DEPARTMENT OF BASIC SCIENCES AND ISLAMIAT

University of Engineering and Technology, Peshawar

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

1st Semester Fall-2016 Final-Term Examination

(Computer System Engineering)

Time Allowed: 2 hours **Max Marks: 50**

Note: Attempt all questions:

Question No 1 Find the extreme values of the function

$$f(x)=\frac{x+1}{x^2+2x+2}$$

Question No 2 Find the dimensions of a right circular cylinder of maximum volume that can be inscribed in a sphere of radius 10 cm. What is the maximum volume?

Question No 3 Evaluate the integral $\int\sqrt{\frac{x^8-1}{x^{26}}}dx$

Question No 4 Find the areas of the regions enclosed by the curves

$$y=2x^3-x^2-5x \quad \textit{and} \quad y=-x^2+3x$$

Question No 5 Find the area of the region in the first quadrant bounded on the left by the y-axis, below by the line $y=\frac{x}{4}$, above left by the curve $y=1+\sqrt{x}$, and above right by the curve $y=\frac{2}{\sqrt{x}}$.

Question No 6 Find the volume of the solid generated by revolving the region bounded by $y=\sqrt{x}$ and the lines $y=2$ *and* $x=0$ about the line $x=4$

Question No 7 Find the length of the curve $x=\int_0^y\sqrt{\sec^4 t-1}\,dt$, $-\frac{\pi}{4}\le y\le\frac{\pi}{4}$

Question No 8 Find the Taylor polynomial of order 4 generated by the function

$$f(x)=\frac{d}{dx}\int_1^x\frac{t}{t+5}dt \qquad at \quad x=1$$

DEPARTMENT: COMPUTER SYSTEM ENGINEERING

University of Engineering and Technology Peshawar

Paper: Applied physics 1st Semester (Final Term) Fall-2016

Time: 2 hrs

Max Marks (50)

Note: Attempt all questions.

Q.1

a) Define cylindrical capacitor. Show that the capacitance of cylindrical capacitor, like that of parallel-plate capacitor, depen only on geometrical factors. (8)

b) How many 1.00-μF capacitors must be connected in parallel to store a charge of 1.00 C with a potential of 110 V across the capacitors? (6)

Q.2.

a) Two vectors of magnitudes a and b makes an angle θ with each other when placed tail to tail. Prove by taking components along two perpendicular axes, that the magnitude of their sum is $r^2 = a^2+b^2+2ab\cos\theta$. (6)

b) Three coplanar vectors are expressed with respect to a certain rectangular coordinate system as $a = 4.3i - 1.7j$, $b = -2.9i + 2.2j$, and $c = -3.6j$, in which the components are given in arbitrary units. Find the vectors S which is the sum of these vectors. (6)

Q.3

a) What do you mean by a projectile? Show that the trajectory of a projectile is parabolic. (6)

b) At what points in the path of a projectile does it have its maximum and minimum speed? (6)

Q.4

a) Define work. Show that the net work done by the forces acting on the particle is equal to the change in the kinetic energy of the particle. (6)

b) A block of mass m = 3.63 kg slides on a horizontal frictionless table with a speed of v=1.22m/sec.it is brought to rest in compressing a spring in its path. By how much is the spring compressed if its force constant k is 135 N/m? (6)

University of Engineering & Technology, Peshawar

Final Term Examination. 1st Semester Fall-2016

(Computer Systems Engineering)

ISLAMIC STUDIES

Max. Marks: 50 **Time: 2Hrs**

Note: Attempt all questions.

Q.1: Translate and explain the following verses of the Holy Quran. (15)

قُلْ اِنَّمَا حَرَّمَ رَبِّیَ الْفَوَاحِشَ مَا ظَهَرَ مِنْهَا وَمَا بَطَنَ وَالْبَغْیَ بِغَیْرِ الْحَقِّ
وَاَنْ تُشْرِکُوْا بِاللّٰهِ مَالَمْ یُنَزِّلْ بِهٖ سُلْطٰنًا وَّاَنْ تَقُوْلُوْا عَلَی اللّٰهِ مَالَا تَعْلَمُوْنَ○

Q.2: Translate and explain the following Hadith: (15)

عَنِ النُّعْمَانِ بْنِ بَشِیْرٍؓ قَالَ قَالَ رَسُوْلَ اللّٰهﷺ اِنَّ الْحَلَالَ بَیِّنٌ وَاِنَّ الْحَرَامَ بَیِّنٌ وَّ
بَیْنَهُمَااُمُوْرٌمُّشْتَبِهَاتٌ لَا یَعْلَمُهُنَّ کَثِیْرٌ مِّنَ النَّاسِ فَمَنِ اتَّقَی الشُّبُهَاتِ فَقَدِ اسْتَبْرَاَلِدِیْنَهٖ
وَعِرْضِهٖ وَمَنْ وَقَعَ فِی الشُّبُهَاتِ وَقَعَ فِی الْحَرَامِ کَالرَّاعِیْ یَرْعٰی حَوْلَ الْحِمٰی یُوْشِکُ
اَنْ یَرْتَعَ فِیْهِ اَلَا وَاِنَّ لَکُلِّ مَلِکٍ حِمًیٰ اَلَا وَاِنَّ حِمَی اللّٰهِ مَحَارِمُهٗ اَلَا وَ اِنَّ فِی الْجَسَدِ
مُضْغَةً اِذَا صَلَحَتْ صَلَحَ الْجَسَدُ کُلُّهٗ وَاِذَا فَسَدَتْ فَسَدَ الْجَسَدُ کُلُّهٗ اَلَا وَهِیَ الْقَلْبُ.

Q.3: Write note on of the following: (10)

خطبہ حجۃ الوداع کے نکات

Q.4: Explain: غزوہ بدر کے اسباب اور نتائج (10)

UNIVERSITY OF ENGINEERING & TECHNOLOGY PESHAWAR

Department of Computer System Engineering/ Industrial Engineering

1st Semester, Fall 2016

Final Term

Paper: English Composition and comprehension

Max Marks: 40

Time: Allowed: 1:40 min

Part B

ATTEMPT ALL QUESTIONS. ALL THE QUESTIONS CARRY EQUAL MARKS.

Q2. Define any three of the following terms:

a. Skimming and Scanning
b. Transitive and intransitive verb
c. Descriptive paragraph
d. Adjective of quantity

Q3. Write a detailed note on the prewriting techniques.

Q4. Write an essay on "Importance of Women education".

Q5. Read the passage and answer the questions given below it.

"The other day we heard someone smilingly refer to poets as dreamers. Now, it is accurate to refer to poets as dreamers, but not as this person did, that the dreams of poets have no practical value beyond the realm of literary diversion. The truth is that poets are just as practical as people who build bridges or look into microscopes; and just as close to reality and truth. Where they differ from the logician and the scientist is in the temporal sense alone; they are ahead of their time, whereas logicians and scientists are abreast of their time. We must not be so superficial that we fail to discern the practicability of dreams. Dreams are the sunrise streamers heralding a new day of scientific progress, another forward surge. Every forward step man takes in any field of life, is first taken along the dreamy paths of imagination. The automobile was not dug out of the ground like a nugget of gold; first men dreamed the automobile and afterward, long afterward, the practical minded engineers caught up with what had been created by winging fantasy. He who looks deeply and with a seeing eye into the poetry of yesterday finds there all the cold scientific magic of today and much which we shall not enjoy until some tomorrow. If the poet does not dream so clearly those blueprints of this vision can immediately be drawn and the practical conversions immediately effected, he must not for that reason be smiled upon as merely the mental host for a sort of harmless madness.

For the poet, like the engineer, is a specialist. His being, tuned to the life of tomorrow, cannot be turned simultaneously to the life of today. To the scientist he says, "Here, I give you a flash of the future." The wise scientist thanks him, and takes that flash of the future and makes it over into a fiber of today."

1. Is poet a practical man? In what way?
2. Are dreamers, according to the author, useful to the world? why?
3. If the poet did not dream, what would happen?
4. In what way is the poet a specialist?
5. Give a suitable title to the passage.

Real type of poet.

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