

Department of Basic Sciences & Islamiat
University of Engineering and Technology Peshawar
Computer System Engineering / Computer Science & Information Technology

Mid Term Examination 1st Semester Fall – 2017

Paper: **Calculus (BSI-122)**

Maximum Marks: 25

Time: 2 Hours

Note: Attempt all questions. A correct answer with incorrect or no supporting work may receive no credit, while an incorrect answer with relevant work may receive partial credit.

Q1. a. Find the domain and range of the following function:

$$g(z) = \sqrt{4 - z^2}$$

b. For the function given in above part a, identify the intervals on which g is increasing and decreasing. Also sketch the graph and what symmetries, if any, do the graph have?

Q2. a. Find the following limit:

$$\lim_{y \rightarrow 0} \frac{\sin 3y \cot 5y}{y \cot 4y}$$

b. Find an equation for the line tangent to the following curve at the point defined by the given value of t .

$$x = t - \sin t, \quad y = 1 - \cos t, \quad t = \frac{\pi}{3}$$

Q3. a. Use the definition, calculate the derivative of the following function:

$$r(s) = \sqrt{2s + 1}$$

b. A girl flies a kite at a height of 300 ft, the wind carrying the kite horizontally away from her at a rate of 25 ft/sec. How fast must she let out the string when the kite is 500 ft away from her?

Q4. a. Find the absolute maximum and absolute minimum values of the following function, on the given interval:

$$f(x) = 5 - x^2, \quad -3 \leq x \leq 3$$

Also sketch the graph.

b. Find the local extreme values and point of inflection if any, of the function: $y = x^3 - 3x + 3$

Also show the results in graph.



DEPARTMENT OF BASIC SCIENCES AND ISLAMIAT

University of Engineering & Technology, Peshawar

Mid-Term Examination, 1st Semester Fall-2017

(COMPUTER SYSTEMS ENGINEERING)

ISLAMIC STUDIES

Max. Marks: 25

Time: 2Hrs

Note: Attempt all questions.

Q.1: Translate and explain the following verses of the Holy Quran. (7)

مَا كَانَ لِبَشَرٍ أَنْ يُؤْتِيَهُ اللَّهُ الْكِتَابَ وَالْحُكْمَ وَالنُّبُوَّةَ ثُمَّ يَقُولَ لِلنَّاسِ كُونُوا عِبَادًا لِي مِنْ دُونِ اللَّهِ وَلَكِنْ كُونُوا رَبَّيْنَ بِمَا كُنْتُمْ تُعَلِّمُونَ الْكِتَابَ وَبِمَا كُنْتُمْ تَدْرُسُونَ ○

Q.2: Translate and explain the following Hadith: (6)

عَنِ الْعَبَّاسِ بْنِ عَبْدِ الْمُطَّلِبِ قَالَ قَالَ رَسُولُ اللَّهِ ﷺ ذَاقَ طَعْمَ الْإِيمَانِ مَنْ رَضِيَ بِاللَّهِ رَبًّا وَبِالْإِسْلَامِ دِينًا وَبِمُحَمَّدٍ ﷺ رَسُولًا ○

Q.3: Explain the Migration to Habsha. (6)

Q.4: Write note on visit to Taef. (6)

UNIVERSITY OF ENGINEERING PESHAWAR

Programme:

BE 4-Year

Session: Winter, 2017

Paper:

ECC

Semester: First

Department:

CSE Section A, B & C

Total Marks: 25

Status of Exam:

Mid-Term

Time: 2-Hour

Paper Setter:

Awal Said

Contact No: 000-0000000

Student's Name: AYUB ASHRAF

C.No. 87

Note: Attempt all questions. Credit will be given only for writing relevant and grammatically correct answers. No talking, whispering or looking around and cells switched off.

Q. 1 Re-write the following sentences correctly.

1. We can take a cup of tea. We have little time before the class began.
2. I am not surprised Nagina didn't find a job. She tried hardly for them.
3. Sweden is in the northern Europe; Spain is in the south.
4. Please open your books on the page 20.
5. She is lucky. She has few problems.
6. I don't like stories who have unhappy endings.
7. I don't agree with that you have just said.
8. He, you and I will represent the university in the conference.
9. In some parts of the country, prices are more high than in others.
10. Aslam studies in one of best university of the province.
11. He did as better as I expected.
12. Students in the engineering universities are also taught english, mathematics and pakistan studies.
13. Students can improve our english communication skills by reading the dawn with a dictionary.
14. The more you read, the well you write.
15. He was walking too fastly that we couldn't followed.
16. The worlds' expert's were good to praise the two girl's courage.
17. We bought a wooden old square table.
18. The informations you gave to the detective were very misleading.
19. In titles, topics and headings, open class items comprising three or more letters are capitalized.
20. Names of newspapers, books and movies are capitalized but not underlined/italicized in sentences.

Q. 2 State the functions of adjectives and adverbs with one example each.

Q. 3 Compose a paragraph on "Why I decided to get enrolled in engineering"/ "The Socio-economic effects of cell-phone packages on Pakistani youth".

DEPARTMENT: COMPUTER SYSTEM ENGINEERING

Time: 2hrs Paper: Applied physics 1st Semester (MidTerm) Fall, 2017

Note: Attempt all questions.

Max Marks (25)

- Q.1 (a) State and prove the coulomb's law and also explain the vector form of Coulomb's law and its significance? (3)
- (b) Write the mathematical representation of the principle of superposition applied to electric forces. (1)
- (c) A certain charge Q is to be divided into two equal parts ($Q-q$) and q . What is the relation of Q to q if the two parts, placed a given distance apart, are to have a maximum coulomb's repulsion? (3)

Q.2 (a) Define electric dipole. Calculate the electric field E of an electric dipole at a point P a distance x along the perpendicular bisector of the line joining the charges. (3)

(b) Two equal and opposite charges of magnitude $1.88 \times 10^{-7} \text{ C}$ are held 15.2 cm apart.

- (i) What are the magnitude and direction of E at a point midway between the charges? (3)
- (ii) What force would act on an electron placed there? (3)

Q.3 (a) A hypothetical closed cylinder of radius R immersed in a uniform electric field E . The cylinder axis being parallel to the field. What is Φ_E for this closed surface? (3)

(b) An electron remains stationary in an electric field directed downward in the earth gravitational field. If the electric field is due to charge on two long parallel conducting plates, oppositely charged and separated by 2.3 cm, what is the surface charge density, assumed to be uniform, on the plates? (3)

Q.4 (a) Define electric potential. show that $U(r) = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r}$. (3)

(b) Two parallel plate conducting surfaces of spacing $d = 1.0 \text{ cm}$ have a potential difference ΔV of 10.3 KV. An electron is projected from one plate directly toward the second plate. What is the initial velocity of electron if it is come to rest just at the surface of the second plate? Ignore relativistic effects. (3)