European and Indian thought.

This was the background to the emergence of an independent, democratic India in 1947, after the bloodbath of Partition. We are the most complex and diverse society on earth. Today's India has over a billion Hindus, 150 million Muslims, 24 million Christians and 24 million Sikhs, apart from several smaller but important denominations. In addition to English and Hindi, we speak more than 20 major languages and some 22,000 dialects. Each religion is further sliced and diced by caste, sub-caste and region. There are also thousands of tribal groups with distinct ethnic and cultural identities. Each of India's states has its own centuries-old flourishing culture, with further internal diversions.

[CUET PG 2023]

1. The colonial rule in India, while justifying its "Civilising mission" also helped India rediscover her literature, wisdom and values. The statement affirms that:
   (1) India stood to advantage as she was duly civilized by the west.
   (2) The colonial influence only added another layer to India's already plural personality.
   (3) The West exposed India's inequality to hold on to its heritage of literature, wisdom and values.
   (4) India's exposure to the West was progressive in one way.

[CUET PG 2023]

2. Which of the following is not a feature of multiculturalism?
   (1) It reiterates that cultural differences are a natural phenomena.
   (2) It stands for the intermixture and diversity of cultures.
   (3) It is an inclusive process in which all cultures are valued.

(4) It recognizes the decorum and significance of cultural similarities.

[CUET PG 2023]

3. Match List I with List II to explain the terms in List II

LIST I	LIST II
A. Monotheism	I. An absence of belief in the existence of deities.
B. Polytheism	II. The belief that the existence of God is unknown or unkonwable.
C. Agnosticism	III. A doctrine or belief that there is only one God.
D. Atheism	IV. A belief in the worship of more than one God.

Choose the correct answer from the options given below:

(1) A-III, B-I, C-IV, D-II (2) A-III, B-IV, C-II, D-I

(3) A-IV. B-III. C-I, D-II (4) A-II, B-IV, C-III, D-I

[CUET PG 2023]

4. The writer says that Indian "culture is a culture of cultures like a beehive of interlocking cells." By this he means.

(1) Each culture is affected by the other cultures that it comes into contact with and so is Indian culture.

(2) Indian culture is very intricate and obscure like a beehive.

(3) Diverse cultures and ethnicities are woven into the fabric of Indian culture, each retaining their individual identity.

(4) Indian culture is the outcome of immigration by different people from time immemorial.

[CUET PG 2023]

5. Match List I with List II

LIST I	LIST II
A. Hinduism	I. Aided the rediscovery of classical literature, forgotten wisdom and values.
B. Leaders of Indian Rennaissance	II. Led to outstanding creative achievement and synthesis.
C. European Endologists	III. Played a seminal role in shaping Indian mind and character.
D. Mixed legacy of Muslim RULE	IV. Represented a synthesis of European and Indian thought.

Choose the correct answer from the options given below:

(1) A-II, B-I, C-II, D-IV (2) A-III, B-IV, C-I, D-II

(3) A-II, B-IV, C-I, D-III (4) A-I, B-III, C-IV, D-II

[CUET PG 2023]

6. Choose the correctly spelt word the given options:-

(1) SPECOLATE (2) SPAECULATE

(3) SPECULATE (4) SPEACULATE

[CUET PG 2023]

7. Out of the following options choose the correct sentence:

(1) Background music, such as Mozart's Symphony positively effects the cognitive abilities of many students while it has a contrary affect on some others.

(2) Background music, such as Mozort's symphony positively effects the cognitive abilities of many students while it has a contrary effect on many others.

(3) Background music, such as Mozart's symphony positively affects cognitive abilities of many students while it has a contrary effect on many others.

(4) Background music, such as Mozart's symphony positively affects cognitive abilities of many students while it has a contrary effect on many others.

[CUET PG 2023]

8. Match List I with List II MAtch the classes used in list I with their type in list II.

LIST I (Army Institution)	LIST II (Place)
A. The students who misbehaved in class were suspended.	I. Adverb clause of time
B. Because she was in an irritable mood, I left her alone.	II. Adverb clause of reason
C. He has been jobless since he left Delhi.	III. Noun clause
D. The gardener said that all the plants had been pruned.	IV. Adjective clause

Choose the correct answer from the options given below:

(1) A-II, B-IV, C-IV, D-I (2) A-IV, B-II, C-I, D-III

(3) A-IV, B-III, C-II, D-II (4) A-II, B-I, C-IV, D-III

[CUET PG 2023]

9. Choose the correct option which improves the sentence grammatically.

He saw looking through the window, the beggar standing right there.

(1) He saw the beggar looking through the window, standing right there.

(2) He looking through the window saw the beggar standing right there.

(3) Looking through the window, he saw the beggar standing right there.
(4) No improvement.

[CUET PG 2023]

10. Prachi knows all the most recent facts about politics. The suitable phrasal verbs for underlined part is:
(1) keeps abreast of (2) settless an account
(3) runs amok (4) makes amends

[CUET PG 2022]

11. Choose the correct form of verb to fill in the blank:
Risks come from not _____ what you are doing?
(1) have known (2) known
(3) knowing (4) know

[CUET PG 2022]

12. Choose the appropriate preposition to complete the sentence:
Her request for a transfer was turned _____.
(1) up (2) for
(3) down (4) through

[CUET PG 2022]

13. Pick out the correctly spelt word.
(1) impromptu (2) inprounptn
(3) inpromputue (4) inproptune

[CUET PG 2022]

14. Identify the correct indirect speech of the following sentence.
He said to me. "I don't believe you"
(1) He said that he doesn't believe me
(2) He told me that he didn't believe me.
(3) He told me that he didn't believed me.
(4) He told me that he didn't believe him |

[CUET PG 2022]

15. Rearrange the following parts of a sentence labelled PQRS to make a meaningful sentence.
P. overflow of powerful
Q. recollected in spontaneous
R. Poetry is a spontaneous
S. feelings - emotions
(1) QSRP (2) RPSQ
(3) QSPR (4) SQRP

[CUET PG 2022]

16. Pick out the antonym of 'strength'
(1) meekness (2) revenge
(3) frailty (4) energy

[CUET PG 2022]

17. Choose the correct sentence.
(1) He had not left, we would have been forced to evict him
(2) Hadn't he left we would have been forced to evict him.
(3) Had he not left, we would have been forced to evict him
(4) He not had left, we would have been forced to evict him.

[CUET PG 2022]

18. Choose the correct passive voice form of the following sentence.
He may have eaten the cake.
(1) The cake might have been eaten by them.
(2) The cake may have been eaten by him.
(3) He had eaten the cake.
(4) The cake might have been eaten by him.

[CUET PG 2022]

19. Pick out the synonym of the following word - 'captivating'.
(1) disappointing (2) frightening
(3) fascinating (4) frank

[CUET PG 2022]

20. Identify the part of speech of the underlined word in the following sentence.
Let us even the ground.
(1) Verb (2) Adverb
(3) Noun (4) Adjective

Answer Key									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
4	4	1	3	3	3	1	2	3	1
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4	3	1	2	3	3	3	2	3	1

[CU-CET]

[CU-CET 2014]

1. She hardly ever does her work, _____?
(1) is she? (2) doesn't she?
(3) isn't she? (4) does she?

[CU-CET 2014]

2. "You must see this exhibition!' said all my friends. Transform into indirect speech.
(1) All my friends requested me to see that exhibition.
(2) All my friends strongly advised me to see that exhibition
(3) All my friends saw that exhibition
(4) All my friends compelled me to see that exhibition

[CU-CET 2014]

3. I resented_____unjustly accused and asked him_____

(1) X, to apologise (2) being, to apologise
(3) being, apology (4) being, for apologise
[CU-CET 2014]

4. Her life might have been saved if_____
(1) you were a little alert (2) you had been
(3) she was a little alert (4) she will be
[CU-CET 2014]

5. He said he was _____Employee_____ gas company and had come to read _____ meter.
(1) an, the, the (2) a, the, the
(3) an, a, the (4) an, the, a
[CU-CET 2014]

6. Shut the door, please, expresses:
(1) a polite request (2) suggestion
(3) order (4) intention
[CU-CET 2014]

7. Point out the elements in the sentence: 'She sells sea shells on the sea shore"?
(1) SVOA (2) SVOC
(3) SVOiOd (4) SVC
[CU-CET 2014]

8. While writing about our education and experience in our resume or CV, we should start writing the year:
(1) in decreasing order (latest to the first)
(2) in increasing order (first to the present one)
(3) in any order
(4) none of the above
[CU-CET 2014]

9. His_____ to the scam was rather pointed.
(1) allusion (2) illusion
(3) delusion (4) confusion
[CU-CET 2014]

10. I_____ _____ and _____ before leaving for work
(1) dressed, ate, washed
(2) washed, dressed, ate.
(3) ate, dressed, washed
(4) dressed, washed, ate
[CU-CET 2014]

11. She didn't tell _____ about her plans.
(1) nobody (2) someone
(3) somebody (4) anybody
[CU-CET 2016]

12. You _____ better consult a doctor soon.
(1) have to (2) has to
(3) had (4) shall
[CU-CET 2016]

13. She stands a good chance _____ the match.
(1) to win (2) of winning
(3) for winning (4) towards winning
[CU-CET 2016]

14. Your performance is very _____.
(1) applicable (2) appreciating
(3) remarking (4) remarkable
[CU-CET 2016]

15. The invention of the wheel has proved a great _____ for mankind.
(1) devise (2) use
(3) boon (4) service
[CU-CET 2016]

16. I have not had _____ breakfast this morning.
(1) some (2) any
(3) nothing (4) something
[CU-CET 2016]

17. He _____ for her since morning.
(1) waited (2) waiting
(3) has been waiting (4) may been waiting
[CU-CET 2016]

18. I prefer tea _____ coffee.
(1) to (2) than
(3) more (4) rather
[CU-CET 2016]

19. My parents were _____ happy to see me win.
(1) too (2) most
(3) more (4) extreme
[CU-CET 2016]

20. The police forbade us _____ enter the house where the theft had taken place.
(1) not to (2) to
(3) do not (4) to not
[CU-CET 2016]

21. Success is _____ on hard work.
(1) depend (2) depended
(3) dependent (4) depending
[CU-CET 2016]

22. Select the most suitable synonym for MYTH
(1) truth (2) falsehood
(3) illusion (4) concoction
[CU-CET 2016]

23. Select the most suitable antonym for JUBILANT
(1) lethargic (2) inebriated
(3) refreshed (4) morose
[CU-CET 2016]

24. Identify the meaning of idiom “Child’s play”
(1) to handle a situation calmly
(2) to play like a child
(3) an easy task
(4) to treat lightly

[CU-CET 2017]

Choose the most grammatically correct and meaningful option following the direction given for each question.

Direction: Find out the word approximately opposite in meaning to the given word.

25. Agony
(1) pain (2) bliss
(3) excitement (4) fear

[CU-CET 2017]

Direction: Find out the one word substitution for the given sentence.

26. A speech delivered without preparation.
(1) straight forward (2) maiden
(3) verbose (4) extempore

[CU-CET 2017]

Direction: Find out the phrase nearest in meaning to the given word.

27. Alienate
(1) to make friendly (2) to travel widely
(3) to make isolated (4) to ban

[CU-CET 2017]

Direction: Give a substitute that best expresses the meaning of the idiom/phrase marked in bold letters in the given sentence.

28. The detective left no stone unturned to trace the culprit.
(1) took no pains
(2) did very irrelevant things
(3) resorted to illegitimate practices
(4) used all available means

[CU-CET 2017]

Direction: Complete the given sentence by choosing the right combination of the words mentioned as options.

29. It is useless to attempt to _____ from every danger, some _____ must be taken.
(1) escape, chances
(2) free, results
(3) protect, judgements
(4) dissociate, opportunities

[CU-CET 2017]

Direction: Fill in the blanks with suitable articles.

30. I saw _____snake in _____ grass.
(1) the, the (2) the, a
(3) an, the (4) a, the

[CU-CET 2017]

Direction: Fill in the blanks with appropriate prepositions.

31. The moon rose _____ twelve O'clock _____ the night.
(1) in, at (2) at, to
(3) at, in (4) to, in

[CU-CET 2017]

Direction: Fill in the blank with the appropriate word(s) to complete the following sentence.

32. There_____ any message from my teacher, since she moved to London.
(1) isn't (2) wasn't
(3) hasn't been (4) hadn't been

[CU-CET 2017]

Direction: Fill in the blank with the correct form of the verb 'slam'.

33. He _____ the door whenever he goes out of the room.
(1) slammed (2) slams
(3) slam (4) slamming

[CU-CET 2017]

34. Direction: Choose the correct one from the following sentences.
(1) The sooner a thing is done, the better it is.
(2) The sooner things is done, the better it is.
(3) The sooner things is done, better it is.
(4) The sooner a thing is done, a better it is.

[CU-CET 2018]

35. Ashish drives his car extremely fast when there is rainfall. The underlined word is an example of
(1) Noun (2) Adverb
(3) Adjective (4) Pronoun

[CU-CET 2018]

36. Which of the following is correctly spelt?
(1) Commodious (2) Commodius
(3) Commodous (4) Commodos

[CU-CET 2018]

37. Which part of the following sentence contains error?
(1) Never I have listened
(2) to such beautiful music
(3) as the piece we heard
(4) on the radio last night

[CU-CET 2018]

38. Which of the alternatives is correct, if the following sentence is changed into passive voice? Open your door
(1) Your door has opened.
(2) Has your door be opened?
(3) Let your door be opened.
(4) Let's open your door.

[CU-CET 2018]

39. Which part of the following sentence contains error?
(1) Ganges, one of the most sacred rivers
(2) to Hindus,
(3) is a trans-boundary river of Asia
(4) which flows through the nations of India and Bangladesh

[CU-CET 2018]

40. He has _____fear of heights
(1) A (2) An
(3) The (4) None of the above

[CU-CET 2018]

41. Select the correct plural of arch'
(1) Arches (2) Archs
(3) Archees (4) Arch

[CU-CET 2018]

42. Which of the following best expresses the meaning of 'Exasperate"?
(1) Elevate (2) Irritate
(3) Distrust (4) Transcend

[CU-CET 2018]

43. Which of the following is opposite in meaning to the word 'Captivate?
(1) Canvass (2) Fascinate
(3) Offend (4) Campaign

[CU-CET 2018]

44. Which of the alternatives best expresses the meaning of the underlined phrase in the following sentence?
Sheetal is in the habit of taking French leave very often.
(1) Taking sick leave
(2) Taking extra ordinary leave
(3) Taking leave on medical grounds
(4) Taking leave without permission

[CU-CET 2018]

45. Below are given three statements, such as P, Q, and R, followed by four conclusions. You have to take the given statements to be true even if they appear to be at variance with commonly known facts and then decide which of the conclusions logically follow(s) from the given statements.
Statements
P. All books are notes
Q. Some notes are watches.
R. No watch is a pencil.
Conclusions
I. Some watches are books.
II. Some notes are pencils
III. No watch is a book
IV. Some notes are not pencils
(1) I and either II or IV follow
(2) I, III and IV follow
(3) I, II and III follow
(4) Either I or III and IV follow

[CU-CET 2019]

46. Choose the correct word to fill in the blank. The students ____ the teacher on teacher's day for twenty years of dedicated teaching,
(1) Facilitated (2) Felicitated
(3) Fantasized (4) Facillitated

[CU-CET 2019]

47. Choose the correct word to fill in the blank. Dhoni as well as the other team members of Indian team present on the occasion
(1) were (2) was
(3) has (4) have

[CU-CET 2019]

48. Choose the word most similar in meaning: Awkward
(1) Inept (2) Careful
(3) Suitable (4) Dread full

[CU-CET 2019]

49. Choose the correct verb to fill in the blank below Let us _____.
(1) Introvent (2) Alternate
(3) Atheist (4) Altruist

[CU-CET 2019]

50. Select the most suitable Synonym for the word 'RESILIENT'.
(1) Stretchable (2) Spirited
(3) Rigid (4) Buoyant

[CU-CET 2019]

51. Select the most suitable Synonym for the word 'ZEST'.
(1) Humour (2) Keen Interest
(3) Attitude (4) Liking

[CU-CET 2019]

52. Select the most suitable Antonym for the word 'ROBUST.
(1) Sturdy (2) Ridiculous
(3) Muscular (4) Feeble

[CU-CET 2019]

53. Select the most suitable Antonym for the word 'DULL.
(1) Monstrous (2) Horrid
(3) fascinating (4) Ghastly

[CU-CET 2019]

54. Why were you absent _____ your dance classes yesterday?
(1) for (2) from
(3) in (4) to