AN IMPLEMENTATION OF WEB-BASED TESTING APPLICATION:

OGUN STATE INSTITUTE OF TECHNOLOGY, IGBESA, NIGERIA

UNDER CONSIDERATION

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ABSTRACT

Online Examination has been for years and it has helped many Schools (Tertiary, Colleges and even High Schools) for students' entrance examination and even job employment. This research work is to implement a designed platform for an online examination application (Web-based Test) with the following objectives; to evaluate the positive and the negative effect of Web-based Testing and to implement a software application for Web based examination for students seeking an admission into the Institution. The Web-based System Components were mentioned with the proposed Architecture for the WAMP Server. And, the explanation of each component was given. Finally, the screenshots of some of the important web pages like the home pages of the site, user registration account, etc. were displayed in other to show how the application is being implemented.

Keywords:Web-based Testing, Online-Examination, Internet, Students and Entrance.

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INTRODUCTION:

The increase in computers coupled with the numerous portable devices like, Palmtops, IPad, Tablet and Mobile phones have made Internet usage tremendous in this decade. As knowledge is increasing, innovators tend to improve daily on the technologies which have made internet facilities possible such as reliable network devices, improved Internet Service Provider, availability of portable modems for internet connections etc.

These improvements in the Internet Services have won the heart of majority of people by changing ways and approaches of doing things. This breeze of changes has moved to the educational sectors where most Institutions have made most of the programmes they have known to the whole world through the Internet. Countless numbers of Institutions' Web sites are on the internet for people to see.

More so, Institutions, whether Colleges, Polytechnics, University and even Secondary Schools have chosen Online Examination as part of their recruitment assessment where students have to write a

particular exam before he/she can be qualified to be admitted. Some Schools prepared an in-house (Local Server) online exam for the newly applied students who are seeking admission into the school as the first pre-requisites for selecting good students amongst others. Finally, online examination is now common. Even industry, organization and government parastatals are now using online exams to select people for job (job recruitment).

This paper implements an online examination (in-house test) platform for a Tertiary Institution in Ogun State, Nigeria. Ogun State Institute of Technology, Igbesa, (OGITECH) is a vibrant Polytechnic which has outstood its counterparts in different capacities – both in the number of accredited courses, the students and the even in the staff strength. Recently, the school has taken a challenging steps by having her Entrance Examinations done online where by the students come to the Institution to have there examinations done.

EVALUATION OF POSITIVE AND NEGATIVE EFFECT OF A WEB-BASED TEST:

The Online examination has an incomparable superiority to the conventional mode of examination and this superiority has made many Institutions considered it as a positive tool which will bring rapid development to the school (Jin and Peng, 2011). Amongst the positive effects of Online Examination are;

1   Time and Spaces Reduction: - The Web-based test has made examination writing to take another shape. It allows the students to receive instant grade by allowing teachers or marker to use the time which they would have been used for scripts' marking to do other tangible thing(s). Moreso, it reduces the space(s) where question papers, answer scripts or booklets would have been kept and thus, reduces the expenses which would have been incurred to purchase cabinets.

2   Improvement of partiality in the Scoring: Due to the marking and grading which is done by the computer in the Online Examination, it has helped to improve the partiality or favouritism in the scouring system by the markers. The issue of 'He's my son or my friend's son is denied and eliminated'.(Post and Hargis, 2012)

3   Reduction in Manpower: The Web-based test or online examination allows all questions and answers to be uploaded to the Internet or typed; it eliminates the need for invigilators or supervisors and does not need people for marking and grading. Unlike the conventional method of conducting

examination where there is need for invigilators, supervisors and even people that will mark the answer booklets.

4   Reduction in materials: The emergence of Internet has brought reduction in the usage of paper. The use of e-mail and other electronic disseminations have limited the rate at which papers are being used. The e-Testing or Web-based examination is not an exception because it eliminates the use of papers (both the question papers and the answer booklets).

5   Ease the Marking and Recording: The computer does the marking itself once the student or candidate clicks on submit or finish at the end of the exam to see his/her grade. This ease marking and recording because the entire student's data are stored in the computer database for future records. All aspects of traditional test can be reduced to one or two links by Online Examination, greatly reducing the workload of teachers (Jin and Peng, 2011)

 It is obvious that with the numerous positive effects of the Web-based Test/ examination has given, there are still negative effects it has. The followings are the negative effects of Web-based examination.

1   Cost of acquire: Before an examination could be done On-line or a test could be made Web-based, a huge amount of money has to be involved. The cost of getting a computer which may not be less than 50 depending on the numbers of targeted students, networking of the gadgets for communication and the monthly charges paid to the Internet Service Provider (ISP) are huge amount of money which need to be taking into consideration.

2   Cost of Maintenance: Cost of maintaining computers, networking devices and even the application itself - the database, Web site etc. since is a dynamic web site involves huge amount of money which can never be underemphasized.

3   Instability in Internet service: The instability in the internet service can be frustrating where large number of students is waiting for exam. It is even worst, where the students have started the examination already and there was a network failure which could be due to many reasons. (Folajimi and Ojo, 2012)

4   Sudden Malfunctioning of Device: Networking gadgets and other devices are machines, and they can develop fault at any time. The sudden malfunction of any of this device can hamper the examination by terminating the continuation of the exam till when solution to it is gotten.

THE SYSTEM:

Every Web-based application must be a server supported application and before an application or software is made a Web-based it must run on a platform which has to support Web-based server. Online examination or e-testing is not an exception. The implementation of this Online Examination application is done on a WAMP Server. WAMP is an acronym for Windows Apache MySQL and PHP; it forms the components for the system (Web-based Application-Online examination.
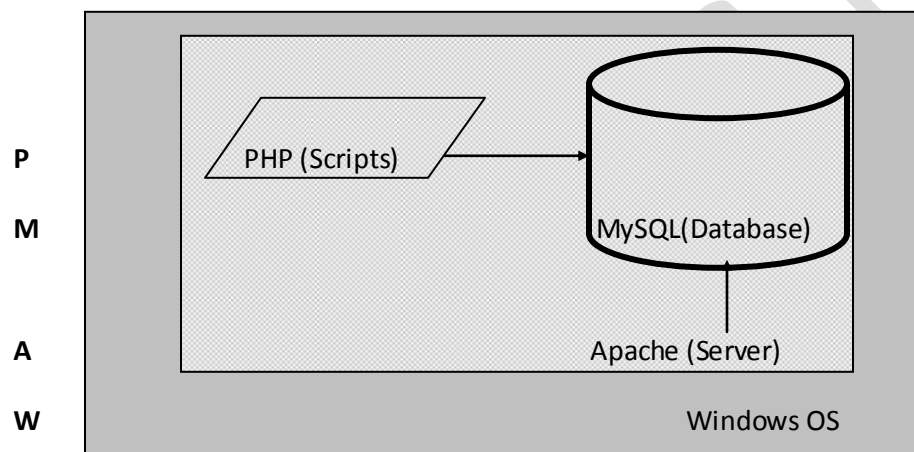
SYSTEM COMPONENTS

Fig.:Propose WAMP Architecture - System Components

The figure above shows how the System Components of WAMP Server interact together. Windows Operating System is the Operating System platform that other components reside and it fully performs the functions like enabling start-up application programs, controlling and allocating memory, provides file management etc. (Howstuffworks, 2013). Apache is the Web Server that communicates with client to get requests and process it if need be, it is also responsible for sending the information back to client in form of web pages. It hosts both the PHP scripts and the Database. MySQL is basically the database management system (DBMS) that store and manages the data required. It also resides on the server side, and physically may reside on the same or different machine. The PHP handles presentation of questions or other information that comes from the server. The information or questions presented in the web browser in this system is PHP scripts in form of HTML pages.

(Kinshuk, n.d).

SYSTEM MAIN FLOW

The diagram below shows the system main flow with the following explanations.

The Home Page is the site's first page seen by the visitors (both the students and other users). It is where the Users Create Account so that they can login into the Exam Page. The entrance students were not required to create an account but rather they were given a password and their name as the username which they use to login to the Exam Page.

Once the Username and Password are correctly typed, the student is taken to the Start Exam Page where he/she takes the exam and click on submit/finish at the end of the exam. Immediately a finish/submit button is clicked the student's result is displayed by the computer.
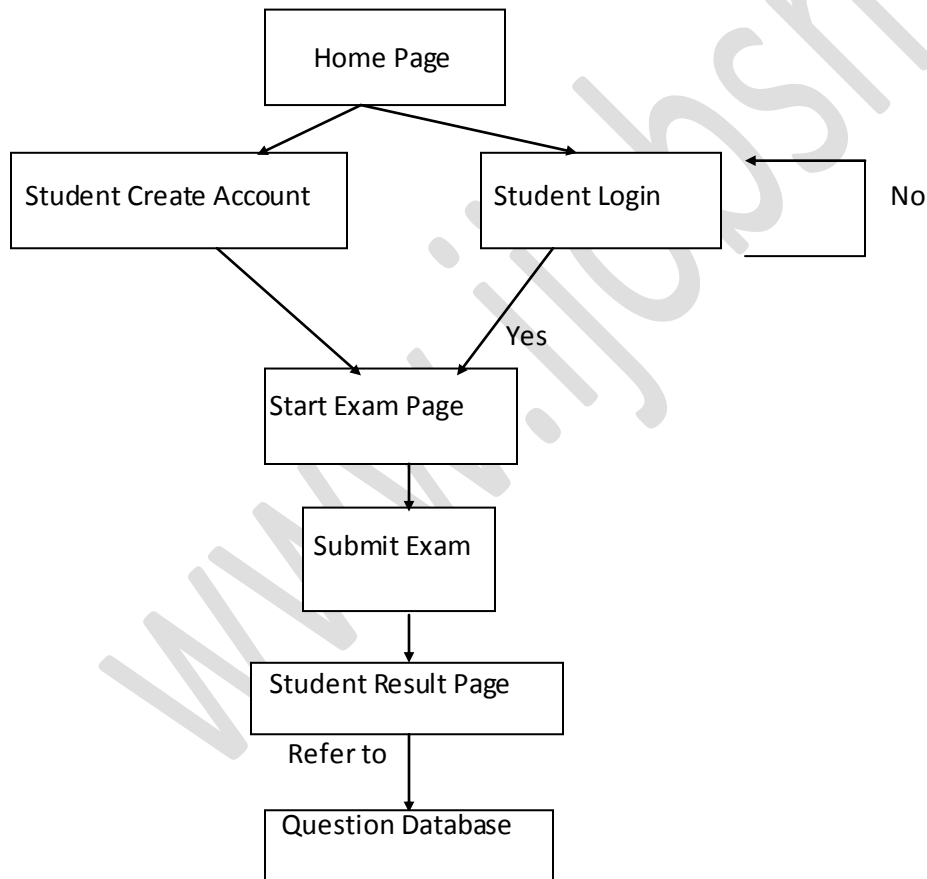

Fig.: System Main Flow

IMPLEMENTATION:

The implementation of this System was done for the students seeking an admission into the Tertiary Institution of Ogun State Institute of Technology, Igbesa, Ogun State, Nigeria. This application was implemented in the last academic session and it proved successful. The students were contacted; the date and the day of the examination were sent to them through their phone numbers and e-mail numbers. On the day of the entrance examination each student was given a small slip that indicates their password which they will use to lunch the exam. While, their names were used as a user name. A sizeable number of students like six hundred students were used for the implementation of the application.
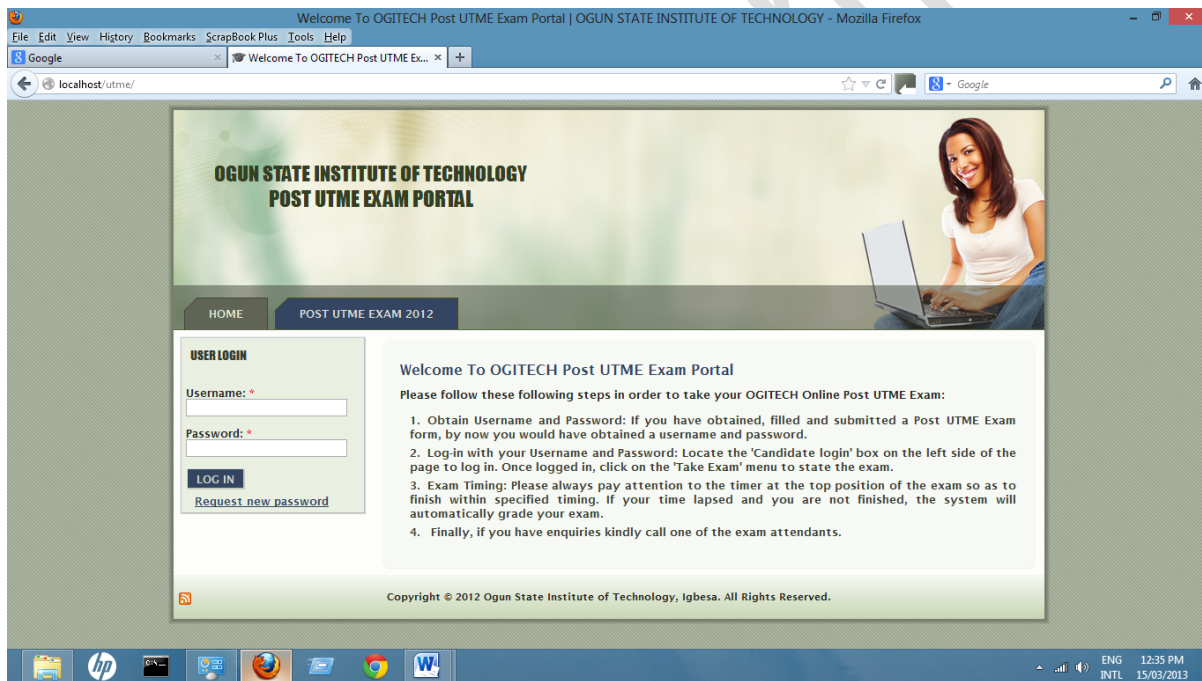
SCREENSHOTS AND DISCUSSION:

Fig.:Home page of the Entrance Examination Web Site

The students log in with their names as the username, and the combinations of both the digit and the letter in the small slip given to them make up the password which they will type at the password column in other to log in into the entrance page.
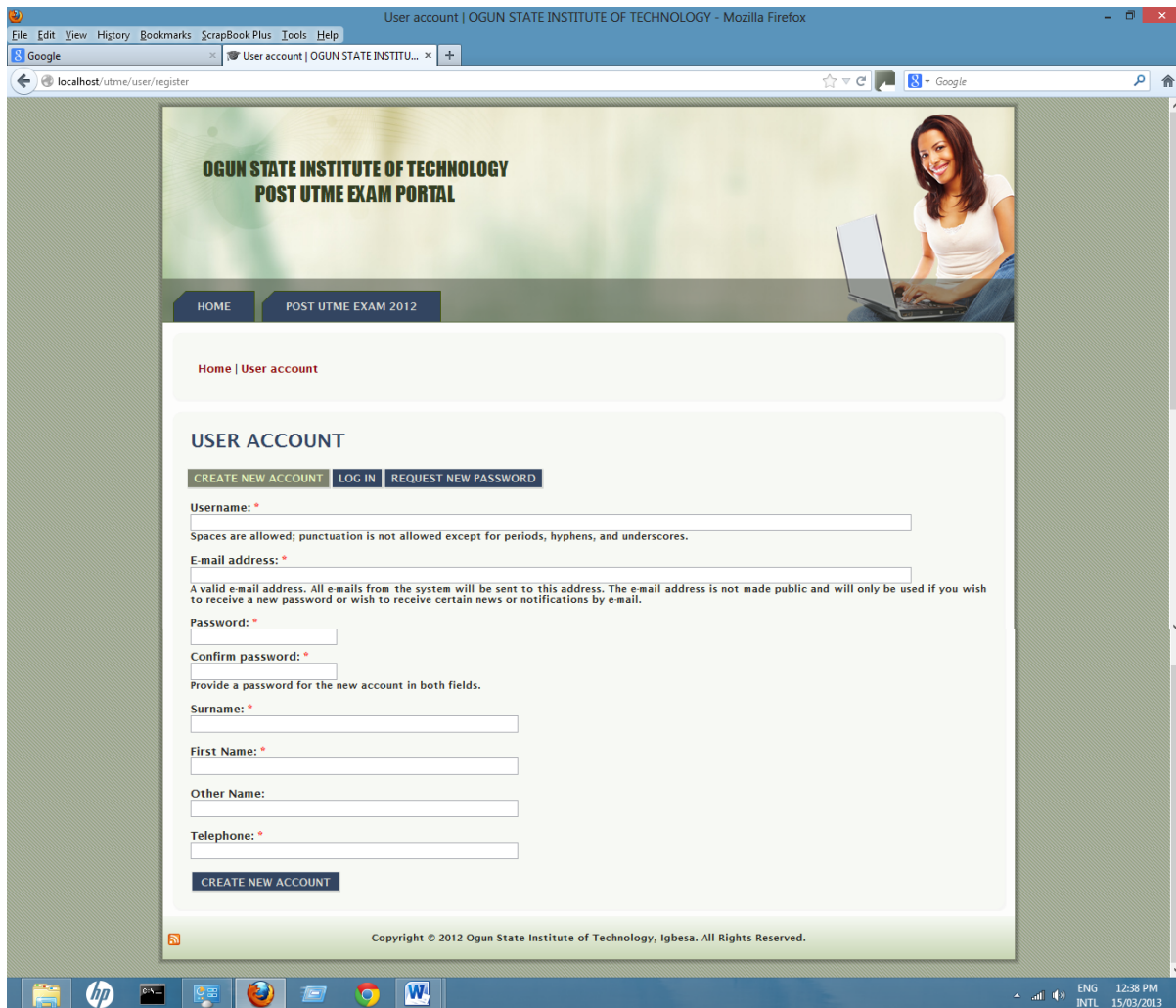
FIG.: User Account Page

This page allows anybody that wants to increase his/her knowlwdge by taking the test and retake the test in other to have a personalised experience. But, before anyone can log In or have access to take the test, he/she needs to be unblocked by the administrator first.

The information displayed above must be given before the submission of the form. And most importantly, those information astericks must be provided if not the form will not be submitted.
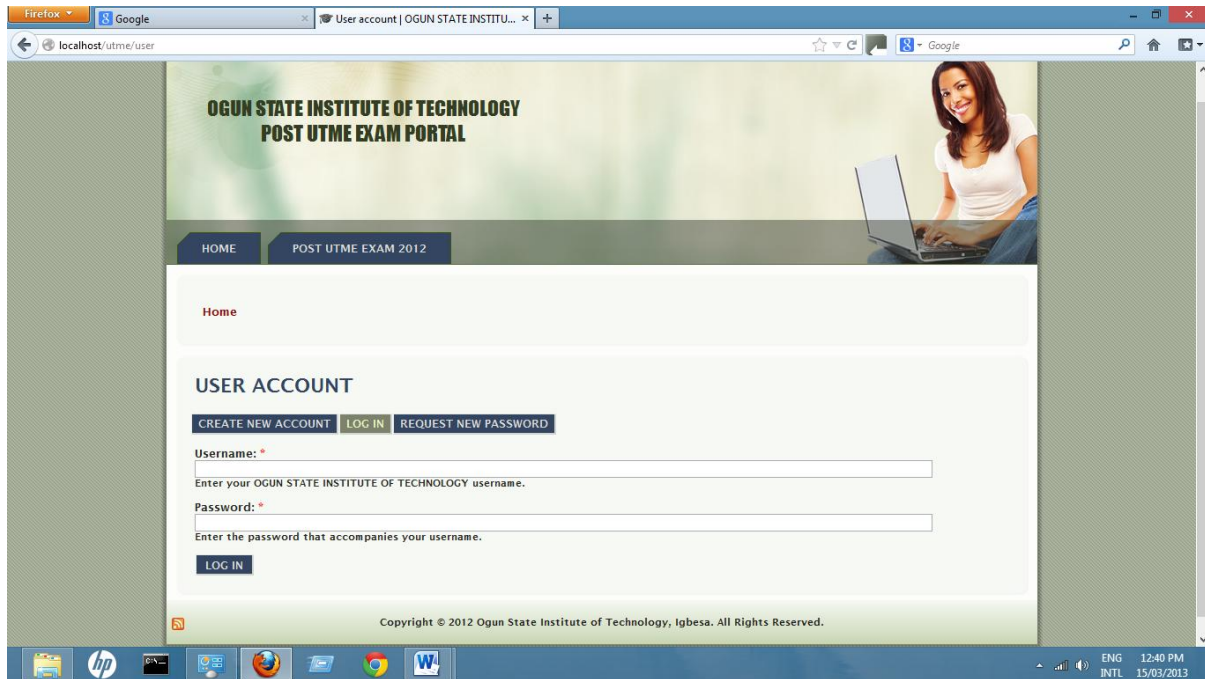
Fig.: The User Log In Page

Other users apart from the entrance students need to log In their useranme and password before they can get access to the test. While, the entrance students log In by there names and the password in the small slip given to them. After this, the student can now have access to their test.

Fig.: The Start quiz Page

The start quiz page is the next page after a student has entered his/her Username and Password and log In. The page gives summary of information on what the examination contains and the time allowed. Once student clicks on Start quiz the first set of question is displayed and the time starts counting.
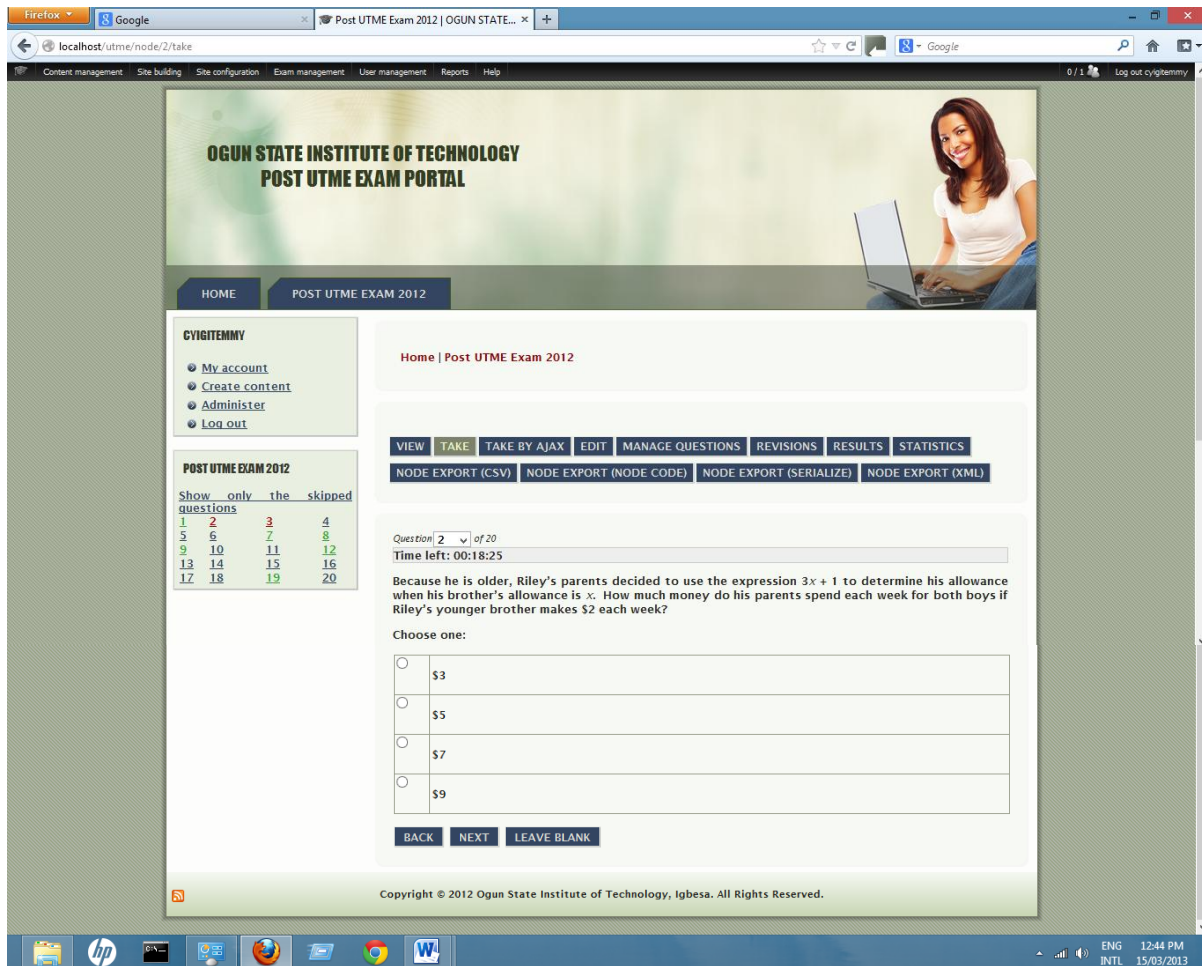
Fig.:Sample Test Page

This page shows a sample page of one set of test question. The test page was designed in a flexible way, where student can decide to choose any number he/she wants to answer, it was made so because of the awareness that most of the students are not computer literate as they are not exposed to such mode of examination. There are twenty questions to be answered in 20 minutes.

SUMMARY, CONCLUSION AND RECOMMENDATION:

The immense benefits of using Web Based Testing Application for an entrance examination in our institution are highly appreciated. Before now examination was done manually and representative from each department needed to be present in the exam hall to invigilate. Moreso, once the examination is over, the representative took his/her departmental scripts for making because the students' scores must be given to the admission committee the same day which they will use to determine the students that will be admitted. The advent of this web-based testing has made work easier because once the students submitted their tests, there results are known. Although, the school does not make their results known to them after the submission of the test but communicates with them later because the school forbids students' negative reactions which may lead to psychological problems as a result of failed scores.

It now concluded that the application of this Web-based Testing in our Institution would be improved upon in other to get better result and to meet future challenges if any springs up.

This application was implemented on a WAMP technology where the administrators Laptop was used as a Localhost and since the school is an ICT based with internet facilities made ready; the school does not have much to spend on the maintenance of the application.

I therefore recommend that a future research could be made on the following;

1.   To evaluate the psychological effects of students' reactions to Web based testing or Online Examination.

2   To examine the performance of students as to their reaction to Web based testing or examinations

3   And, to evaluate students' performance on Web based testing over traditional mode of taking examination if there will be an increase performance.

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