

SECTION A

[80 MARKS]

1. Research conducted must take only into consideration the availability of fund. **F**
2. A scientific research is an investigation that is controlled. **T**
3. A scientific research assumes that behavior is random.
4. A high quality research should be based on work by others. **T**
5. Understanding the appropriate research method is important for researchers because methods used should differ from others. **F**
6. Patent filling is one of the critical steps in the cycle of research process. **F**
7. Problem formulation is expected to be the easiest aspect of research. **F**
8. Identifying the appropriate research question is difficult because general questions will need to be trimmed to be more specific. **T**
9. Literature review will be useful in finding appropriate techniques to apply. **T**
10. Simulation technique is classified as qualitative research technique.
11. Experiment is classified as quantitative research technique. **T**
12. One of the definitions of research (based on Webster) is an investigation or an experimentation. **T??**

13. The main motivation behind doing research is to study, explore knowledge define clear objectives. T
14. The research discipline is **NOT** significant in research design. F
15. The final report should include the research objectives. T
16. Plagiarism is considered a serious issue because it is difficult to detect. F
17. A good literature review is an annotated bibliography constructed in an arbitrary way.
18. Completing postgraduate program will be beneficial to you because it guarantees a better salary. F
19. Peer review can be defined as evaluation of work done by one's superiors. F
20. Literature is a collection of all the scholarly writings on a topic.
21. Literature review is a systematic method for emphasizing, identifying and evaluating the work produced by researchers, scholars and practitioners. T
22. One of the main reasons for reviewing the literature is to identify the necessity and rationale of the study.
23. The range of literature to explored includes background material which is of broadly relevant to the studies. T
24. Research does **NOT** improve one's writing skills. F
25. Existing theory is a statement of the state-of-the-art. T

26. The purpose of having a theme(s) in the literature review is to make the work convincing. F
27. Setting the scene is outlining what the researcher is going to talk or write about. T
28. A literature review should only be a summary of relevant literature to the proposed research. T
29. There are a lot of flexibility in the way of writing a literature review that include chronologically, thematically, or methodologically. T
30. Researcher should need to include relevant references, including some key notes when defending the research proposal. T
31. Study plan is a roadmap to prepare a researcher in embarking for the research journey. T
32. A "gap in the literature" means that there is an incomplete or missing link in the existing work within the selected topic. T
33. Any critical review should incorporate an assessment of the strengths and weaknesses of the related theories. T
34. Good time management will always lead to the expected experimental results. F
35. Project planning and management should be dynamic and have regular, fixed review of progress. T
36. One role of the student is to ensure a realistic final research goal. T

37. Equipment breakdown can be considered as one of the possible constraints of a project. F
38. The "rules and regulations" is one of the project management tools. F
39. Unclear project scope can be considered a source of risk in research. T
40. Gantt charts are useful tools for analyzing and planning complex projects, which allows proper resources allocation needed to complete the project. T
41. Displacements are potential time wasters. T
42. Students should present their results and interpretations during regular meeting with his/her supervisor. T
43. Failure is example of harm that result from uncontrolled hazard. F
44. Risk is the combination of the probability of outcome and the severity of the risk.
45. Hazard is the uncontrolled harm that results from risks. T
46. Unsafe condition and unsafe acts are the two main causes of incidents at the workplace. T
47. Corrosive chemical is unstable in the presence of water. F
48. In the event of fire, heat and smoke will go to the highest point of the room. T
49. Class A fire extinguisher is designed for fire caused by electrical equipment. F

50. Approaching fire from an upwind direction is the correct procedure of firefighting. **F**
51. To operate a fire extinguisher, the acronym **P.A.S.S.** is often used to help us to remember to: **F**
- Pump the tank,
 - Attack at the base of the fire,
 - Squeeze the handle
 - Sweep at the base of the fire.
52. The idea behind ergonomics is to adapt the worker to the environment.
53. Musculoskeletal injuries affects the joints, muscle and spine. **T**
54. Design flaw on a walking surface can be a primary cause for falls. **T**
55. Hard hats, face shields, safety goggles, safety boot are examples of Personal Protection Equipment (PPE) which can be used to protect against falling and/or accelerating objects. **T**
56. A person who is exposed to low voltage is not at risk. **T??**
57. A storage tank containing petrol has caught fire. Water is the most effective medium to extinguish fire in this situation. **F**
58. It is important to check for danger first before giving first aid to a victim. **T**
59. Based on HSE requirements, safety must be a priority at all times. **T**
60. Music is a form of Intellectual Property (IP) that can be protected under the copyright laws. **T**

61. Prior art, in the context of IP management, means anything that has been disclosed to public. T
62. Protection for ideas can be obtained under the patent laws. ??
63. Patent specification is expected to be completed before a patent right is finally granted. T
64. Registered copyright grant the author exclusive right to the creation for the duration of 50 years. F
65. Formula maybe protected under copyright laws. T
66. Integrity and honesty are principles of a responsible research. T
67. Responsible researchers must cite proper authorities and references.
68. Making mistake(s) in experiments is a common ethical issue arising from research activities. F
69. Biological process and business methods are examples of non-patentable items. T
70. The UTP publication policy guideline states that authorship is granted based on substantial contribution in research and the approval the final manuscript and copyright transfer. T
71. Author order should be decided based on seniority. F
72. Clear indication of citations and quotations helps avoid inadvertent plagiarism. T

73. Borrowing ideas from others without proper acknowledgements is considered an academic misconduct. T
74. Utility invention, in the context of patent protection, refer to industrial design that improves efficiency. T
75. Research ethics committee of any institutions would be expected to deliberate and decide on cases referred to the committee. T
76. Research that involves human is required to obtain an informed consent (in writing or verbal) from the subject of research. T
77. Authorship should be granted solely based on the preparation of document. T
78. Responsible researchers are expected to claim all findings as original. F
79. Misrepresentation of result and conflict of interest are common ethical issues in research. T
80. Ethical issue in publication includes political correctness.

SECTION B**[20 MARKS]**

For questions 81 - 88, state the most suitable method of data collection that you would use to collect data for each study.

- A. experiment B. observational study E. telephone interview
C. mail survey D. focus group survey

81. A study on the socio-economic status (income level, expenditure level, etc.) of 5,000 people living within 500 kilometers of your home. This study will be conducted by you alone. **C**
82. A study on the effectiveness of a new test drug in lowering blood pressure. Two groups of patients were selected, one group was given the new drug and the other a placebo. **A**
83. A cohort study of selected individuals over time to see who developed diabetes over the study period. **B**
84. Collecting data on customer satisfaction with the service provided by a major airline. Several frequent flyer passengers were called in to give their views. **D**
85. Collecting data on the potential marketability of a brand of shampoo by interviewing a group of expert market researchers. **D**
86. Collecting data on patient health information in a pre-specified hospital who were admitted for dengue fever between Jan 2015 and June 2015. **B**
87. Collecting additional information as quickly as possible on candidates who applied for a job position in a company. **E**

88. The introduction of planned change on one or more of the variables; measurement on a small number of variables and control of other variables.

For questions 89 - 90, state the type of study for each question.

- | | |
|------------------------|--------------------------|
| A. Quantitative study | B. Self-completion study |
| C. Questionnaire study | D. Qualitative study |

89. A study is based on 30 people (across three focus groups) C
90. A study is based on 1000 students interviewed face to face in a university.

For questions 91 - 93, state the most suitable sampling method for each study.

- | | |
|-------------------------|---------------------|
| A. Convenience sampling | B. Random sampling |
| C. Systematic sampling | D. Cluster sampling |

91. People who are available, volunteer, or can be easily recruited are used in the sampling method called A.
92. What is the best sampling methods to select a group of people for a study if you are interested in making statements about the larger population? B
93. Determining the sample interval (represented by k), randomly selecting a number between 1 and k, and including kth element in your sample are the step of C.

For questions 94 - 95, state the most suitable answer for each question.

A. Stratification variable

B. A parameter

C. Independent variable

D. Sampling variable

94. If we took the 500 people attending a school in New York City, divided them by gender, and then took a random sample of the males and a random sampling of the females, the variable on which we would divide the population is called A.

95. A number calculated with complete population data and quantifies a characteristic of the population is called B.

Questions 96 and 97 are based on the information in TABLE 1

TABLE 1

Period in 2014	Sales (in RM '000)
1st Qtr	8.4
2nd Qtr	3.6
3rd Qtr	1.2
4th Qtr	1.2

96. If this information is to be represented using a pie chart, the sector that corresponds to the largest sale value will comprise of how many degrees out of 360° ?
- a. 210° ✓
b. 150°
c. 300°
d. None of the above
97. What conclusion can be drawn from the data in the given table for the year 2014?
- a. Sales are improving over time
b. Sales are deteriorating over time ✓
c. Sales are constant over time
d. None of the above

$$\frac{8.4}{14.4} \times 360 = 210$$

For questions 98 – 100, state the most suitable statistical techniques that you would use to analyze for each case.

- A. Correlation test
- C. Independent t-test
- E. Chi-square

- B. Multiple regression
- D. Analysis of variance (ANOVA)

98. Suggest the test required for understanding association between two metric (quantitative) variables. *A*
99. We want to know whether a set of independent variables have impact on a dependent variable. *B*
100. We want measure a relationship between a metric (quantitative) variable and non-metric (qualitative) variable. The non-metric (qualitative) variable consists of four categories. *D*

- END OF PAPER -

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