Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020

COURSE NAME	:	BUILDING AND STRUCTURE DEMOLITION
COURSE CODE	:	BNC 41303
PROGRAMME CODE	:	BNB / BNC
EXAMINATION DATE	:	DECEMBER 2019 / JANUARY 2020
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

Q1 (a) Demolition work is important and dangerous in construction industries. In order to do the demolition work, a demolition survey should be conducted first at the construction site. Explain the function of demolition survey.

(2 marks)

(b) The basic utilities for safety and healthy working environment during demolition work is required. For example, temporary water supply to support the demolition work. Define the other **THREE (3)** temporary elements that required.

(3 marks)

(c) Blasting is one of the most dangerous demolition methods in construction industry. Kindly compose the general concerns and good practices in controlled demolition by using blasting method.

(15 marks)

(d) Fire precautions in demolition site is one of the crucial parts to be considered. Please classify **FIVE (5)** items about this safety consideration.

(5 marks)

Q2 (a) Temporary propping system shall be used to support the operation of the mechanical plant, or other loading during the demolition process on a suspended floor. Analyze an important thing for the erection and dismantling of temporary supports in demolition works.

(8 marks)

(b) Apart from instilling the importance of safe culture to workers, plant and/or equipment operators, discover **SIX (6)** safety precautions that should be trained by competent instructors which is crucial for demolition works.

(6 marks)

(c) Demolition work will cause vibration to neighbouring buildings or structures to various extents, depending on the method of demolition. The most serious vibration is caused by implosion. Categorise **FOUR (4)** effects of vibration caused by implosion.

(4 marks)

(d) Inspection and maintenance of scaffolding for deconstruction works shall be performed by competent person who is registered with DOSH. Summarize the required inspection criteria for the scaffold before it can be used on site.

(7 marks)

Q3 (a) You are working as an Engineering Technologist with one of the best demolition contractors in Kuala Lumpur. The demolition process is divided into three stages which is before, during and after demolition. Design the demolition checklist form for activities during demolition and after demolition.

(20 marks)

(b) Mechanical method by pusher arm involves the use of machines equipped with a pusher arm attachment for applying horizontal thrust to demolish the structural element. Please point out **FIVE (5)** special conditions for pusher arm demolition.

(5 marks)

PART B

Q4 Answer the question about Building and Structure Demolition Terminology and solve the crossword puzzle. The space between two words are excluded.

Across

1. Dumping site approved by the government for receiving suitable construction and/or demolition waste for reclamation and land formation projects.

4. Tension members providing support to a hanging structure.

8. Temporary fence enclosure erected along the site boundary to separate the demolition site from the adjacent properties.

9. Appropriately qualified and competent person appointed to be in immediate control of the shotfiring operations which include checking to ensure that the blasting specification is still appropriate for the site conditions at the time blasting is to take place; mixing explosives; priming a cartridge; charging and stemming a shothole; linking or connecting a round of shots; withdrawal and sheltering of persons; inspecting and testing a shotfiring circuit; firing a shot; and checking for misfires.

11. A person, who have sufficient experience and trained to carry out and perform a specific task.

13. The walls that separate two adjoining building.

14. Group of shots fired in one operation

15. A temporary structure erected with protective roof along the site boundary, on or adjacent to the existing footpath to protect pedestrians from the falling debris during demolition.

20. A light well which does not provide either natural ventilation through openings at both top and bottom, or mechanical ventilation that allows circulation of air.

23. Cartridge or cast primer of explosive or other material into which one or more detonators or detonating cord is inserted or attached, in order to initiate or boost a larger charge.

24. Initiator for explosives materials that contains a charge of high explosive fired by means of a flame, spark, electric current (including an electronic signal) or shock tube.

Down

2. An inspection carried out on the building and its surroundings. Its aim is to spot any potential problems that may arise during demolition and for developing a method statement for demolition.

3. It should be accompanied by demolition plan which includes stability checking, calculations for the building to be demolished, its supports, if any, the adjoining properties and the loading due to powered mechanical plants, or equipment.

5. An inspection carried on the structural condition of the existing surrounding buildings before the commencement of demolition, construction or development. All prominent defects in the form of cracks, settlement, water seepage, corrosion of reinforcement, subsidence and other building defects will be recorded in photographs together with notes.

6. Temporary structure erected around and attached to or abutting the exterior wall of the building being demolished for the purpose of catching and retaining debris that fall outside the building.

7. A person who has experience in blasting works and has obtained permission as well as approval from Polis Di Raja Malaysia (PDRM) to carry out blasting works at a specific site.

10. Plan to undertake a demolition work without creating risks, and to execute it in a safe and orderly manner, requires careful planning of each stage of the demolition.

11. An entity who is registered with CIDB under the category of demolition work or such entity approved by CIDB.

12. A professional engineer registered with the Board of Engineers Malaysia under the category of civil or structure.

16. The vertical distance measured from the top most part of the building to be demolished to the lowest ground level.

17. An unconventional structure that is supported from above by tension members such as suspended cables, tie rods or other means.

18. Temporary structure erected on top of the covered walkway or underneath the structures that are being demolished including, but not limited to, balconies and cantilevered structures for the purpose of catching and retaining debris and to protect the area beneath such structures being demolished.

19. Dismantling, razing, destroying or wrecking any building, structure or any part thereof by preplanned and controlled methods.

21. Demolition with the use of explosives, in which, the building debris falls inwards or in a controlled manner.

22. A person who has acquired adequate knowledge and experience in building implosion through training and practical experience and is competent in taking up the full responsibility to design, organise and control building implosion.

(25 marks)

– END OF QUESTIONS –

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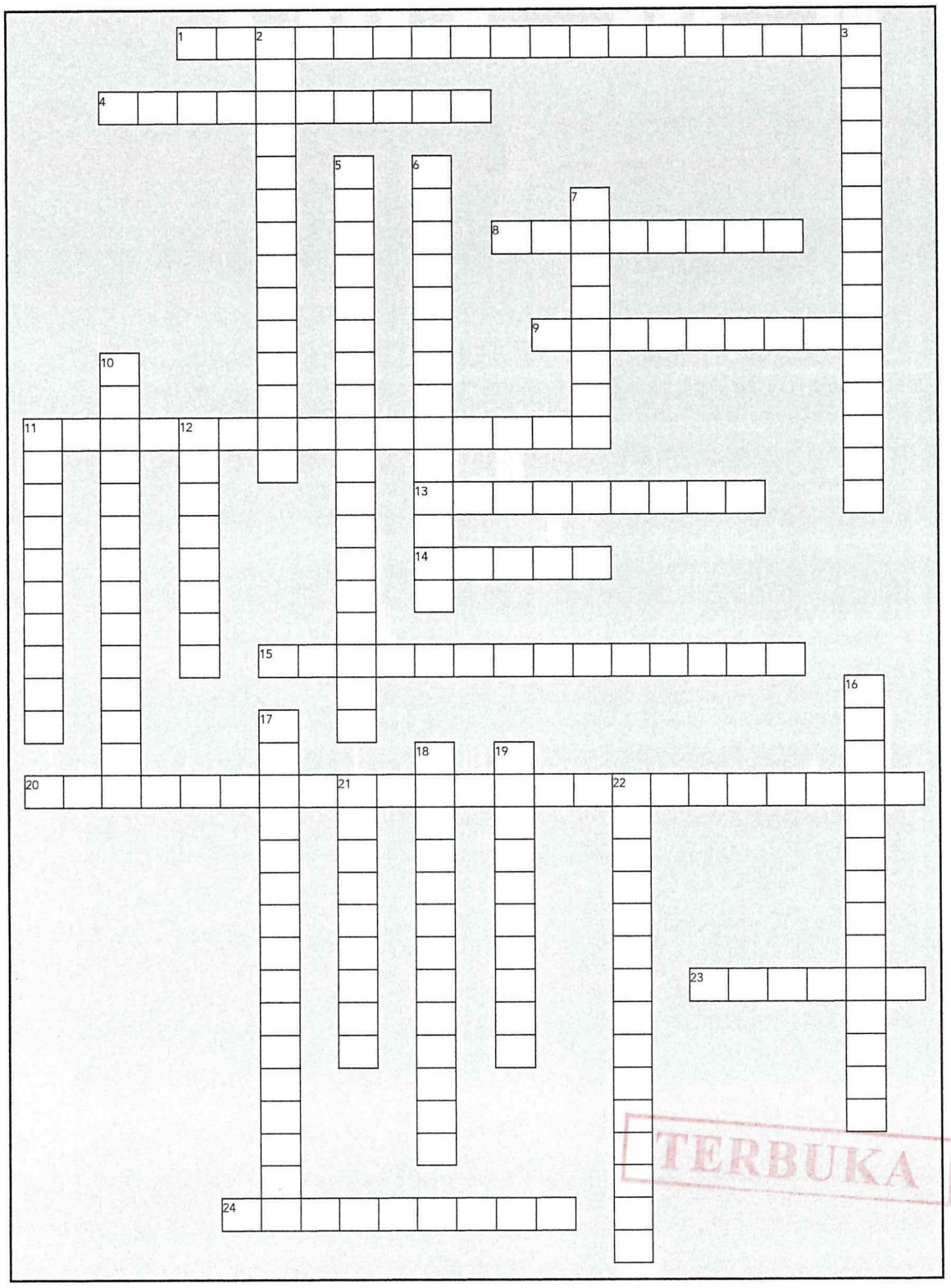

Figure Q4