

**ANNEXURE G: SOLUTION FOR QUESTION 3****Object class**

```

unit Player_U;

interface

uses StdCtrls, SysUtils;

type
  TPlayer = class(TObject)

    //Provided code - do not modify
  private
    fPlayerName: String;
    fWeightOfPlayer : real;
    fScore : integer;

  public
    constructor create(sPlayerName : String; rWeightOfPlayer : real);
    function getScore : integer;
    function calculateBMI (rHeightOfPlayer : real) : real;
    procedure updateScore (iScore : integer);
    function eligibleForSelection: String;
    function toString : String;
  end;

```

```

implementation

```

```

{ TPlayer }

```

```

=====
Question 3.1.1 = 4 marks
=====

```

```

constructor TPlayer.create(sPlayerName : String; rWeightOfPlayer :
real);
begin
  fPlayerName := sPlayerName;
  fWeightOfPlayer := rWeightOfPlayer;
  fScore := 0;
end;

```

```

=====
Question 3.1.2 = 2 marks
=====

```

```

function TPlayer.getScore: integer;
begin
  result := fScore;
end;

```

```

=====
Question 3.1.3 = 3 marks
=====

```

```

procedure TPlayer.updateScore(iScore: integer);
begin
  fScore := fScore + iScore;
end;

```

## =====

**Question 3.1.4 = 3 marks**

```
=====
function TPlayer.calculateBMI(rHeightOfPlayer: real) : real;
begin
    Result := fWeightOfPlayer / sqr(rHeightOfPlayer);
end;
```

## =====

**Question 3.1.5 = 4 marks**

```
=====
function TPlayer.eligibleForSelection: String;
begin
    if fScore < 8 then
        result := 'Low possibility'
    else
        if fScore < 15 then
            result := 'Medium possibility'
        else
            result := 'High possibility'
end;
```

## =====

**Question 3.1.6 = 4 marks**

```
=====
function TPlayer.toString : String;
begin
    result := 'Name: ' + fPlayerName + #13 + 'Weight: ' +
FloatToStr(fWeightOfPlayer)+ #13+ 'Current score is: ' + intToStr
(fScore);
end;
end.
```

**Main Form Unit**

```
unit Question3_U;

interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls,
  Forms, Dialogs, StdCtrls, Player_U, ComCtrls, ExtCtrls, Spin, DateUtils;

type
  TfrmQuestion3 = class(TForm)
    lblNameOfPlayer: TLabel;
    edtNameOfPlayer: TEdit;
    btnQ3_2_2: TButton;
    redQ3_2_2: TRichEdit;
    lblLatestScore: TLabel;
    pnlQ3_2_3: TPanel;
    btnQ3_2_3: TButton;
    btnQ3_2_1: TButton;
    rgpQ3_2_3: TRadioGroup;
    btnQ3_2_4: TButton;
    lblQ3_2_4: TLabel;
    Label1: TLabel;
    edtWeightOfPlayer: TEdit;
    Label3: TLabel;
    grpQ3_2_1: TGroupBox;
    grpQ3_2_2: TGroupBox;
    grpQ3_2_3: TGroupBox;
    grpQ3_2_4: TGroupBox;
    procedure btnQ3_2_2Click(Sender: TObject);
    procedure btnQ3_2_3Click(Sender: TObject);
    procedure btnQ3_2_1Click(Sender: TObject);
    procedure btnQ3_2_4Click(Sender: TObject);
    // procedure FormCreate(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  frmQuestion3: TfrmQuestion3;
  // variables already declared
  objPlayer : TPlayer;
implementation

{$R *.dfm}
```

## =====

**Question 3.2.1 = 5 marks**

```
=====
procedure TfrmQuestion3.btnQ3_2_1Click(Sender: TObject);
var
    sPlayerName : String;
    rPlayerWeight : real;
begin
    sPlayerName := edtNameOfPlayer.Text;
    rPlayerWeight := StrToFloat(edtWeightOfPlayer.Text);
    objPlayer := TPlayer.create(sPlayerName,rPlayerWeight);
    ShowMessage('Player object has been instantiated');
end;
```

## =====

**Question 3.2.2 = 7 marks**

```
=====
procedure TfrmQuestion3.btnQ3_2_2Click(Sender: TObject);
var rHeightOfPlayer, rBMI : real;
    sBMI : String;

begin
    rHeightOfPlayer := StrToFloat(InputBox('Height of the player',
        'Enter the height of the player in meters: ',''));
    rBMI := objPlayer.calculateBMI(rHeightOfPlayer);
    sBMI := FloatToStrF(rBMI,ffFixed,3,1);
    redQ3_2_2.Lines.Add(objPlayer.toString);
    redQ3_2_2.Lines.Add ('BMI-index is '+ sBMI);
end;
```

## =====

**Question 3.2.3 = 6 marks**

```
=====
procedure TfrmQuestion3.btnQ3_2_3Click(Sender: TObject);
var
    iScore: integer;
begin
    iScore := StrToInt(rgpQ3_2_3.Items[rgpQ3_2_3.ItemIndex]);
    objPlayer.updateScore(iScore);
    pnlQ3_2_3.Caption :=('New current score: ' +
        IntToStr(objPlayer.getScore));
end;
```

## =====

**Question 3.2.4 = 2 marks**

```
=====
procedure TfrmQuestion3.btnQ3_2_4Click(Sender: TObject);
begin
    lblQ3_2_4.Caption := objPlayer.eligibleForSelection;
end;

end.
```