

**Form 5: Chapter 3**  
**Consumer Mathematics: Insurance**  
**Fully-worked Solutions**

**UPSKILL 3.1**

- 1 Age, gender, occupation, health, duration of coverage and type of policy
- 2 (a) The cost of treatment for the right foot of the motorcyclist, the cost of repairing his motorcycle and the cost of repairing Mr Sim's car.  
 (b) The cost of treatment for the right foot of the motorcyclist and the cost of repairing his motorcycle only.
- 3 Education insurance is a type of endowment insurance. In addition to providing protection, this policy allows parents to save money for their children's higher education. In the event of death of parents, payments will continue to be made to these children to cover their higher education costs without having to pay the premiums of the policy.
- 4 (a) At the age of 55, the number of policy years is 25. Hence, the bonus is RM143 319.50  
 (b) At the age of 60, the number of policy years is 30. Hence, the total amount of money received by Encik Tony's his beneficiary  
 = RM250 000 + RM212 902.10
- Sum insured

Bonus
- = RM462 902.10
- (c) The sum insured for critical illnesses is RM125 000.
- 5 Amount of compensation  
 = RM(2 000 – 200) = RM1 800
- 6 Deductible is the amount that the policyholder has to pay for medical expenses before the insurance company starts to pay while the co-insurance is the cost sharing between the policy holder and the insurance company (in percentage) for the remaining medical expenses after the insured pays all deductibles.  
 Subramaniam has to pay the first RM4 000 plus  $\frac{20}{100}(25\,000) - 4\,000 = \text{RM}4\,200$ .  
 Hence, Subramaniam has to pay an amount of RM4 000 + RM4 200 = RM8 200.

7 (a) Amount of required insurance

$$= \frac{80}{100} \times 450\,000 = \text{RM}360\,000$$

Amount of required insurance  
 = Percentage of co-insurance × Insured value of the house

(b) (i) Amount of compensation

$$= \text{RM}50\,000 - \text{RM}5\,000$$

$$= \text{RM}45\,000$$

Amount of loss – Deductible

(ii) Amount of compensation

$$= \frac{200\,000}{360\,000} \times 50\,000 - 5\,000$$

$$\left( \frac{\text{Amount of insurance purchased}}{\text{Amount of required insurance}} \times \text{Amount of loss} \right) - \text{Deductible}$$

$$= 27\,777.78 - 5\,000$$

$$= \text{RM}22\,777.78$$

Co-insurance penalty

$$= 50\,000 - \frac{200\,000}{360\,000} \times 50\,000$$

Amount of loss -

$$\frac{\text{Amount of insurance purchased}}{\text{Amount of required insurance}} \times \text{Amount of loss}$$

$$= 50\,000 - 27\,777.78$$

$$= \text{RM}22\,222.22$$

(c) Percentage of co-insurance penalty

$$= \frac{22\,222.22}{50\,000} \times 100$$

$$= 44.44\%$$

(d) Amount of compensation

$$= 250\,000 - 5\,000$$

$$= \text{RM}245\,000$$

8 (a) Based on the table, the premium rate is RM2.36

Annual premium

$$= \frac{200\,000}{1\,000} \times 2.36$$

$$= \text{RM}472.00$$

(b) The coverage of critical illness policy

$$= \frac{30}{100} \times 200\,000$$

$$= \text{RM}60\,000$$

Additional premium

$$= \frac{60\,000}{1\,000} \times 1.77$$

$$= \text{RM}106.20$$

- 9 (a) Destination, period of travel and the number of people insured.  
 (b) Annual travel insurance because it is cheaper.

### Summative Practice 3

#### Multiple-Choice Questions

- 1 Life insurance is not subject to the principle of indemnity.  
*Answer: B*
- 2 The insurance policy that is not subject to the principle of indemnity is life insurance.  
*Answer: D*
- 3 The maximum percentage of for No Claim Discount is 55%.  
*Answer: C*
- 4 Insurance is not a tool to make profit. The relevant policy is the principle of indemnity.  
*Answer: B*
- 5 An insurance company can afford to pay large amount of compensations even though the premium collected is low. The related principle is the risk accumulation principle.  
*Answer: A*
- 6 An individual who wants to buy a life insurance must provide true and accurate information in the proposal form. The related policy is absolute trust principle.  
*Answer: C*
- 7 The third party insurance does not include passengers.  
*Answer: A*

#### Structured Questions

- 1 (i) An individual with a car is at risk from accident and theft. Through insurance coverage, the individual can reduce the loss suffered if the risk occurs.  
 (ii) A head of a family has a responsibility towards his wife and children. A family

head faces risks such as death and disability. If this risk occurs suddenly, his wife and children will lose their source of dependence. With insurance, family members will receive compensation from insurance company. They can continue living through the compensation money.

- 2 Risks faced by insured are collected and disseminated among them so that the risks encountered can be minimised. The premiums paid by the policyholders are contributions to the general fund that will be managed by the insurance organisation by making profitable investments so that the fund will increase. Based on the analysis of actuarial statistics, from the vast majority of people at the same risk, only a small number of policyholder will suffer losses and claim from the insurance company in the event of damages which is taken from the general fund.

#### SPM SPOT

- 1 Compensation =  $\text{RM}(1\,550 - 350)$   
 $= \text{RM}1\,200$   
*Answer: B*
- 2 Compensation =  $\text{RM}(150\,000 - 5\,000)$   
 $= \text{RM}145\,000$   
*Answer: C*
- 3 Let the actual medical cost =  $\text{RMC}$ .  
 $650 + \frac{25}{100}(C - 650) = 6\,737.50$   
 $\frac{1}{4}(C - 650) = 6\,737.50 - 650$   
 $\frac{1}{4}(C - 650) = 6\,087.50$   
 $C - 650 = 6\,087.50 \times 4$   
 $C - 650 = 24\,350$   
 $C = 25\,000$   
 Hence, the actual amount of the medical cost is  $\text{RM}25\,000$ .