UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE

RESIT EXAMINATION

TITLE OF PAPER	ENVIRONMENTAL IMPACT ASSESSMENT
COURSE CODE	EHS448
DURATION	TWO HOURS
DATE	JULY 2019
TOTAL NUMBER OF MARKS	100
INSTRUCTIONS	1. DO NOT OPEN THIS PAPER UNTIL YOU ARE INSTRUCTED TO DO SO. 2. ANSWER QUESTION ONE AND ANY OTHER THREE QUESTIONS. 3. BEGIN YOUR ANSWERS TO EACH QUESTION ON A FRESH PAGE. 4. POOR HANDWRITING AND CARELESSNESS IN ENGLISH LANGUAGE GRAMMAR SHALL RESULT IN LOSS OF MARKS. 5. ANY FORM OF MISCONDUCT DURING THE EXAMINATION IS PUNISHABLE IN LINE WITH RELEVANT ACADEMIC REGULATIONS.

QUESTION ONE [25 MARKS]

1. For the loss of privacy, quietness and safety in houses next to a new road, the provision of sound insulation and/or the purchase by the developer of badly affected properties. This is an example of;
   (a) Compensation for distributional effects
   (b) Compensation for longitudinal effects
   (c) Compensation for adverse effects
   (d) A method to avoid impacts
2. A river or stream diverted by a road project can be unconverted and re-established with similar flow patterns as far as is possible. This is an example of;
   (a) Compensation for adverse effects
   (b) Methods to reduce adverse effects
   (c) Methods to avoid impacts
   (d) Repair, rehabilitate and/or restore methods
3. The use of construction-site hostels, and coaches for journeys to work are examples of;
   (a) Methods to reduce adverse effects
   (b) Repair, rehabilitate and/or restore methods
   (c) Compensation for adverse effects
   (d) Methods to avoid adverse effects
4. The use of a designated lorry route, and day-time working only, the establishment of buffer zones, etc., are examples of;
   (a) Methods to reduce adverse effects
   (b) Methods to avoid adverse effects
   (c) Repair, rehabilitate and/or restore methods
   (d) Compensation for adverse effects
5. Predicting impacts to terrestrial ecology (animal and plant species) can be achieved by adopting;
   (a) Mixed-modelled impacts
   (b) Hard-modelled impacts
   (c) Soft-modelled impacts
   (d) Gaussian dispersion model
6. Predicting air and noise impacts that are associated with a proposed development can be achieved by adopting;
   (a) Soft-modelled impacts
   (b) Mixed-modelled impacts
   (c) Gaussian dispersion model
   (d) Hard-modelled impacts
7. The simplest impact identification methods involve the use of;
   (a) Lists of impacts
   (b) Networks
   (c) Causal chain analysis
   (d) GIS maps
8. The most complex impact identification methods include the use of;
   (a) Lists of impacts
   (b) Interactive computer programmes
   (c) GIS maps
   (d) Delphi panels

9. A disadvantage of one of the impact identification methods is that it does not usually include direct cause-effect links to project activities. This method is;
   (a) Delphi panels
   (b) GIS mapping
   (c) Checklists
   (d) Qualitative methods
10. An advantage of one of the impact identification methods is that it is easy to use. This method is;
   (a) Delphi panels
   (b) GIS mapping
   (c) Qualitative methods
   (d) Checklists
11. One impact identification method operates by providing a scale for classifying estimated impacts, from highly adverse to highly beneficial. This method is;
   (a) Questionnaire checklist
   (b) GIS mapping
   (c) Weighted matrices
   (d) Distributional questionnaires
12. Various components of a development project (e.g. construction, operation, decommissioning; buildings, access road) have different impacts. An impact identification method that represents this is;
   (a) Qualitative matrices
   (b) Matrices
   (c) Quantitative matrices
   (d) Distributional matrices
13. Various components of a development can have positive and/or negative impacts on various components of the environment. An impact identification method that represents this is;
   (a) Weighted matrices
   (b) Qualitative matrices
   (c) Magnitude matrices
   (d) Quantitative matrices
14. From the same project, some sectors of the public might experience positive impacts and others might experience negative impacts. An impact identification method that represents this is;
   (a) Case by case checklists
   (b) Cost benefit analysis
   (c) Area-based distributional impacts
   (d) Distributional impact matrices
15. A major downside of one of the impact identification methods is that it requires considerable knowledge of the environment. This is;
   (a) Networks
   (b) Checklists
   (c) Questionnaires
   (d) Qualitative matrices
16. Consider the following: a change in the quality of drinking water, in comparison with changes in community stress. In impact prediction, this requires an understanding of;
   (a) Reversible impacts
   (b) Quantitative and qualitative impacts
   (c) Water pollution control
   (d) Community empowerment

17. They work backwards from desired outcomes to assess whether a project, in its environmental context, is adequate to achieve them (desired outcomes). These are;
    (a) Extrapolative approaches
    (b) Mathematical approaches
    (c) Normative approaches
    (d) Computer-based approaches
18. The use of scientific laws, computer models, statistical analysis is a predominant practice in;
    (a) Cost-benefit analysis
    (b) Monetary valuation techniques
    (c) Planning balance sheet (PBS)
    (d) Mathematical models
19. The choice of discount rate is a disadvantage of;
    (a) Cost-benefit analysis
    (b) Mathematical models
    (c) Multi-criteria decision analysis (MCDA)
    (d) Planning balance sheet (PBS)
20. Some problems associated with the cost-benefit analysis approach to evaluation can be eased by the application of;
    (a) Multi-criteria decision analysis (MCDA)
    (b) Planning balance sheet (PBS)
    (c) Goals achievement matrix (GAM)
    (d) Multi-attribute utility theory (MAUT)
21. In classification of mitigation measures, abatement on site is an example of;
    (a) Project phase
    (b) Levels of mitigation
    (c) Mitigation hierarchy
    (d) Understanding environmental baseline
22. In classification of mitigation measures, project management measures are an example of;
    (a) Mitigation hierarchy
    (b) Project phase
    (c) Understanding environmental baseline
    (d) Levels of mitigation
23. In classification of mitigation measures, restoration, afteruse/aftercare are examples of;
    (a) Project phase
    (b) Mitigation hierarchy
    (c) Levels of mitigation
    (d) Understanding environmental baseline
24. The basic evaluation principle is to measure in monetary terms where possible. This is a principle of;
    (a) Planning balance sheet (PBS)
    (b) Cost-benefit analysis (CBA)
    (c) Community impact evaluation (CIE)
    (d) Multi-attribute utility theory (MAUT)

25. They can be simple or complex, formal or informal, quantitative or qualitative, and aggregated or disaggregated. This refers to;
    (a) Impact prediction methods
    (b) Mitigation methods
    (c) Evaluation methods
    (d) Methods for enhancement of potential benefits

QUESTION TWO [25 MARKS]

1. State the five categories of impact identification methods [5].
2. State any five criteria for significance of impacts/determinants of environmental significance [5].
3. For each of the tables given below; state the method and describe any two operating principles of the method.

Table 1

Environmental component	Project action				
	Construction		Operation		
	Utilities	Residential and commercial buildings	Residential buildings	Commercial buildings	Parks and open spaces
Flora	X	X			X
Air quality				X	
Traffic	X	X	X	X	

[5]

Table 2

Environmental component	Project action				
	Construction		Operation		
	Utilities	Residential and commercial buildings	Residential buildings	Commercial buildings	Parks and open spaces
Flora	Orange	Red			Deep green
Air quality				Orange	
Traffic	Orange	Orange	Orange	Red	

[5]

4. Conducting an EIA process requires different approaches due to the diversity of situations that might be present on the ground. For each of the situations described below, state the most relevant style [5].
    (a) The need for scientific analysis in decision making
    (b) Conducting an EIA in a free and reasonable manner, where views are not overly polarised
    (c) Conducting an EIA in polarised situations where resources are limited and where relatively little data exists
    (d) Proponents are willing to delegate their decision-making authority to representatives
    (e) Conducting an EIA where issues such as fairness, equity and justice predominate.

QUESTION THREE [25 MARKS]

1. What is EIA? [3]
2. What is the scope of an EIA? [3]
3. What is the process of scoping? [3]
4. Describe any four benefits of scoping in EIA [8].
5. State any six categories and/or types and/or groups of people that should participate in the scoping process [6].

6. Generally, good practice in scoping is to bring all affected and/or concerned people into a meeting with developers. One of the impact identification methods is then used to structure and/or guide discussions. State any two desirable results that should be achieved during this meeting [2].

QUESTION FOUR [25 MARKS]

1. State any six desirable skills of a team project manager in an EIA process [6].
2. State any five core roles of a project manager in EIA [5].
3. State any six types of alternatives [6]
4. Describe any three benefits of considering alternatives in EIA [6].
5. What is an EIS? [2]

QUESTION FIVE [25 MARKS]

1. The quality and reliability of environmental data vary a great deal, and this can influence the use of such data in the assessment of impacts. What is hard data, intermediate data, and soft data? [6]
2. State any two examples of sources of legislation that have accelerated the adoption and application of EIA in Europe [2].
3. It is said that the introduction of EIA met strong resistance from planners, developers and other sectors in the UK when it was first introduced. Describe some of this resistance [3].
4. State any four types of checklists [4].
5. State any ten aspects that should be considered in impact prediction [10]