



BENNETT
UNIVERSITY
TIMES OF INDIA GROUP

POSSESSION OF MOBILE IN EXAMINATION IS A UFM PRACTICE

Name of Student -----Enrolment No. -----

Department -----

BENNETT UNIVERSITY, GREATER NOIDA

End Term Examination, SPRING SEMESTER 2017-18

COURSE CODE	: IENT 104L	MAX. DURATION	: Two HOURS
COURSE NAME	: DEVELOPING ENTREPRENEURIAL MINDSET & SKILLS - 2		
COURSE CREDIT	: 3	MAX. MARKS	: 40

INSTRUCTIONS

- Please attempt all questions in the paper.
- Each "Slide" format is to be treated as **one question**.
- All questions have equal marks assigned to them. In total there are eight questions ("SLIDES") of 5 marks each.
- This paper has self-answering sheets, and needs to be submitted at the end of the examination.
- Please only answer in the space provided. Brevity will be appreciated.
- No extra sheets shall be provided for this paper.
- If you have any confusion in the paper, please take an assumption and attempt the question. Kindly state the assumption.

Read the following article and answer the questions post reading the same in the sheets provided.

DOCTOR IN A CUBE!



Like all good entrepreneurs, Dr Syed Sabahat Azim has an excellent idea and he knows how to sell it. While at it, the IAS officer-turned-entrepreneur also hopes to solve India's primary healthcare problem. "We call it hospital in a box," says Dr Azim, chief executive of Kolkata based Glocal Healthcare Systems Pvt Ltd, pointing to a shiny about two-and-half-feet a-side cube. A computer monitor sits atop the cube and a scanner overhangs the illuminated table-top of the

portable box. The device is a sleek assembly of off-the shelf diagnostic equipment tweaked for easy operation, electronic recording of information and implanted with a custom-written algorithmic software for interpretation. It's linked to an automatic dispenser — the kind you see at airports shelling out beverages and snacks — calibrated to dispense medicines. The

only thing a patient will miss at clinics equipped with these cubes will be the physical presence of a doctor.

Despite years of state planning and spending billions of rupees, India has not managed to reach affordable, quality healthcare to most of its citizens. Union health minister JP Nadda told Parliament last December that in 2014, about 23.66% rural households faced catastrophic healthcare expenditures in India. Indian public health standards require a primary health centre (PHC) for every 30,000 citizens in the plains and one for every 20,000 population in the hills.

These are to be manned by a mandatory staff of 14 headed by a doctor. Under the healthcare structure envisaged by planners, however, the first level is a sub-centre (SHC) manned by a nurse for every 5,000 people in the plains and 3,000 in the hills. While there is an SHC shortfall of 20% and PHCs are short by 22%, even the existing centres are often ill-equipped and plagued by staff absenteeism.

Inadequacy of the Public Health System

As per population norms March 31, 2016


SUB CENTRES

Required 1,79,240 Shortfall 35,110



PUBLIC HEALTH CENTRES

Required 29,337 Shortfall 6,572



COMMUNITY HEALTH CENTRES

Required 7,322 Shortfall 2,220



DOCTORS AT PHCs

Required 34,750 Vacancies 9,389



PHARMACISTS AT PHCs

Required 28,268 Vacancies 5,456



LAB TECHNICIANS AT PHCs

Required 22,626 Vacancies 6,139



NURSES AT PHCs

Required 74,098 Vacancies 11,757



Source: Ministry of health and family welfare

The cube is a compact innovation that could help take affordable primary healthcare to remote locations. It holds medical devices such as a dermascope, ECG machine, electronic stethoscope, doppler ultrasound scanner and rapid test kits for diseases such as dengue and malaria or a condition like pregnancy. It also houses a small device that can run 25 tests from two drops of blood in 12 minutes. Dr Azim considers it the future of primary healthcare.

HOSPITAL BY DESIGN

Glocal, which runs a chain of 11 hospitals, relies on innovation in processes and design for cost-effective healthcare in small towns. Dr Azim says each Glocal hospital is built for Rs 15 crore, half the cost of a regular 100-bed hospital. Private equity firms Sidbi Venture Capital Fund, Sequoia Capital and Elevar Equity have invested Rs 35 crore, Rs 13.5 crore and Rs 19.5 crore, respectively, in Glocal.

Glocal's hospitals are designed like lego pieces and have 100 beds each, along with state-of-the-art equipment. Every segment of a hospital — operation

theatres, intensive care units or administrative rooms — are housed in 50x40 feet blocks, which, Dr Azim says, are the optimum use of cement and steel within the government's building norms for hospitals.

"Form should follow function," he says. The hospitals are built with acute care and saving life as top priority. Glocal has standardised protocols for 38 ailments which cover 91% of illnesses or conditions. According to Dr Azim, doctors trained in classical specialities such as

cardiology or neurology tend to focus on cause and effect of a patient's condition which wastes crucial time. There are seven parameters — such as oxygen, water and electrolytic balance — in a body that need to be maintained for survival. Emergency care focuses on stabilising these.

For that, doctors need to follow laid down protocols instead of waiting for diagnosis. "Our ICU mortality rate is 8%, compared to 12 % in the US and 18% in India," he says. The process-driven and frugal design approach extends to digital dispensaries.

The critical innovation in the cube is its brain called LitmusDx: a diagnostic support system whose algorithm works on semantics rather than symptoms. At Glocal digital dispensaries nurses feed the personal information and vital parameters of patients such as blood pressure, oxygen saturation rate, ECG and temperature and symptoms into the computer. The nurses can also scan and upload investigation reports such as X-ray and Magnetic Resonance Images. If a patient says she has a sharp pain in the abdomen, the software would slot it into one of 38 semantic buckets. "The way a patient feels pain, how he expresses it and how the doctor understands it could be very different. A sharp pain for one person may not feel as sharp to another. So, it fuzzifies the information," Dr Azim explains.

The system converts 38 different complaints into parent symptoms and, as more information is recorded, it starts matching with sibling symptoms. By the time the doctor and patient come face to face on video, the software would have already arrived at a shortlist of possible diseases or conditions the patient may be suffering based on the symptoms and other information, which includes the patient's and her family's medical history.

The doctor, sitting either at Glocal's KPO centre or connected at their own clinics or homes in an Uberised model, can examine the patient through an electronic stethoscope that relays the heartbeat directly to her or look closely at a rash through the dermascope. The software may also suggest investigations. If the doctor agrees, the nurse at the clinic draws blood.

The blood testing machine integrated into the cube is a device that has a special disc with volume-calibrated capillaries holding dry reagents. It takes just 12 minutes to do 25 different parametric tests which are printed out for the patient as well as appears at the doctor's computer screen instantly. The doctor can also order further rapid tests such as for dengue or malaria for which kits are available.

When the doctor selects a prescription, the machine talks to the dispenser which shells out the required dosages of the medicines.

Theoretically, the algorithm can be finetuned to arrive at a final diagnosis and prescription on its own.

BRINGING DOWN COSTS

Telemedicine has grown roots in many parts of the country with rapid advances in communication technology and infrastructure. High speed Internet has reached many far-

flung areas bringing costs down and pushing government agencies as well as private players into setting up telemedicine projects.

Research by three University of Arkansas scholars and a Kanpur cardiologist found that telemedicine as a healthcare delivery system has been effective in several underserved areas of India; including government and private initiatives.

In a February 2017 paper titled 'Evolving Role of Telemedicine in Health Care Delivery in India,' authors Pankaj Mathur, Shweta Srivastava, Arati Lalchandani and Jawahar L Mehta say that although not a substitute for traditional healthcare system, telemedicine can be used to overcome healthcare disparities in the underserved areas:

"Indian primary healthcare needs to move from brick and mortar to click and mortar," says Anjan Bose, secretary general of NatHealth or Healthcare Federation of India. "The only way to reach reasonably acceptable quality primary healthcare to rural areas is through technology," Bose says. He, however, cautions that there is always a trade-off between cost and quality. "Telemedicine is still evolving. So, we have to proceed with caution."

A 2015 Lancet study found cost per visit for patients to a public clinic was Rs 554 and to a private clinic was Rs 788 in 2014. Dr Azim claims Glocal's digital dispensary costs Rs 225 per patient for bulk customers such as governments. It can keep the cost, which includes consultation fee, tests and medicines, low because of large number of patients at government clinics.

Glocal currently runs 112 dispensaries of which 100 are in Rajasthan where the government has turned over public health centres to it to manage. It is setting up centres in Odisha, Jharkhand and Chattisgarh with the state governments. It is also preparing to roll out a franchisee model in Bihar with Bank of Baroda.

Indian Public Health Standards require a minimum staff of 13 at PHCs. To compare, Glocal's dispensaries are run by a staff of three to four.

Source: Narayanan, D. (2017, September 13) Digital dispensaries take affordable healthcare to remote locations. *The Economic Times*. Retrieved from <https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/digital-dispensaries-take-affordable-healthcare-to-remote-locations/articleshow/60503121.cms>

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IENT 104L: DEVELOPING ENTREPRENEURIAL MINDSET & SKILLS - 2

(5 Marks)



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MACRO ENVIRONMENT CONDITIONS

Favourable to the Start-up

- _____
- _____
- _____
- _____
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Unfavourable to the Start-up

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IENT 104L: DEVELOPING ENTREPRENEURIAL MINDSET & SKILLS - 2
(5 Marks)



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TARGET CUSTOMERS

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10-05-2018

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(5 Marks)



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CUSTOMER NEED/s

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(5 Marks)



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PROBLEM DEFINITION

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(5 Marks)



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PRODUCT/SERVICE DESCRIPTION

- _____
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(5 Marks)



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VALUE PROPOSITION

- _____
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(5 Marks)



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REVENUE MODEL

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(5 Marks)

RECOMMENDATIONS

(If given a chance of interaction with the founder what will be your recommendations)

For Scaling the Business

- _____
- _____
- _____
- _____
- _____
- _____

Towards Product/Service Innovation

- _____
- _____
- _____
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- _____
- _____

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