

Department of Electrical and Electronic Engineering
University College Cork
EEE Giant Inter-School Table Quiz 2007
Questions and Answers

Questions Round 1 - General Knowledge

1. Who won the 2007 Golden Globe award for Best Actor in the Drama category?
2. Against which team will Munster play in the Heineken Cup quarter finals in 2007?
3. J. K. Rowling wrote the Harry Potter books, but what names do the J. K. stand for (1 point each)?
4. Who is the current Tánaiste?
5. Which two countries joined the EU on 1st January 2007 (1 point each)?
6. Which of these martial arts is NOT an official Olympic sport: aikido, judo, taekwondo?
7. Who is the lead vocalist of 'The Kooks'?
8. Which actor provides the voice for Sideshow Bob in 'The Simpsons'?

Questions Round 2 - Maths

1. How many minutes are there in a week?
2. Today is Saturday. Your friend tells you "We will meet 3 days after the day before the day before tomorrow". On what day of the week will you actually meet?
3. If 3 CDs and 6 DVDs cost €45, as do 9 CDs and 3 DVDs, how much more expensive is a DVD than a CD?
4. If x is a positive integer, what is the minimum possible value of x if: $5 + \sqrt{x} > 12$
5. What is the 100th term in the following sequence: 17, 24, 31, 38, 45....?
6. If a solid sphere of radius r is cut into two equal hemispherical halves, what is the total surface area of one of the halves?
7. What is $\tan 30^\circ$ multiplied by $\tan 60^\circ$?
8. Is π less than, equal to, or greater than $22/7$?

Questions Round 3 - Science & Engineering

1. How many planets are there in the solar system?
2. Which element is represented by the chemical symbol Rn?
3. 1111 1111 is the maximum 8-bit binary number. What is its decimal equivalent?
4. How long does it take a car initially at rest to move 18m assuming an acceleration of 1ms^{-2} ?
5. The single-phase ESB electricity supply is designated as 220 V rms. What does rms stand for?
6. Which part of a flower produces pollen?
7. If the speed of sound in air at 1 standard atmosphere and 20°C is 343ms^{-1} , what is the wavelength in mm of a sound wave with a frequency of 10kHz ?
8. A computer file may end in .PDF, but what does PDF stand for ?

Questions Round 4 - Picture Round

Q1.



Q2.



Q3.

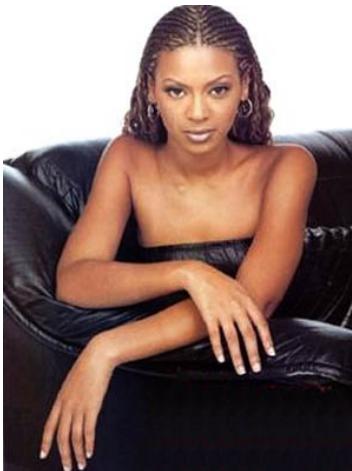


Make sure you get her name correct....

Q4.



Q5.



Q6.



Just the one showing his face....

Q7.



Q8.



Just the one without a hard hat....

Questions Round 5 - Maths

1. $\sqrt{1089}$ is an integer. What is it?
2. If a fair coin is tossed 4 times, what is the probability of getting 4 identical results (i.e. four heads OR four tails)?
3. Anne's mother says that she is 7 times as old as Anne, but in 20 years time she will only be twice as old. How old is Anne?
4. What is $\tan 45^\circ$?
5. If $\sin x = 1/\sqrt{2}$, $\cos x = -1/\sqrt{2}$ and $0^\circ < x < 360^\circ$, what is x ?
6. What is the maximum length of a narrow rigid plank of wood that can be carried (horizontally) around a right-angled corner of a 2m wide corridor?
7. €0 is invested at 10% per annum compound interest, which is paid once per year. Is the interest earned over 2 years: (a) €5 (b) €10.50 (c) €5.50 (d) €60.50?
8. Take the number of states in the USA, multiply by the number of lives a cat is reputed to have, divide by the Roman numeral X, and then subtract the number of cents in a US quarter. What is the resultant number?

Questions Round 6 - Science & Engineering

1. Who was the LAST man on the moon?
2. What is the common name for your patella?
3. For a mobile phone, what does MMS stand for?
4. You have a 1.4kW kettle with a missing fuse. What is the lowest rating of fuse you could use in Ireland: is it 3A, 5A, 10A, or 13A?
5. You may use a broadband modem to access the internet, but modem is the contraction of which two words (1 point each)?
6. What is the chemical formula for ammonia?
7. A high speed train starts from rest and accelerates uniformly to a final velocity of 30ms^{-1} after travelling 1.8km. What was its acceleration?
8. You see a flash of lightning and hear the thunder 12 seconds later. To the nearest km, how far away was the lightning strike? Was it: (a) 3km, (b) 4km, or (c) 6km?

Questions Round 7 - Maths Pictures

Q1.

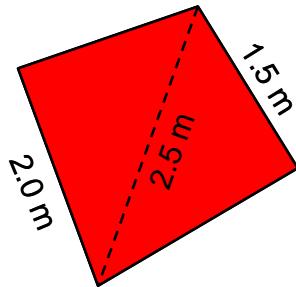
$$\int_0^{2\pi} (1 + \sin^3 x) dx$$

Q2.

$$\begin{bmatrix} 3 & 2 \\ 0 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 7 \\ 8 \end{bmatrix}$$

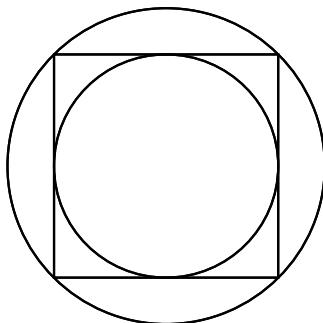
What is y ?

Q3.



A symmetrical kite is made with the dimensions shown, out of fabric that costs €20 per m². How much does the kite fabric cost?

Q4.



A circle is inscribed inside a square inside a circle of radius 1 metre, as shown. What is the radius of the inner circle?

Q5.

$$\frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}$$

Express the following as a simple fraction:

Q6.

$$\lim_{x \rightarrow \infty} \frac{x^3 + 2x^2 + x + 10}{x^3 + 3x^2 + x + 5}$$

Evaluate:

Q7.

$$\frac{x^4 - x^3 + x^2 - x}{x - 1}$$

Simplify the following as a polynomial:

Q8. If

$$x = \sqrt{\sqrt{\sqrt{7000}}}$$

is x closer to 2, 3, 4, 5 or 6?

Questions Round 8 - General Knowledge

1. What star sign would you be if you were born today (27th January)?
2. What is the capital city of Bulgaria?
3. What is the collective noun for a group of seals?
4. What is the longest running science fiction TV show?
5. The Meteor Awards are being held on 1st February. Who is co-hosting the event with Podge and Rodge?
6. How many points is potting the blue ball worth in a game of snooker?
7. Who scored the second goal for Arsenal in their match against Manchester United last Saturday?
8. What is the maximum speed limit in km/h on national (N) roads in Ireland?

Answers Round 1 - General Knowledge

1. Forest Whittaker(in 'The Last King of Scotland')
2. Llanelli Scarlets
3. Joanne Kathleen
4. Michael McDowell, TD
5. Bulgaria and Romania
6. aikido
7. Luke Pritchard
8. Kelsey Grammer

Answers Round 2 - Maths

1. 10,080
2. Monday
3. €3
4. 50
5. 710
6. $3\pi r^2$
7. $1/\sqrt{3} \times \sqrt{3} = 1$
8. Less than ($22/7 \approx 3.142857$)

Answers Round 3 - Science & Engineering

1. 8 (Pluto was declassified in 2006)
2. Radon

3. 255
4. 6s
5. root-mean-square
6. anther or stamen
7. 34.3mm
8. Portable Document Format

Answers Round 4 - Picture Round

1. Kylie Minogue
2. Daniel Craig (007)
3. Shilpa Shetty (Celebrity Big Brother)
4. Gary Lightbody (Snow Patrol)
5. Beyonce
6. Ronan O'Gara
7. Sarah Morrissey (Miss Ireland 2006)
8. Noel Dempsey, TD

Answers Round 5 - Maths

1. 33
2. 1/8
3. 4
4. 1
5. 135°
6. $4\sqrt{2}\text{m} (\approx 5.657\text{m})$
7. (b) €10.50
8. 20

Answers Round 6 - Science & Engineering

1. Eugene Cernan
2. Kneecap
3. Multimedia Messaging Service
4. 10A
5. modulator and demodulator
6. NH_3
7. 0.25ms^{-2}
8. (b) 4 km

Answers Round 7 - Maths Pictures

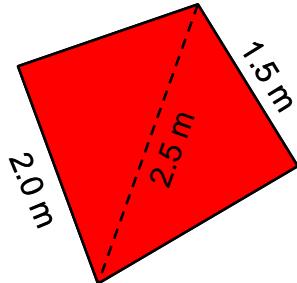
Q1.

$$\int_0^{2\pi} (1 + \sin^3 x) dx$$

Q2.

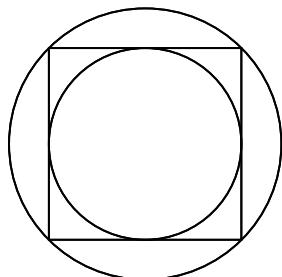
$$\begin{bmatrix} 3 & 2 \\ 0 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 7 \\ 8 \end{bmatrix}$$

Q3.



€60

Q4.



Q5.

$$\frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}$$

Q6.

$$\lim_{x \rightarrow \infty} \frac{x^3 + 2x^2 + x + 10}{x^3 + 3x^2 + x + 5}$$

1

Q7.

$$\frac{x^4 - x^3 + x^2 - x}{x - 1}$$

$x^3 + x$

Q8. If

$$x = \sqrt{\sqrt{\sqrt{7000}}}$$

3 ($x = 3.0244$)

Answers Round 8 - General Knowledge

1. Aquarius
2. Sofia
3. A pod
4. Dr. Who (since 1963....)
5. Deirdre O'Kane
6. 5
7. Theirry Henry
8. 100 km/h
